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## **Research Topic**

**Cannabis**

## **Research Subtopics**

**Cannabidiol**  
**Cannabinoids**  
**Delta-tetrahydrocannabinol (THC)**  
**Hemp Protein**  
**Hemp Seed**  
**Marijuana**

This Smart Search PDF was created based on **1** research topic. There are a total of **478** unique research articles on [GreenMedInfo.com](http://GreenMedInfo.com) in regard to your search topic, all compiled in this research document.

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Below you will find compelling research hard-referenced to peer-reviewed biomedical research sourced from the US National Library of Medicine. For more research on over 6000 validated topics, please visit <http://GreenMedInfo.com/research-dashboard>

## Overview of Terms Associated with Your Search Topic

278 Relevant Results for  
Diseases

Disease/Symptom	Cumulative Knowledge	Article Count
<b>Inflammation</b>	65	26
<b>Neurodegenerative Diseases</b>	21	16
<b>Multiple Sclerosis</b>	176	32
<b>Neuropathic Pain</b>	52	7
<b>Cancers: All</b>	47	33
<b>Breast Cancer</b>	30	19
<b>Glioma</b>	29	19
<b>Alzheimer's Disease</b>	20	11
<b>Brain Inflammation</b>	18	12
<b>Cancer Metastasis</b>	18	11
<b>Prostate Cancer</b>	9	9
<b>Myocardial Ischemia</b>	6	3
<b>Pain</b>	83	9
<b>Tourette Syndrome</b>	56	7
<b>Inflammatory Bowel Diseases</b>	35	10
<b>Insomnia</b>	33	4
<b>Morphine Tolerance/Dependence</b>	28	5
<b>Chronic Pain</b>	25	7
<b>Dementia</b>	23	4

<b>Glioblastoma Multiforme</b>	<b>23</b>	<b>9</b>
<b>Obsessive-Compulsive Disorder</b>	<b>23</b>	<b>4</b>
<b>Sleep Disorders</b>	<b>23</b>	<b>3</b>
<b>Bladder Dysfunction</b>	<b>22</b>	<b>3</b>
<b>Muscle Spasticity</b>	<b>22</b>	<b>3</b>
<b>Brachial Plexus Neuropathies</b>	<b>20</b>	<b>2</b>
<b>Diabetes Mellitus: Type 2</b>	<b>19</b>	<b>6</b>
<b>Obesity</b>	<b>18</b>	<b>6</b>
<b>Oxidative Stress</b>	<b>18</b>	<b>10</b>
<b>Huntington Disease</b>	<b>17</b>	<b>5</b>
<b>Memory Disorders</b>	<b>16</b>	<b>4</b>
<b>Lung Cancer</b>	<b>14</b>	<b>11</b>
<b>Parkinson's Disease</b>	<b>13</b>	<b>9</b>
<b>Colitis</b>	<b>11</b>	<b>6</b>
<b>Post-Traumatic Stress Disorders (PTSD)</b>	<b>10</b>	<b>7</b>
<b>Brain: Microglial Activation</b>	<b>8</b>	<b>5</b>
<b>Depression</b>	<b>8</b>	<b>5</b>
<b>Lipopolysaccharide-Induced Toxicity</b>	<b>8</b>	<b>5</b>
<b>Skin Cancer</b>	<b>7</b>	<b>5</b>
<b>Myocardial Infarction</b>	<b>6</b>	<b>3</b>
<b>Alcohol Toxicity</b>	<b>5</b>	<b>3</b>
<b>Leukemia</b>	<b>4</b>	<b>4</b>
<b>Melanoma</b>	<b>4</b>	<b>3</b>
<b>Brain: Oxidative Stress</b>	<b>3</b>	<b>2</b>
<b>Colorectal Cancer</b>	<b>3</b>	<b>3</b>
<b>Cancer: Pain</b>	<b>2</b>	<b>2</b>
<b>Epilepsy</b>	<b>54</b>	<b>15</b>
<b>Epilepsy: Childhood</b>	<b>43</b>	<b>5</b>

<b>Stroke: Attenuation/Recovery</b>	<b>37</b>	<b>4</b>
<b>Marijuana Addiction/Withdrawal</b>	<b>21</b>	<b>3</b>
<b>Acne</b>	<b>20</b>	<b>3</b>
<b>Stroke: Ischemic</b>	<b>17</b>	<b>3</b>
<b>HIV Infections</b>	<b>16</b>	<b>5</b>
<b>Schizophrenia</b>	<b>14</b>	<b>10</b>
<b>Diabetic Neuropathies</b>	<b>12</b>	<b>2</b>
<b>Glioblastoma</b>	<b>12</b>	<b>6</b>
<b>Hepatitis C</b>	<b>12</b>	<b>3</b>
<b>Metabolic Syndrome X</b>	<b>12</b>	<b>2</b>
<b>Breast Cancer: Triple Negative</b>	<b>11</b>	<b>6</b>
<b>Astrocytoma</b>	<b>10</b>	<b>4</b>
<b>Autoimmune Diseases</b>	<b>8</b>	<b>5</b>
<b>Colon Cancer</b>	<b>8</b>	<b>5</b>
<b>Endocannabinoid System</b>	<b>7</b>	<b>7</b>
<b>Brain Cancer</b>	<b>5</b>	<b>3</b>
<b>Chemotherapy-Induced Toxicity: Cisplatin</b>	<b>5</b>	<b>3</b>
<b>Amyotrophic lateral sclerosis (ALS)</b>	<b>4</b>	<b>3</b>
<b>Hypersensitivity</b>	<b>4</b>	<b>2</b>
<b>Liver Cancer</b>	<b>4</b>	<b>3</b>
<b>Thyroid Cancer</b>	<b>4</b>	<b>3</b>
<b>Diabetes Mellitus: Type 1: Prevention</b>	<b>3</b>	<b>2</b>
<b>Gastrointestinal Inflammation</b>	<b>3</b>	<b>2</b>
<b>Seizures</b>	<b>3</b>	<b>2</b>
<b>Tremor</b>	<b>3</b>	<b>2</b>
<b>Acute T cell Leukemias</b>	<b>2</b>	<b>2</b>
<b>Chemotherapy-Induced Nausea</b>	<b>2</b>	<b>2</b>
<b>Emesis</b>	<b>2</b>	<b>1</b>

<b>Psoriasis</b>	<b>2</b>	<b>2</b>
<b>Vomiting</b>	<b>2</b>	<b>1</b>
<b>Stroke</b>	<b>40</b>	<b>2</b>
<b>Opioid Tolerance/Dependence</b>	<b>20</b>	<b>1</b>
<b>Anxiety Disorders</b>	<b>18</b>	<b>7</b>
<b>Lymphoma</b>	<b>17</b>	<b>4</b>
<b>Amyotrophic Lateral Sclerosis</b>	<b>15</b>	<b>9</b>
<b>Brain Ischemia</b>	<b>13</b>	<b>7</b>
<b>Insulin Resistance</b>	<b>12</b>	<b>2</b>
<b>Metabolic Diseases</b>	<b>12</b>	<b>2</b>
<b>Brain Damage: Hypoxic Ischemic Insult</b>	<b>11</b>	<b>6</b>
<b>Endocannabinoid Disorders</b>	<b>11</b>	<b>2</b>
<b>Epileptic Seizures</b>	<b>11</b>	<b>2</b>
<b>Glaucoma</b>	<b>11</b>	<b>2</b>
<b>Hypoglycemia</b>	<b>10</b>	<b>1</b>
<b>Impairment: Driving Related</b>	<b>10</b>	<b>1</b>
<b>Peripheral Nerve Diseases</b>	<b>10</b>	<b>1</b>
<b>Social Anxiety Disorder (SAD)</b>	<b>10</b>	<b>1</b>
<b>Cardiovascular Diseases</b>	<b>8</b>	<b>3</b>
<b>Chemotherapy-Induced Toxicity: Doxorubicin</b>	<b>5</b>	<b>3</b>
<b>Dry Skin</b>	<b>5</b>	<b>1</b>
<b>Gliomas</b>	<b>5</b>	<b>3</b>
<b>Brain Damage</b>	<b>4</b>	<b>3</b>
<b>Cachexia</b>	<b>4</b>	<b>3</b>
<b>Cognitive Decline/Dysfunction</b>	<b>4</b>	<b>2</b>
<b>Diabetes: Cataract</b>	<b>4</b>	<b>2</b>
<b>Endotoxemia</b>	<b>4</b>	<b>2</b>
<b>Hypertension</b>	<b>4</b>	<b>2</b>

<b>Pancreatic Cancer</b>	<b>4</b>	<b>4</b>
<b>AIDS</b>	<b>3</b>	<b>2</b>
<b>Asthma</b>	<b>3</b>	<b>2</b>
<b>Astrocytoma: Grade IV</b>	<b>3</b>	<b>1</b>
<b>Attention Deficit Disorder with Hyperactivity</b>	<b>3</b>	<b>1</b>
<b>Bladder Cancer</b>	<b>3</b>	<b>2</b>
<b>Breast Cancer: Metastatic</b>	<b>3</b>	<b>2</b>
<b>Cerebral Ischemia</b>	<b>3</b>	<b>2</b>
<b>Immune Disorders</b>	<b>3</b>	<b>2</b>
<b>Appetite Disorders: Loss/Lack of</b>	<b>2</b>	<b>1</b>
<b>Arteriosclerosis</b>	<b>2</b>	<b>1</b>
<b>Breast Cancer: Lung Metastasis</b>	<b>2</b>	<b>1</b>
<b>Breast Cancer: Prevention</b>	<b>2</b>	<b>1</b>
<b>Cardiac Arrhythmias</b>	<b>2</b>	<b>1</b>
<b>Colon Cancer: Prevention</b>	<b>2</b>	<b>1</b>
<b>Dermatitis</b>	<b>2</b>	<b>1</b>
<b>Fatigue</b>	<b>2</b>	<b>1</b>
<b>Fulminant Hepatic Failure</b>	<b>2</b>	<b>1</b>
<b>Headache</b>	<b>2</b>	<b>2</b>
<b>Hepatic Encephalopathy</b>	<b>2</b>	<b>1</b>
<b>Immune Disorders: Low Immune Function</b>	<b>2</b>	<b>1</b>
<b>Lipid Peroxidation</b>	<b>2</b>	<b>1</b>
<b>Liver Failure: Acute</b>	<b>2</b>	<b>1</b>
<b>Low Immune Function: Splenic Dysfunction</b>	<b>2</b>	<b>1</b>
<b>Multiple Myeloma</b>	<b>2</b>	<b>2</b>
<b>Neuroblastoma</b>	<b>2</b>	<b>1</b>
<b>Nonalcoholic fatty liver disease (NAFLD)</b>	<b>2</b>	<b>1</b>
<b>Psychotic Disorders</b>	<b>2</b>	<b>2</b>

<b>Rhabdomyosarcoma</b>	<b>2</b>	<b>1</b>
<b>Sepsis</b>	<b>2</b>	<b>1</b>
<b>Staphylococcus aureus: Methicillin-resistant (MRSA)</b>	<b>2</b>	<b>2</b>
<b>Tumors</b>	<b>2</b>	<b>2</b>
<b>Uveitis</b>	<b>2</b>	<b>1</b>
<b>Acute Myeloid Leukemia</b>	<b>1</b>	<b>1</b>
<b>Cachexia: Cancer</b>	<b>1</b>	<b>1</b>
<b>Candida Infection</b>	<b>1</b>	<b>1</b>
<b>Carcinoma: Non-Small-Cell Lung</b>	<b>1</b>	<b>1</b>
<b>Central Nervous System Diseases</b>	<b>1</b>	<b>1</b>
<b>Cervical Cancer</b>	<b>1</b>	<b>1</b>
<b>Gastrointestinal Diseases</b>	<b>1</b>	<b>1</b>
<b>Immune Dysregulation: TH1/TH2 imbalance</b>	<b>1</b>	<b>1</b>
<b>Leishmaniasis</b>	<b>1</b>	<b>1</b>
<b>Oral Cancer</b>	<b>1</b>	<b>1</b>
<b>Peripheral Neuropathies</b>	<b>1</b>	<b>1</b>
<b>Pseudomonas aeruginosa</b>	<b>1</b>	<b>1</b>
<b>Urinary Bladder Diseases</b>	<b>1</b>	<b>1</b>
<b>Diabetes</b>	<b>20</b>	<b>1</b>
<b>Head and Neck Cancer</b>	<b>20</b>	<b>2</b>
<b>Opiate Addiction/Withdrawal</b>	<b>11</b>	<b>2</b>
<b>Anorexia: Dementia-Associated</b>	<b>10</b>	<b>1</b>
<b>Attention Deficit Hyperactivity Disorder</b>	<b>10</b>	<b>1</b>
<b>Brain Injury: Traumatic</b>	<b>10</b>	<b>1</b>
<b>Bronchial Asthma</b>	<b>10</b>	<b>1</b>
<b>C-Reactive Protein (CRP)</b>	<b>10</b>	<b>1</b>
<b>Chemotherapy</b>	<b>10</b>	<b>1</b>
<b>Chemotherapy-Induced Toxicity</b>	<b>10</b>	<b>1</b>
<b>Constipation</b>	<b>10</b>	<b>1</b>

<b>Crack Addiction/Withdrawal</b>	<b>10</b>	<b>1</b>
<b>Delirium: Drug-Induced</b>	<b>10</b>	<b>1</b>
<b>Dravet syndrome</b>	<b>10</b>	<b>1</b>
<b>Fibromyalgia</b>	<b>10</b>	<b>1</b>
<b>Headache: Migraine</b>	<b>10</b>	<b>1</b>
<b>Heroin Addication/Withdrawal</b>	<b>10</b>	<b>1</b>
<b>Lymphoma: Mantle Cell</b>	<b>10</b>	<b>1</b>
<b>Multiple Sclerosis: Relapsing-Remitting</b>	<b>10</b>	<b>1</b>
<b>Nausea: Chemotherapy-Induced</b>	<b>10</b>	<b>1</b>
<b>Nausea: Pregnancy-Associated</b>	<b>10</b>	<b>1</b>
<b>Neurogenic Bladder</b>	<b>10</b>	<b>1</b>
<b>Neuropathic Pain: HIV-associated</b>	<b>10</b>	<b>1</b>
<b>Neuropathy: HIV associated</b>	<b>10</b>	<b>1</b>
<b>Overweight</b>	<b>10</b>	<b>1</b>
<b>Pancreatitis: Chronic</b>	<b>10</b>	<b>1</b>
<b>Phantom Limb</b>	<b>10</b>	<b>1</b>
<b>Seborrheic Dermatitis</b>	<b>10</b>	<b>1</b>
<b>Spinal Cord Injuries</b>	<b>10</b>	<b>1</b>
<b>Tuberous Sclerosis</b>	<b>10</b>	<b>1</b>
<b>Cholangiocarcinoma</b>	<b>5</b>	<b>1</b>
<b>Drug Abuse</b>	<b>5</b>	<b>3</b>
<b>Psychiatric Disorder: Conditioned Fear</b>	<b>5</b>	<b>3</b>
<b>Ulcerative Colitis</b>	<b>5</b>	<b>1</b>
<b>Diabetes Mellitus: Type 1</b>	<b>4</b>	<b>2</b>
<b>Traumatic Memory Formation</b>	<b>4</b>	<b>2</b>
<b>Aging</b>	<b>3</b>	<b>2</b>
<b>Epilepsy: Infant</b>	<b>3</b>	<b>1</b>
<b>Epilepsy: Malignant Migrating Partial Seizures</b>	<b>3</b>	<b>1</b>



<b>Febrile Seizures</b>	<b>3</b>	<b>1</b>
<b>Psychoses</b>	<b>3</b>	<b>3</b>
<b>Trigeminal Neuralgia</b>	<b>3</b>	<b>2</b>
<b>Acute lymphoblastic leukemia (ALL)</b>	<b>2</b>	<b>1</b>
<b>Aging: Brain</b>	<b>2</b>	<b>1</b>
<b>Alcohol Withdrawal</b>	<b>2</b>	<b>1</b>
<b>Allodynia</b>	<b>2</b>	<b>1</b>
<b>Amphetamine Addiction/Withdrawal</b>	<b>2</b>	<b>1</b>
<b>Anxiety</b>	<b>2</b>	<b>2</b>
<b>Ascites</b>	<b>2</b>	<b>1</b>
<b>Atherosclerosis</b>	<b>2</b>	<b>1</b>
<b>Bone Fractures</b>	<b>2</b>	<b>1</b>
<b>Brain Edema</b>	<b>2</b>	<b>1</b>
<b>Cachexia: Chemotherapy Induced</b>	<b>2</b>	<b>1</b>
<b>Cardiomyopathy</b>	<b>2</b>	<b>1</b>
<b>Cocaine Toxicity</b>	<b>2</b>	<b>1</b>
<b>Degenerative Disk Disease</b>	<b>2</b>	<b>1</b>
<b>Diabetes: Cardiovascular Illness</b>	<b>2</b>	<b>1</b>
<b>Diabetes: Oxidative Stress</b>	<b>2</b>	<b>1</b>
<b>Drug-Induced Toxicity: Epilepsy Drugs</b>	<b>2</b>	<b>1</b>
<b>Endothelial Dysfunction</b>	<b>2</b>	<b>1</b>
<b>Epilepsy: Drug-Induced</b>	<b>2</b>	<b>1</b>
<b>Fatty Liver</b>	<b>2</b>	<b>1</b>
<b>Heart Attack</b>	<b>2</b>	<b>1</b>
<b>High Cholesterol</b>	<b>2</b>	<b>1</b>
<b>High Fat Diet</b>	<b>2</b>	<b>1</b>
<b>Hyperalgesia</b>	<b>2</b>	<b>1</b>
<b>Hypersensitivity: Type IV</b>	<b>2</b>	<b>1</b>

<b>Hypothermia</b>	<b>2</b>	<b>1</b>
<b>Infant Neurological Development</b>	<b>2</b>	<b>1</b>
<b>Inflammation: Neutrophil-Mediated</b>	<b>2</b>	<b>1</b>
<b>Interstitial Lung Diseases</b>	<b>2</b>	<b>1</b>
<b>Iron Overload</b>	<b>2</b>	<b>1</b>
<b>Ischemia</b>	<b>2</b>	<b>1</b>
<b>Liver Damage</b>	<b>2</b>	<b>1</b>
<b>Liver Disease</b>	<b>2</b>	<b>1</b>
<b>Liver Injury: Ischemia/reperfusion</b>	<b>2</b>	<b>1</b>
<b>Lung Inflammation</b>	<b>2</b>	<b>1</b>
<b>Malaria</b>	<b>2</b>	<b>1</b>
<b>Memory Disorders: Drug-Induced</b>	<b>2</b>	<b>1</b>
<b>Menopausal Syndrome</b>	<b>2</b>	<b>1</b>
<b>Myocarditis: Autoimmune</b>	<b>2</b>	<b>1</b>
<b>Neonatal Stroke</b>	<b>2</b>	<b>1</b>
<b>Phencyclidine (PCP) Induced Toxicity</b>	<b>2</b>	<b>1</b>
<b>Prenatal Chemical Exposures</b>	<b>2</b>	<b>1</b>
<b>Sciatic Nerve Crush Injury</b>	<b>2</b>	<b>1</b>
<b>Staphylococcus aureus infection</b>	<b>2</b>	<b>1</b>
<b>Tardive Dyskinesia</b>	<b>2</b>	<b>1</b>
<b>Traumatic Brain Injury</b>	<b>2</b>	<b>1</b>
<b>Acquired Immunodeficiency Syndrome</b>	<b>1</b>	<b>1</b>
<b>Allergic Airway Diseases</b>	<b>1</b>	<b>1</b>
<b>Anorexia</b>	<b>1</b>	<b>1</b>
<b>Appetite Disorders</b>	<b>1</b>	<b>1</b>
<b>Arthritis</b>	<b>1</b>	<b>1</b>
<b>Arthritis: Rheumatoid</b>	<b>1</b>	<b>1</b>
<b>Auditory Diseases</b>	<b>1</b>	<b>1</b>

<b>Bronchial Diseases</b>	<b>1</b>	<b>1</b>
<b>Cancers: Drug Resistant</b>	<b>1</b>	<b>1</b>
<b>Cancers: Multi-Drug Resistant</b>	<b>1</b>	<b>1</b>
<b>Cardiovascular Disease: Prevention</b>	<b>1</b>	<b>1</b>
<b>Drug Addiction</b>	<b>1</b>	<b>1</b>
<b>Dystonia</b>	<b>1</b>	<b>1</b>
<b>Ebola Virus Infections</b>	<b>1</b>	<b>1</b>
<b>Encephalomyelitis</b>	<b>1</b>	<b>1</b>
<b>Epstein-Barr Virus Infections</b>	<b>1</b>	<b>1</b>
<b>Fibrosis</b>	<b>1</b>	<b>1</b>
<b>Gastric Cancer</b>	<b>1</b>	<b>1</b>
<b>Gram-Negative Bacterial Infections</b>	<b>1</b>	<b>1</b>
<b>Gram-Positive Bacterial Infections</b>	<b>1</b>	<b>1</b>
<b>Gynecomastia</b>	<b>1</b>	<b>1</b>
<b>Hepatitis</b>	<b>1</b>	<b>1</b>
<b>Hepatitis: Autoimmune</b>	<b>1</b>	<b>1</b>
<b>Herpes Simplex Virus Type 2</b>	<b>1</b>	<b>1</b>
<b>Herpes family viruses</b>	<b>1</b>	<b>1</b>
<b>Herpes: Kaposi-Associated</b>	<b>1</b>	<b>1</b>
<b>Hydrogen Peroxide Induced Toxicity</b>	<b>1</b>	<b>1</b>
<b>Influenza</b>	<b>1</b>	<b>1</b>
<b>Intestinal Permeability</b>	<b>1</b>	<b>1</b>
<b>Kaposi Disease</b>	<b>1</b>	<b>1</b>
<b>Kaposi's Sarcoma</b>	<b>1</b>	<b>1</b>
<b>Leukemia: T-cell acute Lymphoblastic</b>	<b>1</b>	<b>1</b>
<b>Liver Fibrosis</b>	<b>1</b>	<b>1</b>
<b>Migraine Disorders</b>	<b>1</b>	<b>1</b>
<b>Movement Disorders</b>	<b>1</b>	<b>1</b>

<b>Oncovirus</b>	<b>1</b>	<b>1</b>
<b>Oral Mucositis</b>	<b>1</b>	<b>1</b>
<b>Osteoporosis</b>	<b>1</b>	<b>1</b>
<b>Prostate: PSA Doubling</b>	<b>1</b>	<b>1</b>
<b>Psychiatric Disorders</b>	<b>1</b>	<b>1</b>
<b>Thymoma</b>	<b>1</b>	<b>1</b>

105 Relevant Results for Pharmacological Actions

<b>Pharmacological Action Name</b>	<b>Cumulative Knowledge</b>	<b>Article Count</b>
<b>Anti-Inflammatory Agents</b>	<b>152</b>	<b>66</b>
<b>Antioxidants</b>	<b>32</b>	<b>23</b>
<b>Neuroprotective Agents</b>	<b>166</b>	<b>80</b>
<b>Analgesics</b>	<b>120</b>	<b>25</b>
<b>Apoptotic</b>	<b>102</b>	<b>70</b>
<b>Antiproliferative</b>	<b>84</b>	<b>53</b>
<b>Tumor Necrosis Factor (TNF) Alpha Inhibitor</b>	<b>42</b>	<b>18</b>
<b>Immunomodulatory</b>	<b>37</b>	<b>18</b>
<b>Cardioprotective</b>	<b>13</b>	<b>7</b>
<b>Cell cycle arrest</b>	<b>12</b>	<b>10</b>
<b>Anticonvulsants</b>	<b>68</b>	<b>16</b>
<b>Anti-metastatic</b>	<b>38</b>	<b>23</b>
<b>Antineoplastic Agents</b>	<b>37</b>	<b>26</b>
<b>Angiogenesis Inhibitors</b>	<b>24</b>	<b>11</b>
<b>Antidepressive Agents</b>	<b>16</b>	<b>4</b>
<b>Chemopreventive</b>	<b>16</b>	<b>5</b>
<b>Immunosuppressive Agents</b>	<b>16</b>	<b>6</b>
<b>Autophagy Up-regulation</b>	<b>14</b>	<b>8</b>
<b>Anti-Tumor</b>	<b>12</b>	<b>9</b>

<b>Antispasmodic</b>	<b>12</b>	<b>2</b>
<b>Superoxide Dismutase Up-regulation</b>	<b>8</b>	<b>4</b>
<b>Anti-Angiogenic</b>	<b>6</b>	<b>6</b>
<b>Neurogenesis</b>	<b>4</b>	<b>3</b>
<b>Matrix metalloproteinase-1 (MMP-1) inhibitor</b>	<b>2</b>	<b>2</b>
<b>Hypoglycemic Agents</b>	<b>14</b>	<b>3</b>
<b>Enzyme Inhibitors</b>	<b>13</b>	<b>4</b>
<b>Anti-Apoptotic</b>	<b>11</b>	<b>8</b>
<b>Vascular Endothelial Growth Factor Inhibitors</b>	<b>11</b>	<b>2</b>
<b>Anticarcinogenic Agents</b>	<b>10</b>	<b>7</b>
<b>Interferon Gamma Reducer</b>	<b>6</b>	<b>3</b>
<b>Chemosensitizer</b>	<b>5</b>	<b>4</b>
<b>Immunomodulatory: Th17 downregulation</b>	<b>5</b>	<b>3</b>
<b>Catalase Up-Regulation</b>	<b>4</b>	<b>2</b>
<b>Antihypertensive Agents</b>	<b>3</b>	<b>2</b>
<b>Gastrointestinal Agents</b>	<b>1</b>	<b>1</b>
<b>Gastroprotective</b>	<b>1</b>	<b>1</b>
<b>Vanilloid Receptor-1 Modulator</b>	<b>1</b>	<b>1</b>
<b>Vasodilator Agents</b>	<b>27</b>	<b>3</b>
<b>Anxiolytic</b>	<b>11</b>	<b>2</b>
<b>Interleukin-6 Downregulation</b>	<b>9</b>	<b>5</b>
<b>Cyclooxygenase 2 Inhibitors</b>	<b>8</b>	<b>4</b>
<b>Anti-Anxiety Agents</b>	<b>7</b>	<b>5</b>
<b>NF-kappaB Inhibitor</b>	<b>6</b>	<b>4</b>
<b>P38 Mitogen-Activated Protein Kinase Modulator</b>	<b>6</b>	<b>2</b>
<b>Appetite Stimulants</b>	<b>5</b>	<b>3</b>
<b>Chemotherapeutic</b>	<b>5</b>	<b>4</b>
<b>Antiviral Agents</b>	<b>4</b>	<b>3</b>

<b>Cannabinoid Receptor Antagonist/Inverse Agonist</b>	<b>4</b>	<b>2</b>
<b>Matrix metalloproteinase-2 (MMP-2) inhibitor</b>	<b>4</b>	<b>2</b>
<b>MicroRNA modulator</b>	<b>4</b>	<b>2</b>
<b>Nitric Oxide Inhibitor</b>	<b>4</b>	<b>2</b>
<b>Vascular Endothelial Growth Factor A Inhibitor</b>	<b>4</b>	<b>2</b>
<b>Anti-Bacterial Agents</b>	<b>3</b>	<b>3</b>
<b>Antinoceptive</b>	<b>3</b>	<b>2</b>
<b>Caspase-3 Activation</b>	<b>3</b>	<b>3</b>
<b>Cytotoxic</b>	<b>3</b>	<b>2</b>
<b>Interleukin-1 beta downregulation</b>	<b>3</b>	<b>2</b>
<b>Anti-atherogenic</b>	<b>2</b>	<b>1</b>
<b>Antifungal Agents</b>	<b>2</b>	<b>2</b>
<b>Glycogen synthase kinase-3beta (GSK-3beta) Inhibitor</b>	<b>2</b>	<b>1</b>
<b>Radiosensitizer</b>	<b>2</b>	<b>1</b>
<b>Acetylcholinesterase Inhibitor</b>	<b>1</b>	<b>1</b>
<b>Anti-Androgen</b>	<b>1</b>	<b>1</b>
<b>Cyclooxygenase Inhibitors</b>	<b>1</b>	<b>1</b>
<b>Antiemetics</b>	<b>10</b>	<b>1</b>
<b>Bronchodilator Agents</b>	<b>10</b>	<b>1</b>
<b>Antipsychotic Agents</b>	<b>7</b>	<b>5</b>
<b>Vascular Cell Adhesion Molecule-1 Inhibitor</b>	<b>6</b>	<b>2</b>
<b>Chemoprotective Agents</b>	<b>4</b>	<b>2</b>
<b>Vascular Endothelial Growth Factor Regulator</b>	<b>4</b>	<b>2</b>
<b>Anti-Platelet</b>	<b>2</b>	<b>1</b>
<b>Calcium Channel Blockers</b>	<b>2</b>	<b>1</b>
<b>Enzyme Activators</b>	<b>2</b>	<b>1</b>
<b>Epidermal growth factor receptor (EGFR) inhibitor</b>	<b>2</b>	<b>1</b>
<b>Glycine Agents</b>	<b>2</b>	<b>1</b>
<b>Immunomodulatory: T-Cell down-regulation</b>	<b>2</b>	<b>1</b>

<b>Interleukin-10 downregulation</b>	<b>2</b>	<b>1</b>
<b>Interleukin-17 downregulation</b>	<b>2</b>	<b>1</b>
<b>Interleukin-4 downregulation</b>	<b>2</b>	<b>1</b>
<b>Interleukin-5 downregulation</b>	<b>2</b>	<b>1</b>
<b>Intracellular adhesion molecule-1 (ICAM-1)</b>	<b>2</b>	<b>1</b>
<b>Malondialdehyde Down-regulation</b>	<b>2</b>	<b>1</b>
<b>Matrix metalloproteinase-9 (MMP-9) inhibitor</b>	<b>2</b>	<b>1</b>
<b>Neuritogenic</b>	<b>2</b>	<b>1</b>
<b>Neuroplasticity enhancement</b>	<b>2</b>	<b>1</b>
<b>Pancreato Protective Agents</b>	<b>2</b>	<b>1</b>
<b>Platelet Aggregation Inhibitors</b>	<b>2</b>	<b>1</b>
<b>Redox Modulator</b>	<b>2</b>	<b>1</b>
<b>Renoprotective</b>	<b>2</b>	<b>1</b>
<b>interleukin-13 down-regulation</b>	<b>2</b>	<b>1</b>
<b>Anti-Fibrotic</b>	<b>1</b>	<b>1</b>
<b>Anti-Proliferative</b>	<b>1</b>	<b>1</b>
<b>Anti-Psychotic</b>	<b>1</b>	<b>1</b>
<b>Caspase-8 activation</b>	<b>1</b>	<b>1</b>
<b>Caspase-9 Activation</b>	<b>1</b>	<b>1</b>
<b>Cyclooxygenase 1 Inhibitor</b>	<b>1</b>	<b>1</b>
<b>Hypoxia inducible factor-1 alpha (HIF-1<math>\alpha</math>) inhibitor</b>	<b>1</b>	<b>1</b>
<b>Interleukin-6 upregulation</b>	<b>1</b>	<b>1</b>
<b>NADPH Oxidase Inhibitors</b>	<b>1</b>	<b>1</b>
<b>Neuroimmunomodulation</b>	<b>1</b>	<b>1</b>
<b>Nrf2 activation</b>	<b>1</b>	<b>1</b>
<b>Paraptosis</b>	<b>1</b>	<b>1</b>
<b>Topoisomerase II Inhibitor</b>	<b>1</b>	<b>1</b>
<b>Transient receptor potential vanilloid type-2 activation</b>	<b>1</b>	<b>1</b>

## 17 Relevant Results for Substances

Substance Name	Cumulative Knowledge	Article Count
<b>Cannabis</b>	<b>631</b>	<b>146</b>
<b>Cannabinoids</b>	<b>395</b>	<b>176</b>
<b>Cannabinoids: Synthetic</b>	<b>37</b>	<b>18</b>
<b>Endocannabinoids</b>	<b>15</b>	<b>13</b>
<b>Cannabidiol</b>	<b>515</b>	<b>193</b>
<b>Delta-tetrahydrocannabinol (THC)</b>	<b>369</b>	<b>108</b>
<b>Hemp Seed</b>	<b>39</b>	<b>14</b>
<b>Flavonoids</b>	<b>2</b>	<b>2</b>
<b>Lignans</b>	<b>1</b>	<b>1</b>
<b>Anandamide</b>	<b>10</b>	<b>5</b>
<b>Hemp Protein</b>	<b>3</b>	<b>2</b>
<b>Polyphenols</b>	<b>1</b>	<b>1</b>
<b>Marijuana</b>	<b>106</b>	<b>29</b>
<b>Evening Primrose Oil</b>	<b>10</b>	<b>1</b>
<b>Nigella sativa (aka Black Seed)</b>	<b>2</b>	<b>1</b>
<b>Moringa oleifera</b>	<b>1</b>	<b>1</b>
<b>Quercetin</b>	<b>1</b>	<b>1</b>

## 64 Relevant Results for Keywords

Keyword Name	Cumulative Knowledge	Article Count
<b>Plant Extracts</b>	<b>147</b>	<b>27</b>
<b>Dose Response</b>	<b>47</b>	<b>15</b>
<b>Phytotherapy</b>	<b>16</b>	<b>4</b>



<b>Significant Treatment Outcome</b>	<b>61</b>	<b>10</b>
<b>Risk Reduction</b>	<b>42</b>	<b>10</b>
<b>Endocannabinoid System</b>	<b>24</b>	<b>13</b>
<b>Gene Expression Regulation</b>	<b>22</b>	<b>8</b>
<b>Natural Substance/Drug Synergy</b>	<b>19</b>	<b>9</b>
<b>Natural Substances Versus Drugs</b>	<b>14</b>	<b>4</b>
<b>Natural Substance Synergy</b>	<b>6</b>	<b>3</b>
<b>Cannabinoid Receptors</b>	<b>43</b>	<b>26</b>
<b>Safety of Natural Substances</b>	<b>10</b>	<b>1</b>
<b>Cancer Stem Cells</b>	<b>4</b>	<b>3</b>
<b>Chemotherapeutic Synergy: Doxorubicin</b>	<b>3</b>	<b>2</b>
<b>Gene Expression</b>	<b>2</b>	<b>1</b>
<b>Significant Treatment Outcome</b>	<b>2</b>	<b>2</b>
<b>Superiority of Natural Substances versus Drugs</b>	<b>2</b>	<b>2</b>
<b>Lymphokine-activated Killer Cells</b>	<b>1</b>	<b>1</b>
<b>Medication Reduction</b>	<b>20</b>	<b>1</b>
<b>Selective Cytotoxicity</b>	<b>11</b>	<b>5</b>
<b>Natural Versus Synthetics</b>	<b>10</b>	<b>1</b>
<b>Anti-Obesity Agents</b>	<b>3</b>	<b>2</b>
<b>Spontaneous Tumor Regression</b>	<b>3</b>	<b>1</b>
<b>Tissue Inhibitors of Metalloproteinases (TIMPs)</b>	<b>3</b>	<b>1</b>
<b>Chemotherapeutic Synergy: Cisplatin</b>	<b>2</b>	<b>1</b>
<b>Diseases that are Linked</b>	<b>2</b>	<b>2</b>
<b>Extinction Of Fear Conditioning</b>	<b>2</b>	<b>1</b>
<b>Selective Antiproliferation</b>	<b>2</b>	<b>1</b>
<b>Beta Cell Protection</b>	<b>1</b>	<b>1</b>
<b>Gamma Irradiation</b>	<b>1</b>	<b>1</b>
<b>Hemp Protein Versus Soy Protein</b>	<b>1</b>	<b>1</b>

<b>Radiation Synergy</b>	<b>1</b>	<b>1</b>
<b>Cannabis Seed</b>	<b>10</b>	<b>1</b>
<b>Dietary Modification</b>	<b>10</b>	<b>1</b>
<b>Drug Sparing</b>	<b>10</b>	<b>1</b>
<b>Inflammation</b>	<b>10</b>	<b>1</b>
<b>Mortality</b>	<b>10</b>	<b>1</b>
<b>Risk Factors</b>	<b>10</b>	<b>1</b>
<b>The Whole is Superior to the Monochemical Part</b>	<b>10</b>	<b>1</b>
<b>Treatment Resistant</b>	<b>10</b>	<b>1</b>
<b>Whole Food Balance</b>	<b>10</b>	<b>1</b>
<b>Altered Protein Expression</b>	<b>5</b>	<b>1</b>
<b>Blood Brain Barrier</b>	<b>5</b>	<b>1</b>
<b>Chemotherapeutic Synergy: Paclitaxel</b>	<b>2</b>	<b>1</b>
<b>Clozapine</b>	<b>2</b>	<b>1</b>
<b>Desensitization</b>	<b>2</b>	<b>1</b>
<b>Disease Regression</b>	<b>2</b>	<b>1</b>
<b>Epigenetic Modification</b>	<b>2</b>	<b>1</b>
<b>Histone Modifications</b>	<b>2</b>	<b>1</b>
<b>Malaria Complications</b>	<b>2</b>	<b>1</b>
<b>Microbiota</b>	<b>2</b>	<b>1</b>
<b>Nanoparticles</b>	<b>2</b>	<b>1</b>
<b>Neural Stem Cells</b>	<b>2</b>	<b>1</b>
<b>Neuro-repair</b>	<b>2</b>	<b>1</b>
<b>Synthetic Cannabinoids</b>	<b>2</b>	<b>1</b>
<b>Drug Synergy</b>	<b>1</b>	<b>1</b>
<b>Drug: Paclitaxel</b>	<b>1</b>	<b>1</b>
<b>Endogenous Canabinoid System</b>	<b>1</b>	<b>1</b>
<b>Essential Oils</b>	<b>1</b>	<b>1</b>
<b>Higher Dose Better Than Lower Dose</b>	<b>1</b>	<b>1</b>

<b>Immunocannabinoid System</b>	<b>1</b>	<b>1</b>
<b>Median Survival Time</b>	<b>1</b>	<b>1</b>
<b>Mesenchymal Stem Cells</b>	<b>1</b>	<b>1</b>
<b>Multiple Sclerosis</b>	<b>1</b>	<b>1</b>

#### 12 Relevant Results for Problem Substances

<b>Problem Substance Name</b>	<b>Cumulative Knowledge</b>	<b>Article Count</b>
<b>Non-Steroidal Anti-Inflammatory Drugs (NSAIDs)</b>	<b>1</b>	<b>1</b>
<b>Synthetic Cannabinoids</b>	<b>10</b>	<b>1</b>
<b>Amphetamine</b>	<b>5</b>	<b>3</b>
<b>Analgesic: Non-opioid</b>	<b>2</b>	<b>1</b>
<b>Antipsychotic Drugs</b>	<b>2</b>	<b>1</b>
<b>Acid Blockers</b>	<b>1</b>	<b>1</b>
<b>Alcohol Consumption</b>	<b>1</b>	<b>1</b>
<b>Antibiotics</b>	<b>1</b>	<b>1</b>
<b>Benzodiazepines</b>	<b>1</b>	<b>1</b>
<b>Chemotherapy</b>	<b>1</b>	<b>1</b>
<b>Heroin</b>	<b>1</b>	<b>1</b>
<b>Recombinant Bovine Growth Hormone (rBGH)</b>	<b>1</b>	<b>1</b>

**View the Evidence.  
478 Research Articles in Total.**

**Category : Diseases**

## AIDS (AC 2) (CK 3)

### A review of cannabis and cannabinoids and their benefits in many health conditions.

**Pubmed Data** : Clin Pharmacol Ther. 2015 Jun ;97(6):575-86. Epub 2015 Apr 17. PMID: [25777363](#)

**Article Published Date** : May 31, 2015

**Authors** : D I Abrams, M Guzman

**Study Type** : Review

#### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : AIDS : CK(79) : AC(13), Cachexia: Cancer : CK(50) : AC(15), Cancer: Pain : CK(55) : AC(8), Cancers: All : CK(14773) : AC(4596), Peripheral Neuropathies : CK(218) : AC(37)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Appetite Stimulants : CK(10) : AC(1), Chemopreventive : CK(2835) : AC(787)

**Additional Keywords** : Natural Substance/Drug Synergy : CK(352) : AC(142)

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### Cannabinoids may have immunomodulatory or antiviral effects among individuals living with HIV/AIDS.

**Pubmed Data** : Drug Alcohol Rev. 2015 Mar ;34(2):135-40. Epub 2014 Nov 11. PMID: [25389027](#)

**Article Published Date** : Feb 28, 2015

**Authors** : M-J Milloy, Brandon Marshall, Thomas Kerr, Lindsey Richardson, Robert Hogg, Silvia Guillemi, Julio S G Montaner, Evan Wood

**Study Type** : Animal Study

#### Additional Links

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : AIDS : CK(79) : AC(13), HIV Infections : CK(680) : AC(219)

**Pharmacological Actions** : Antiviral Agents : CK(938) : AC(433), Immunomodulatory : CK(1287) : AC(358)

## Acne (AC 3) (CK 20)

### Cannabidiol has potential as a promising therapeutic

## agent for the treatment of acne vulgaris.

**Pubmed Data** : J Clin Invest. 2014 Sep ;124(9):3713-24. Epub 2014 Jul 25. PMID: [25061872](#)

**Article Published Date** : Aug 31, 2014

**Authors** : Attila Oláh, Balázs I Tóth, István Borbíró, Koji Sugawara, Attila G Szöllösi, Gabriella Czifra, Balázs Pál, Lídia Ambrus, Jennifer Kloepper, Emanuela Camera, Matteo Ludovici, Mauro Picardo, Thomas Voets, Christos C Zouboulis, Ralf Paus, Tamás Bíró

**Study Type** : Human In Vitro

**Additional Links**

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Acne](#) : CK(327) : AC(53)

**Pharmacological Actions** : [Anti-Inflammatory Agents](#) : CK(4861) : AC(1630)

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## Cannabis seeds extract could be used in the treatment of acne vulgaris, seborrhea, papules and pustules.

**Pubmed Data** : Pak J Pharm Sci. 2015 Jul ;28(4):1389-95. PMID: [26142529](#)

**Article Published Date** : Jun 30, 2015

**Authors** : Atif Ali, Naveed Akhtar

**Study Type** : Human Study

**Additional Links**

**Substances** : [Cannabis](#) : CK(1776) : AC(408)

**Diseases** : [Acne](#) : CK(327) : AC(53), [Seborrheic Dermatitis](#) : CK(62) : AC(12)

**Additional Keywords** : [Cannabis Seed](#) : CK(10) : AC(1)

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## Phytocannabinoids could be efficient and safe novel treatments in the management of cutaneous inflammations.

**Pubmed Data** : Exp Dermatol. 2016 Apr 20. Epub 2016 Apr 20. PMID: [27094344](#)

**Article Published Date** : Apr 19, 2016

**Authors** : Attila Oláh, Arnold Markovics, Judit Szabó-Papp, Pálma Tímea Szabó, Colin Stott, Christos C Zouboulis, Tamás Bíró

**Study Type** : Human In Vitro

**Additional Links**

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338), [Cannabinoids](#) : CK(816) : AC(310)

**Diseases** : [Acne](#) : CK(327) : AC(53), [Dry Skin](#) : CK(104) : AC(17)

**Pharmacological Actions** : [Anti-Inflammatory Agents](#) : CK(4861) : AC(1630)

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# Acquired Immunodeficiency Syndrome (AC 1) (CK 1)

**The cannabinoid system along with other neuroimmune systems has a subtle but significant role in the regulation of immunity.**

**Pubmed Data** : Pain Res Manag. 2001 ;6(2):95-101. PMID: [11854771](#)

**Article Published Date** : Dec 31, 2000

**Authors** : T W Klein, C A Newton, H Friedman

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Acquired Immunodeficiency Syndrome : CK(16) : AC(12) , Cancers: All : CK(14773) : AC(4596), Multiple Sclerosis : CK(964) : AC(184)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Apoptotic : CK(2958) : AC(2075), Immunomodulatory : CK(1287) : AC(358), Neuroimmunomodulation : CK(1) : AC(1)

**Additional Keywords** : Immunocannabinoid System : CK(1) : AC(1)

# Acute Myeloid Leukemia (AC 1) (CK 1)

**Cannabidiol and cannabidiol-dimethylheptyl and exposure of the cells to gamma irradiation markedly enhanced apoptosis, reaching values of 93 and 95%.**

**Pubmed Data** : Leuk Lymphoma. 2003 Oct ;44(10):1767-73. PMID: [14692532](#)

**Article Published Date** : Sep 30, 2003

**Authors** : Ruth Gallily, Tal Even-Chena, Galia Katzavian, Dan Lehmann, Arie Dagan, Raphael Mechoulam

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310)

**Diseases** : Acute Myeloid Leukemia : CK(95) : AC(47)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075), Caspase-3 Activation : CK(91) : AC(66)

**Additional Keywords** : Dose Response : CK(1056) : AC(408), Gamma Irradiation : CK(9) : AC(6), Radiation Synergy : CK(12) : AC(2)

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## Acute T cell Leukemias (AC 2) (CK 2)

### CB2 receptor activation signals apoptosis via a ceramide-dependent stimulation of the mitochondrial intrinsic pathway.

**Pubmed Data** : Exp Cell Res. 2006 Jul 1 ;312(11):2121-31. Epub 2006 Apr 19. PMID: [16624285](#)

**Article Published Date** : Jun 30, 2006

**Authors** : Blanca Herrera, Arkaitz Carracedo, María Díez-Zaera, Teresa Gómez del Pulgar, Manuel Guzmán, Guillermo Velasco

**Study Type** : In Vitro Study

#### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Acute T cell Leukemias : CK(18) : AC(16)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

---

### THC, the active metabolite of cannabis induces programmed cell death in Jurkat leukemia T Cells.

**Pubmed Data** : Mol Cancer Res. 2006 Aug;4(8):549-62 PMID: [16908594](#)

**Article Published Date** : Aug 01, 2006

**Authors** : Wentao Jia, Venkatesh L Hegde, Narendra P Singh, Daniel Sisco, Steven Grant, Mitzi Nagarkatti, Prakash S Nagarkatti

**Study Type** : In Vitro Study

#### Additional Links

**Substances** : Marijuana : CK(1952) : AC(456)

**Diseases** : Acute T cell Leukemias : CK(18) : AC(16)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075)

---

# Acute lymphoblastic leukemia (ALL) (AC 1) (CK 2)

**Cannabinoids were effective in reducing the tumor load, prolonging the mean survival time as well as curing a significant proportion of mice in this study.**

**Pubmed Data** : Blood. 2002 Jul 15 ;100(2):627-34. PMID: [12091357](#)

**Article Published Date** : Jul 14, 2002

**Authors** : Robert J McKallip, Catherine Lombard, Michael Fisher, Billy R Martin, Seongho Ryu, Steven Grant, Prakash S Nagarkatti, Mitzi Nagarkatti

**Study Type** : Animal Study

## **Additional Links**

**Substances** : Anandamide : CK(2) : AC(2), Cannabinoids: Synthetic : CK(78) : AC(33), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Acute lymphoblastic leukemia (ALL) : CK(130) : AC(39)

**Pharmacological Actions** : Anti-Tumor : CK(146) : AC(73), Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37), Significant Treatment Outcome : CK(3038) : AC(366)

# Aging (AC 2) (CK 3)

**Cannabinoids attenuate the effects of aging upon neuroinflammation and neurogenesis.**

**Pubmed Data** : Neurobiol Dis. 2009 May ;34(2):300-7. PMID: [19385063](#)

**Article Published Date** : Apr 30, 2009

**Authors** : Yannick Marchalant, Holly M Brothers, Greg J Norman, Kate Karelina, A Courtney DeVries, Gary L Wenk

**Study Type** : Animal Study

## **Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Aging : CK(1658) : AC(438), Aging: Brain : CK(248) : AC(85), Brain Inflammation : CK(274) : AC(145)



**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Calcium Channel Blockers : CK(87) : AC(23), Neuritogenic : CK(133) : AC(59), Neuroprotective Agents : CK(2360) : AC(1099)

---

## The current article provides an overview of the potential of cannabinoids in the treatment of late-onset Alzheimer's disease.

**Pubmed Data** : Clin Pharmacol Ther. 2015 Jun ;97(6):597-606. Epub 2015 Apr 17. PMID: [25788394](#)

**Article Published Date** : May 31, 2015

**Authors** : Aia Ahmed, M A van der Marck, Gah van den Elsen, Mgm Olde Rikkert

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Aging : CK(1658) : AC(438), Alzheimer's Disease : CK(1292) : AC(382)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

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## Aging: Brain (AC 1) (CK 2)

### Cannabinoids attenuate the effects of aging upon neuroinflammation and neurogenesis.

**Pubmed Data** : Neurobiol Dis. 2009 May ;34(2):300-7. PMID: [19385063](#)

**Article Published Date** : Apr 30, 2009

**Authors** : Yannick Marchalant, Holly M Brothers, Greg J Norman, Kate Karelina, A Courtney DeVries, Gary L Wenk

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Aging : CK(1658) : AC(438), Aging: Brain : CK(248) : AC(85), Brain Inflammation : CK(274) : AC(145)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Calcium Channel Blockers : CK(87) : AC(23), Neuritogenic : CK(133) : AC(59), Neuroprotective Agents : CK(2360) : AC(1099)

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# Alcohol Toxicity (AC 3) (CK 5)

## Cannabidiol protects mouse liver from acute alcohol-induced steatosis through multiple mechanisms.

**Pubmed Data** : Free Radic Biol Med. 2014 Mar ;68:260-7. Epub 2014 Jan 4. PMID: [24398069](#)

**Article Published Date** : Feb 28, 2014

**Authors** : Lili Yang, Raphael Rozenfeld, Defeng Wu, Lakshmi A Devi, Zhenfeng Zhang, Arthur Cederbaum

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Alcohol Toxicity : CK(337) : AC(125), Fatty Liver : CK(887) : AC(204), Oxidative Stress : CK(3871) : AC(1382)

**Pharmacological Actions** : Antioxidants : CK(8430) : AC(3132), Autophagy Up-regulation : CK(108) : AC(65), Autophagy Up-regulation : CK(108) : AC(65)

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## Cannabidiol, a nonpsychoactive compound from cannabis, exhibits neuroprotective properties in binge ethanol-induced brain injury.

**Pubmed Data** : J Pharmacol Exp Ther. 2005 Aug;314(2):780-8. Epub 2005 May 5. PMID: [15878999](#)

**Article Published Date** : Aug 01, 2005

**Authors** : Carol Hamelink, Aidan Hampson, David A Wink, Lee E Eiden, Robert L Eskay

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Alcohol Toxicity : CK(337) : AC(125), Neurodegenerative Diseases : CK(3582) : AC(932)

**Pharmacological Actions** : Antioxidants : CK(8430) : AC(3132), Neuroprotective Agents : CK(2360) : AC(1099)

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## Cannabis and cannabinoids can protect the gastric mucosa against noxious challenge.

**Pubmed Data** : Asian Pac J Trop Med. 2016 May ;9(5):413-9. Epub 2016 Apr 15. PMID: [27261847](#)

**Article Published Date** : Apr 30, 2016

**Authors** : Omar Abdel-Salam

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Alcohol Toxicity : CK(337) : AC(125)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Antioxidants : CK(8430) : AC(3132), Gastrointestinal Agents : CK(268) : AC(41), Gastroprotective : CK(155) : AC(73)

**Additional Keywords** : Endocannabinoid System : CK(60) : AC(23)

**Problem Substances** : Non-Steroidal Anti-Inflammatory Drugs (NSAIDs) : CK(1905) : AC(215)

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## Alcohol Withdrawal (AC 1) (CK 2)

### Cannabidiol reduces ethanol consumption, motivation and relapse in mice.

**Pubmed Data** : Addict Biol. 2017 Feb 13. Epub 2017 Feb 13. PMID: [28194850](#)

**Article Published Date** : Feb 12, 2017

**Authors** : Adrián Viudez-Martínez, María S García-Gutiérrez, Carmen María Navarrón, María Isabel Morales-Calero, Francisco Navarrete, Ana Isabel Torres-Suárez, Jorge Manzanares

**Study Type** : Animal Study

#### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Alcohol Withdrawal : CK(78) : AC(15)

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## Allergic Airway Diseases (AC 1) (CK 1)

### THC prevents cytokine-induced increase in airway epithelial permeability through CB2 receptor activation.

**Pubmed Data** : Biochem Pharmacol. 2016 Sep 15. Epub 2016 Sep 15. PMID: [27641813](#)

**Article Published Date** : Sep 14, 2016

**Authors** : Valerie C M Shang, David A Kendall, Richard E Roberts

**Study Type** : In Vitro Study

#### Additional Links

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Allergic Airway Diseases : CK(69) : AC(25), Bronchial Diseases : CK(1) : AC(1)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630)

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## Allodynia (AC 1) (CK 2)

### Synthetic cannabinoids attenuate allodynia and hyperalgesia in a rat model of trigeminal neuropathic pain.

**Pubmed Data** : Neuropharmacology. 2007 Jul;53(1):169-77. Epub 2007 May 13. PMID: [17572451](#)

**Article Published Date** : Jul 01, 2007

**Authors** : Ying-Ching Liang, Chiung-Chun Huang, Kuei-Sen Hsu

**Study Type** : Animal Study

#### Additional Links

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Allodynia : CK(26) : AC(9), Hyperalgesia : CK(63) : AC(24), Trigeminal Neuralgia : CK(140) : AC(18)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217)

## Alzheimer's Disease (AC 11) (CK 20)

### A review of phytochemicals and their neuroprotective effects in the treatment of dementia.

**Pubmed Data** : Molecules. 2016 ;21(4). Epub 2016 Apr 21. PMID: [27110749](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Rosaliana Libro, Sabrina Giacoppo, Thangavelu Soundara Rajan, Placido Bramanti, Emanuela Mazzon

**Study Type** : Review

#### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310), Flavonoids : CK(1215) : AC(379), Polyphenols : CK(931) : AC(335)

**Diseases** : Alzheimer's Disease : CK(1292) : AC(382), Dementia : CK(571) : AC(79)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

**Additional Keywords** : Risk Reduction : CK(6417) : AC(686)

## Adding medical cannabis oil to AD patients' pharmacotherapy is safe and a promising treatment option.

**Pubmed Data** : J Alzheimers Dis. 2016 Jan 12. Epub 2016 Jan 12. PMID: [26757043](#)

**Article Published Date** : Jan 11, 2016

**Authors** : Assaf Shelef, Yoram Barak, Uri Berger, Diana Paleacu, Shelly Tadger, Igor Plopsky, Yehuda Baruch

**Study Type** : Human Study

### Additional Links

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Alzheimer's Disease : CK(1292) : AC(382) , Dementia : CK(571) : AC(79)

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## Cannabidiol, a non-psychoactive component from Cannabis sativa, exhibits neuroprotective, antioxidant and anti-apoptotic effect against beta-amyloid peptide toxicity.

**Pubmed Data** : Fitoterapia. 2011 Jan 26. Epub 2011 Jan 26. PMID: [15030397](#)

**Article Published Date** : Jan 26, 2011

**Authors** : Teresa Iuvone, Giuseppe Esposito, Ramona Esposito, Rita Santamaria, Massimo Di Rosa, Angelo A Izzo

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Marijuana : CK(1952) : AC(456)

**Diseases** : Alzheimer's Disease : CK(1292) : AC(382) , Neurodegenerative Diseases : CK(3582) : AC(932)

**Pharmacological Actions** : Antioxidants : CK(8430) : AC(3132) , Neuroprotective Agents : CK(2360) : AC(1099)

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## Cannabinoids may provide a safer alternative treatment option for the management of agitation and aggression in AD.

**Pubmed Data** : Curr Alzheimer Res. 2016 May 2. Epub 2016 May 2. PMID: [27137221](#)

**Article Published Date** : May 01, 2016

**Authors** : Celina S Liu, Myuri Ruthirakuhan, Sarah A Chau, Nathan Herrmann, André F Carvalho, Krista L Lanctôt

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Alzheimer's Disease : CK(1292) : AC(382)

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## Pre-clinical evidence largely shows that CBD can produce beneficial effects in AD, PD and MS patients

**Pubmed Data** : CNS Neurol Disord Drug Targets. 2017 Apr 13. Epub 2017 Apr 13. PMID: [28412918](#)

**Article Published Date** : Apr 12, 2017

**Authors** : Carmen Mannucci, Michele Navarra, Fabrizio Calapai, Elvira Ventura Spagnolo, Francesco Paolo Busardò, Roberto Da Cas, Francesca Menniti Ippolito, Gioacchino Calapai

**Study Type** : Review

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Alzheimer's Disease : CK(1292) : AC(382) , Multiple Sclerosis : CK(964) : AC(184) , Parkinson's Disease : CK(1021) : AC(167)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

**Additional Keywords** : Neuroprotective Agents : CK(2360) : AC(1099) , Neuroprotective Agents : CK(2360) : AC(1099), Multiple Sclerosis : CK(10) : AC(1) , Multiple Sclerosis : CK(10) : AC(1) , Multiple Sclerosis : CK(10) : AC(1)

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## Pre-treatment with CBD prevented the expression of proteins potentially involved in tau phosphorylation and A $\beta$ production in GMSCs.

**Pubmed Data** : Int J Mol Sci. 2016 Dec 23 ;18(1). Epub 2016 Dec 23. PMID: [28025562](#)

**Article Published Date** : Dec 22, 2016

**Authors** : Rosaliana Libro, Francesca Diomede, Domenico Scionti, Adriano Piattelli, Gianpaolo Grassi, Federica Pollastro, Placido Bramanti, Emanuela Mazzon, Oriana Trubiani

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Alzheimer's Disease : CK(1292) : AC(382)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

**Additional Keywords** : Gene Expression Regulation : CK(431) : AC(214) , Mesenchymal Stem Cells : CK(13) : AC(7)

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## The current article provides an overview of the potential of cannabinoids in the treatment of late-onset Alzheimer's disease.

**Pubmed Data** : Clin Pharmacol Ther. 2015 Jun ;97(6):597-606. Epub 2015 Apr 17. PMID: [25788394](#)

**Article Published Date** : May 31, 2015

**Authors** : Aia Ahmed, M A van der Marck, Gah van den Elsen, Mgm Olde Rikkert

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Aging : CK(1658) : AC(438), Alzheimer's Disease : CK(1292) : AC(382)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

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## The marijuana component cannabidiol has a neuroprotective effect on beta-amyloid-induced neuronal changes.

**Pubmed Data** : J Mol Med. 2006 Mar;84(3):253-8. Epub 2005 Dec 31. PMID: [16389547](#)

**Article Published Date** : Mar 01, 2006

**Authors** : Giuseppe Esposito, Daniele De Filippis, Rosa Carnuccio, Angelo A Izzo, Teresa Iuvone

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408)

**Diseases** : Alzheimer's Disease : CK(1292) : AC(382)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

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## The studies provide "proof of principle" that CBD and possibly CBD-THC combinations are valid candidates for novel AD therapies.

**Pubmed Data** : Front Pharmacol. 2017 ;8:20. Epub 2017 Feb 3. PMID: [28217094](#)

**Article Published Date** : Dec 31, 2016

**Authors** : Georgia Watt, Tim Karl

**Study Type** : Review

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Alzheimer's Disease : CK(1292) : AC(382)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Antioxidants : CK(8430) : AC(3132), Neurogenesis : CK(59) : AC(30), Neuroprotective Agents : CK(2360) : AC(1099)

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## This review details the mechanisms of neurodegeneration and highlights the beneficial effects of cannabinoid treatment.

**Pubmed Data** : Br J Pharmacol. 2014 Mar ;171(6):1347-60. PMID: [24172185](#)

**Article Published Date** : Feb 28, 2014

**Authors** : S G Fagan, V A Campbell

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Alzheimer's Disease : CK(1292) : AC(382) , Brain Inflammation : CK(274) : AC(145), Huntington Disease : CK(91) : AC(36) , Neurodegenerative Diseases : CK(3582) : AC(932) , Parkinson's Disease : CK(1021) : AC(167)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630) , Neurogenesis : CK(59) : AC(30), Neuroprotective Agents : CK(2360) : AC(1099)

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## This reviews the in-vitro and in-vivo evidence for the therapeutic potential of CBD in Alzheimer's disease.

**Pubmed Data** : Behav Pharmacol. 2016 Jul 28. Epub 2016 Jul 28. PMID: [27471947](#)

**Article Published Date** : Jul 27, 2016

**Authors** : Tim Karl, Brett Garner, David Cheng

**Study Type** : Review

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Alzheimer's Disease : CK(1292) : AC(382)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630) , Antioxidants : CK(8430) : AC(3132), Neuroprotective Agents : CK(2360) : AC(1099)

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## Amphetamine Addiction/Withdrawal (AC 1) (CK 2)

### CBD can attenuate both behavioural and dopaminergic neuronal correlates of mesolimbic dopaminergic sensitization.

**Pubmed Data** : J Neurosci. 2016 May 4 ;36(18):5160-9. PMID: [27147666](#)

**Article Published Date** : May 03, 2016

**Authors** : Justine Renard, Michael Loureiro, Laura G Rosen, Jordan Zunder, Cleusa de Oliveira, Susanne Schmid, Walter J Rushlow, Steven R Laviolette

**Study Type** : Animal Study, In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Amphetamine Addiction/Withdrawal : CK(36) : AC(11) , Schizophrenia : CK(445) : AC(70)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)



## Amyotrophic Lateral Sclerosis (AC 9) (CK 15)

**A cannabinoid CB2 receptor selective compound, delays disease progression in a mouse model of amyotrophic lateral sclerosis.**

**Pubmed Data** : Eur J Pharmacol. 2006 Aug 7;542(1-3):100-5. Epub 2006 May 20. PMID: [16781706](#)

**Article Published Date** : Aug 07, 2006

**Authors** : Kathline Kim, Dan H Moore, Alexandros Makriyannis, Mary E Abood

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Amyotrophic Lateral Sclerosis : CK(567) : AC(140)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

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**Agents modulating cannabinoid receptors or endocannabinoid tone provide promising therapeutic opportunities in the treatment of inflammatory neurodegenerative disorders of the CNS.**

**Pubmed Data** : Exp Neurol. 2010 Jul ;224(1):92-102. Epub 2010 Mar 29. PMID: [20353778](#)

**Article Published Date** : Jun 30, 2010

**Authors** : Silvia Rossi, Giorgio Bernardi, Diego Centonze

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Amyotrophic Lateral Sclerosis : CK(567) : AC(140) , Inflammation : CK(3240) : AC(882) , Multiple Sclerosis : CK(964) : AC(184) , Neurodegenerative Diseases : CK(3582) : AC(932)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

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**Cannabinol may have therapeutic value in ameliorating symptoms in ALS.**

**Pubmed Data** : Amyotroph Lateral Scler Other Motor Neuron Disord. 2005 Sep;6(3):182-4. PMID: [16183560](#)

**Article Published Date** : Sep 01, 2005

**Authors** : Patrick Weydt, Soyon Hong, Anke Witting, Thomas Möller, Nephi Stella, Michel Kliot

**Study Type** : Animal Study

**Additional Links**

**Substances** : [Cannabinoids](#) : CK(816) : AC(310), [Cannabis](#) : CK(1776) : AC(408)

**Diseases** : [Amyotrophic Lateral Sclerosis](#) : CK(567) : AC(140)

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## Cannabis contains a number of compounds which may have therapeutic value in delaying the progression of ALS.

**Pubmed Data** : Amyotroph Lateral Scler Other Motor Neuron Disord. 2004 Mar;5(1):33-9. PMID: [15204022](#)

**Article Published Date** : Mar 01, 2004

**Authors** : Chandrasekaran Raman, Sean D McAllister, Gulrukh Rizvi, Sonal G Patel, Dan H Moore, Mary E Abood

**Study Type** : Animal Study

**Additional Links**

**Substances** : [Cannabinoids](#) : CK(816) : AC(310), [Cannabis](#) : CK(1776) : AC(408)

**Diseases** : [Amyotrophic Lateral Sclerosis](#) : CK(567) : AC(140)

**Pharmacological Actions** : [Neuroprotective Agents](#) : CK(2360) : AC(1099)

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## Cannabis has potential therapeutic value in the treatment of amyotrophic lateral sclerosis.

**Pubmed Data** : Am J Hosp Palliat Care. 2010 Aug;27(5):347-56. Epub 2010 May 3. PMID: [20439484](#)

**Article Published Date** : Aug 01, 2010

**Authors** : Gregory T Carter, Mary E Abood, Sunil K Aggarwal, Michael D Weiss

**Study Type** : Review

**Additional Links**

**Substances** : [Cannabinoids](#) : CK(816) : AC(310), [Cannabis](#) : CK(1776) : AC(408)

**Diseases** : [Amyotrophic Lateral Sclerosis](#) : CK(567) : AC(140)

**Pharmacological Actions** : [Anti-Inflammatory Agents](#) : CK(4861) : AC(1630), [Antineoplastic Agents](#) : CK(1158) : AC(639), [Antioxidants](#) : CK(8430) : AC(3132), [Neuroprotective Agents](#) : CK(2360) : AC(1099)

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## Cannabis use is not uncommon in ALS patients who reported significant benefits from its use.

**Pubmed Data** : Am J Hosp Palliat Care. 2004 Mar-Apr;21(2):95-104. PMID: [15055508](#)

**Article Published Date** : Mar 01, 2004

**Authors** : Dagmar Amtmann, Patrick Weydt, Kurt L Johnson, Mark P Jensen, Gregory T Carter

**Study Type** : Human: Case Report

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Amyotrophic Lateral Sclerosis : CK(567) : AC(140)

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## It has been suggested that where it is legal to do so, marijuana should be considered in the pharmacological management of ALS.

**Pubmed Data** : Am J Hosp Palliat Care. 2001 Jul-Aug;18(4):264-70. PMID: [11467101](#)

**Article Published Date** : Jul 01, 2001

**Authors** : G T Carter, B S Rosen

**Study Type** : Review

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Amyotrophic Lateral Sclerosis : CK(567) : AC(140)

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## The CB2 cannabinoid agonist AM-1241 prolongs survival (56%) in a transgenic mouse model of amyotrophic lateral sclerosis when initiated at symptom onset.

**Pubmed Data** : Curr Eye Res. 2005 Jul;30(7):583-91. PMID: [17241118](#)

**Article Published Date** : Jul 01, 2005

**Authors** : Jennifer L Shoemaker, Kathryn A Seely, Ronald L Reed, John P Crow, Paul L Prather

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Amyotrophic Lateral Sclerosis : CK(567) : AC(140)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

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## The endocannabinoid system may play a valuable role in the development of treatment options for amyotrophic lateral sclerosis.

**Pubmed Data** : Curr Pharm Des. 2008;14(23):2306-16. PMID: [18781981](#)

**Article Published Date** : Jan 01, 2008

**Authors** : Lynsey G Bilsland, Linda Greensmith

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Amyotrophic Lateral Sclerosis : CK(567) : AC(140) , Endocannabinoid Disorders : CK(46) : AC(13), Endocannabinoid System : CK(22) : AC(12)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

**Additional Keywords** : Diseases that are Linked : CK(2335) : AC(304)

---

## Amyotrophic lateral sclerosis (ALS) (AC 3) (CK 4)

### Cannabidiol modulates genes linked with amyotrophic lateral sclerosis.

**Pubmed Data** : J Cell Biochem. 2016 Oct 7. Epub 2016 Aug 7. PMID: [27714895](#)

**Article Published Date** : Oct 06, 2016

**Authors** : Thangavelu Soundara Rajan, Domenico Scionti, Francesca Diomede, Gianpaolo Grassi, Federica Pollastro, Adriano Piattelli, Lucio Cocco, Placido Bramanti, Emanuela Mazzon, Oriana Trubiani

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Amyotrophic lateral sclerosis (ALS) : CK(566) : AC(140)

**Additional Keywords** : Gene Expression Regulation : CK(431) : AC(214)

---

### Cannabis may provide support as a novel disease-modifying therapy in ALS.

**Pubmed Data** : CNS Neurosci Ther. 2014 Sep ;20(9):809-15. Epub 2014 Apr 7. PMID: [24703394](#)

**Article Published Date** : Aug 31, 2014

**Authors** : Miguel Moreno-Martet, Francisco Espejo-Porras, Javier Fernández-Ruiz, Eva de Lago

**Study Type** : Transgenic Animal Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Amyotrophic lateral sclerosis (ALS) : CK(566) : AC(140)

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### This review discusses the potential of cannabinoid therapeutics as disease-modifying or symptom control agents for slowing disease progression in MS and ALS.

**Pubmed Data** : Handb Exp Pharmacol. 2015 ;231:213-31. PMID: [26408162](#)

**Article Published Date** : Dec 31, 2014

**Authors** : Gareth Pryce, David Baker

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408), Endocannabinoids : CK(9) : AC(1)

**Diseases** : Amyotrophic lateral sclerosis (ALS) : CK(566) : AC(140) , Multiple Sclerosis : CK(964) : AC(184)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

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## Anorexia (AC 1) (CK 1)

**A review of the many benefits of cannabinoids in health and disease.**

**Pubmed Data** : Dialogues Clin Neurosci. 2007 ;9(4):413-30. PMID: [18286801](#)

**Article Published Date** : Dec 31, 2006

**Authors** : Natalya M Kogan, Raphael Mechoulam

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33)

**Diseases** : Anorexia : CK(73) : AC(9), Cancers: All : CK(14773) : AC(4596) , Epilepsy : CK(255) : AC(66) , Inflammation : CK(3240) : AC(882) , Multiple Sclerosis : CK(964) : AC(184) , Neurodegenerative Diseases : CK(3582) : AC(932), Obesity : CK(2443) : AC(521) , Schizophrenia : CK(445) : AC(70)

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## Anorexia: Dementia-Associated (AC 1) (CK 10)

**THC appears therapeutic for anorexia and disturbed behavior in patients with Alzheimer's disease.**

**Pubmed Data** : Int J Geriatr Psychiatry. 1997 Sep ;12(9):913-9. PMID: [9309469](#)

**Article Published Date** : Aug 31, 1997

**Authors** : L Volicer, M Stelly, J Morris, J McLaughlin, B J Volicer

**Study Type** : Human Study

**Additional Links**

**Substances** : [Delta-tetrahydrocannabinol \(THC\)](#) : CK(1135) : AC(342)

**Diseases** : [Anorexia: Dementia-Associated](#) : CK(10) : AC(1)

**Pharmacological Actions** : [Antidepressive Agents](#) : CK(1115) : AC(168)

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## Anxiety (AC 2) (CK 2)

**CBD might be an improvement over other available drugs used for treating the fear-related symptoms of phobias.**

**Pubmed Data** : Front Pharmacol. 2016 ;7:454. Epub 2016 Nov 24. PMID: [27932983](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Regimantas Jurkus, Harriet L L Day, Francisco S Guimarães, Jonathan L C Lee, Leandro J Bertoglio, Carl W Stevenson

**Study Type** : Review

**Additional Links**

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Anxiety](#) : CK(48) : AC(8), [Post-Traumatic Stress Disorders \(PTSD\)](#) : CK(243) : AC(35), [Psychiatric Disorder: Conditioned Fear](#) : CK(11) : AC(6)

**Additional Keywords** : [Natural Substances Versus Drugs](#) : CK(1698) : AC(302)

**Problem Substances** : [Benzodiazepines](#) : CK(10) : AC(1)

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**This reviews the literature demonstrating the anxiolytic effects of Cannabidiol.**

**Pubmed Data** : Br J Pharmacol. 2017 Mar 7. Epub 2017 Mar 7. PMID: [28268256](#)

**Article Published Date** : Mar 06, 2017

**Authors** : Jonathan L C Lee, Leandro J Bertoglio, Francisco S Guimarães, Carl W Stevenson

**Study Type** : Review

**Additional Links**

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Anxiety](#) : CK(48) : AC(8)

**Pharmacological Actions** : [Anti-Anxiety Agents](#) : CK(356) : AC(59)

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# Anxiety Disorders (AC 7) (CK 18)

## Cannabidiol oil could be used as a safe treatment for reducing anxiety and improving sleep in posttraumatic stress disorders.

**Pubmed Data** : Perm J. 2016 Oct 12 ;20(4). Epub 2016 Aug 12. PMID: [27768570](#)

**Article Published Date** : Oct 11, 2016

**Authors** : Scott Shannon, Janet Opila-Lehman

**Study Type** : Human: Case Report

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Anxiety Disorders : CK(1225) : AC(180), Insomnia : CK(523) : AC(66), Post-Traumatic Stress Disorders (PTSD) : CK(243) : AC(35)

**Pharmacological Actions** : Anti-Anxiety Agents : CK(356) : AC(59)

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## Cannabidiol reduces anxiety in social anxiety disorder through modulating the limbic and paralimbic brain areas.

**Pubmed Data** : J Psychopharmacol. 2010 Sep 9. Epub 2010 Sep 9. PMID: [20829306](#)

**Article Published Date** : Sep 09, 2010

**Authors** : José Alexandre S Crippa, Guilherme Nogueira Derenusson, Thiago Borduqui Ferrari, Lauro Wichert-Ana, Fábio L S Duran, Rocio Martin-Santos, Marcus Vinícius Simões, Sagnik Bhattacharyya, Paolo Fusar-Poli, Zerrin Atakan, Alaor Santos Filho, Maria Cecília Freitas-Ferrari, Philip K McGuire, Antonio Waldo Zuardi, Geraldo F Busatto, Jaime Eduardo Cecílio Hallak

**Study Type** : Human Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408)

**Diseases** : Anxiety Disorders : CK(1225) : AC(180), Social Anxiety Disorder (SAD) : CK(10) : AC(1)

**Pharmacological Actions** : Anxiolytic : CK(379) : AC(57)

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## Current evidence indicates CBD has considerable potential as a treatment for multiple anxiety disorders.

**Pubmed Data** : Neurotherapeutics. 2015 Sep 4. Epub 2015 Sep 4. PMID: [26341731](#)

**Article Published Date** : Sep 03, 2015

**Authors** : Esther M Blessing, Maria M Steenkamp, Jorge Manzanares, Charles R Marmar

**Study Type** : Review

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Anxiety Disorders : CK(1225) : AC(180), Obsessive-Compulsive Disorder : CK(188) : AC(26), Post-Traumatic Stress Disorders (PTSD) : CK(243) : AC(35)  
**Pharmacological Actions** : Anti-Anxiety Agents : CK(356) : AC(59)

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## Studies assessed in the present chapter clearly suggest an anxiolytic-like effect of CBD in both animal models and healthy volunteers.

**Pubmed Data** : Curr Neuropharmacol. 2016 May 9. Epub 2016 May 9. PMID: [27157263](#)

**Article Published Date** : May 08, 2016

**Authors** : Vanessa P Soares, Alline C Campos

**Study Type** : Review

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Anxiety Disorders : CK(1225) : AC(180)

**Pharmacological Actions** : Anti-Anxiety Agents : CK(356) : AC(59), Anxiolytic : CK(379) : AC(57)

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## Targeting the endocannabinoid system represents an attractive and novel approach to the treatment of anxiety-related disorders.

**Pubmed Data** : J Basic Clin Physiol Pharmacol. 2015 Sep 30. Epub 2015 Sep 30. PMID: [26426887](#)

**Article Published Date** : Sep 29, 2015

**Authors** : Nachshon Korem, Tomer Mizrachi Zer-Aviv, Eti Ganon-Elazar, Hila Abush, Irit Akirav

**Study Type** : Review

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Anxiety Disorders : CK(1225) : AC(180), Post-Traumatic Stress Disorders (PTSD) : CK(243) : AC(35)

**Pharmacological Actions** : Anti-Anxiety Agents : CK(356) : AC(59)

**Additional Keywords** : Endocannabinoid System : CK(60) : AC(23)

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## This reviews preclinical and clinical on the efficacy of CBD for the treatment of motivational disorders.

**Pubmed Data** : Annu Rev Neurosci. 2016 Feb 24. Epub 2016 Feb 24. PMID: [27023732](#)

**Article Published Date** : Feb 23, 2016

**Authors** : Natalie E Zlebnik, Joseph F Cheer

**Study Type** : Review

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Anxiety Disorders : CK(1225) : AC(180), Depression : CK(2043) : AC(290), Drug Abuse :



## This summarizes the therapeutic effects of CBD and their relevance to brain function, neuroprotection and neuropsychiatric disorders.

**Pubmed Data** : Pharmacol Res. 2016 Feb 1. Epub 2016 Feb 1. PMID: [26845349](#)

**Article Published Date** : Jan 31, 2016

**Authors** : Alline C Campos, Manoela V Fogaça, Andreza B Sonogo, Francisco S Guimarães

**Study Type** : Review

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Anxiety Disorders : CK(1225) : AC(180), Brain Damage : CK(93) : AC(44), Brain Ischemia : CK(136) : AC(52), Depression : CK(2043) : AC(290), Neurodegenerative Diseases : CK(3582) : AC(932), Psychiatric Disorders : CK(123) : AC(31)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

## Appetite Disorders (AC 1) (CK 1)

### Cannabis may have a therapeutic role for appetite disorders.

**Pubmed Data** : Phytother Res. 2011 Jan 7. Epub 2011 Jan 7. PMID: [21213357](#)

**Article Published Date** : Jan 07, 2011

**Authors** : Jonathan A Farrimond, Marion S Mercier, Benjamin J Whalley, Claire M Williams

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Appetite Disorders : CK(114) : AC(19)

## Appetite Disorders: Loss/Lack of (AC 1) (CK 2)

## A cannabigerol enriched cannabis extract could be used as an appetite stimulant.

**Pubmed Data** : Behav Pharmacol. 2017 Jan 25. Epub 2017 Jan 25. PMID: [28125508](#)

**Article Published Date** : Jan 24, 2017

**Authors** : Daniel I Brierley, James Samuels, Marnie Duncan, Benjamin J Whalley, Claire M Williams

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Appetite Disorders: Loss/Lack of : CK(7) : AC(3)

**Pharmacological Actions** : Appetite Stimulants : CK(10) : AC(1)

**Additional Keywords** : Plant Extracts : CK(7645) : AC(2539)

## Arteriosclerosis (AC 1) (CK 2)

### Oral treatment with a low dose of THC inhibits atherosclerosis progression in this mouse model.

**Pubmed Data** : Nature. 2005 Apr 7 ;434(7034):782-6. PMID: [15815632](#)

**Article Published Date** : Apr 06, 2005

**Authors** : Sabine Steffens, Niels R Veillard, Claire Arnaud, Graziano Pelli, Fabienne Burger, Christian Staub, Meliha Karsak, Andreas Zimmer, Jean-Louis Frossard, François Mach

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Arteriosclerosis : CK(452) : AC(126), Inflammation : CK(3240) : AC(882)

**Pharmacological Actions** : Anti-atherogenic : CK(156) : AC(39), Anti-Inflammatory Agents : CK(4861) : AC(1630), Interferon Gamma Reducer : CK(58) : AC(24), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

## Arthritis (AC 1) (CK 1)

## Cannabinoids may have a role to play in arthritis prevention and treatment.

**Pubmed Data** : J Pharm Pharmacol. 2006 Mar ;58(3):351-8. PMID: [16536902](#)

**Article Published Date** : Feb 28, 2006

**Authors** : Estery C Mbvundula, Rowena A D Bunning, K D Rainsford

**Study Type** : Review

**Additional Links**

**Substances** : [Cannabinoids](#) : CK(816) : AC(310)

**Diseases** : [Arthritis](#) : CK(1964) : AC(312)

**Pharmacological Actions** : [Cyclooxygenase 1 Inhibitor](#) : CK(34) : AC(27) , [Cyclooxygenase 2 Inhibitors](#) : CK(464) : AC(272)

## Arthritis: Rheumatoid (AC 1) (CK 1)

**Ajulemic acid, a compound found within marihuana, may have therapeutic value in the treatment of rheumatoid arthritis and osteoporosis.**

**Pubmed Data** : J Cell Physiol. 2008 Mar;214(3):714-20. PMID: [17786950](#)

**Article Published Date** : Mar 01, 2008

**Authors** : Kerri L George, Laura H Saltman, Gary S Stein, Jane B Lian, Robert B Zurier

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : [Marijuana](#) : CK(1952) : AC(456)

**Diseases** : [Arthritis: Rheumatoid](#) : CK(307) : AC(55) , [Osteoporosis](#) : CK(1302) : AC(257)

## Ascites (AC 1) (CK 2)

**A cannabinoid type 1 receptor antagonist improves sodium balance and delays decompensation in preascitic**

## **cirrhosis.**

**Pubmed Data** : Gastroenterology. 2009 Jul;137(1):341-9. Epub 2009 Jan 14. PMID: [19208344](#)

**Article Published Date** : Jul 01, 2009

**Authors** : Marco Domenicali, Paolo Caraceni, Ferdinando Giannone, Anna Maria Pertosa, Alessandro Principe, Andrea Zambruni, Franco Trevisani, Tiziano Croci, Mauro Bernardi

**Study Type** : Animal Study

### **Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Ascites : CK(97) : AC(18)

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## **Asthma (AC 2) (CK 3)**

### **Cannabidiol controls the exaggerated inflammatory response observed in an animal model of asthma.**

**Pubmed Data** : Mediators Inflamm. 2015 ;2015:538670. Epub 2015 May 25. PMID: [26101464](#)

**Article Published Date** : Dec 31, 2014

**Authors** : Francieli Vuolo, Fabricia Petronilho, Beatriz Sonai, Cristiane Ritter, Jaime E C Hallak, Antonio Waldo Zuardi, José A Crippa, Felipe Dal-Pizzol

**Study Type** : Animal Study

### **Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Asthma : CK(1157) : AC(190)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), interleukin-13 downregulation : CK(2) : AC(1), Interleukin-4 downregulation : CK(119) : AC(34), Interleukin-5 downregulation : CK(25) : AC(4), Interleukin-6 Downregulation : CK(1137) : AC(354), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

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### **The possible role of cannabimimetic fatty acid derivatives in the pathological consequences of cancer and inflammation are examined.**

**Pubmed Data** : Chem Phys Lipids. 2000 Nov ;108(1-2):191-209. PMID: [11106791](#)

**Article Published Date** : Oct 31, 2000

**Authors** : L De Petrocellis, D Melck, T Bisogno, V Di Marzo

**Study Type** : Review

### **Additional Links**

**Substances** : Anandamide : CK(2) : AC(2), Cannabinoids : CK(816) : AC(310), Endocannabinoids : CK(9) : AC(1)

**Diseases** : Asthma : CK(1157) : AC(190), Cachexia : CK(77) : AC(25), Cancers: All : CK(14773) : AC(4596), Chronic Pain : CK(206) : AC(33), Inflammation : CK(3240) : AC(882)

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## Astrocytoma (AC 4) (CK 10)

**CB1 receptor immunoreactivity was significantly lower while CB2 receptor immunoreactivity was significantly greater in the membranes of glioblastoma multiforme and astrocytoma.**

**Pubmed Data** : Neurochem Int. 2010 May-Jun;56(6-7):829-33. Epub 2010 Mar 20. PMID: [20307616](#)

**Article Published Date** : Apr 30, 2010

**Authors** : Maider López De Jesús, Cristina Hostalot, Jesús M Garibi, Joan Sallés, J Javier Meana, Luis F Callado

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Astrocytoma : CK(12) : AC(6), Glioblastoma : CK(200) : AC(88)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

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**Cannabinoids inhibit glioma (brain cancer) through the down-regulation of Tissue Inhibitors of Metalloproteinases (TIMPs).**

**Pubmed Data** : Neuropharmacology. 2008 Jan;54(1):235-43. Epub 2007 Jul 1. PMID: [17675107](#)

**Article Published Date** : Jan 01, 2008

**Authors** : Cristina Blázquez, Arkaitz Carracedo, María Salazar, Mar Lorente, Ainara Egia, Luis González-Feria, Amador Haro, Guillermo Velasco, Manuel Guzmán

**Study Type** : Human: Case Report, In Vitro Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Marijuana : CK(1952) : AC(456)

**Diseases** : Astrocytoma : CK(12) : AC(6), Astrocytoma: Grade IV : CK(3) : AC(1), Brain Cancer : CK(450) : AC(179), Glioma : CK(177) : AC(86)

**Additional Keywords** : Tissue Inhibitors of Metalloproteinases (TIMPs) : CK(3) : AC(1)

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## High concentrations of cannabinoids are preferable for efficacious treatment of malignant astrocytomas.

**Pubmed Data** : PLoS One. 2010 ;5(1):e8702. Epub 2010 Jan 14. PMID: [20090845](#)

**Article Published Date** : Dec 31, 2009

**Authors** : Eiron Cudaback, William Marrs, Thomas Moeller, Nephi Stella

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Astrocytoma : CK(12) : AC(6), Brain Cancer : CK(450) : AC(179)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075)

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## The proapoptotic effect of cannabinoids on tumor cells is mediated by a ceramide dependent upregulation of the stress protein p8.

**Pubmed Data** : Cancer Cell. 2006 Apr ;9(4):301-12. PMID: [16616335](#)

**Article Published Date** : Mar 31, 2006

**Authors** : Arkaitz Carracedo, Mar Lorente, Ainara Egia, Cristina Blázquez, Stephane García, Valentin Giroux, Cedric Malicet, Raquel Villuendas, Meritxell Gironella, Luis González-Feria, Miguel Angel Piris, Juan L Iovanna, Manuel Guzmán, Guillermo Velasco

**Study Type** : Animal Study, Human In Vitro

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Astrocytoma : CK(12) : AC(6), Cancers: All : CK(14773) : AC(4596), Glioblastoma : CK(200) : AC(88)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

**Additional Keywords** : Altered Protein Expression : CK(6) : AC(2), Gene Expression Regulation : CK(431) : AC(214)

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## Astrocytoma: Grade IV (AC 1) (CK 3)

### Cannabinoids inhibit glioma (brain cancer) through the down-regulation of Tissue Inhibitors of Metalloproteinases (TIMPs).

**Pubmed Data** : Neuropharmacology. 2008 Jan;54(1):235-43. Epub 2007 Jul 1. PMID: [17675107](#)

**Article Published Date** : Jan 01, 2008

**Authors** : Cristina Blázquez, Arkaitz Carracedo, María Salazar, Mar Lorente, Ainara Egia, Luis González-Feria, Amador Haro, Guillermo Velasco, Manuel Guzmán

**Study Type** : Human: Case Report, In Vitro Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Marijuana : CK(1952) : AC(456)

**Diseases** : Astrocytoma : CK(12) : AC(6), Astrocytoma: Grade IV : CK(3) : AC(1), Brain Cancer : CK(450) : AC(179), Glioma : CK(177) : AC(86)

**Additional Keywords** : Tissue Inhibitors of Metalloproteinases (TIMPs) : CK(3) : AC(1)

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## Atherosclerosis (AC 1) (CK 2)

### Hempseed exhibits anti-atherogenic properties.

**Pubmed Data** : Acta Physiol Hung. 2011 Sep ;98(3):273-83. PMID: [21893466](#)

**Article Published Date** : Sep 01, 2011

**Authors** : N T Gavel, A L Edel, C M C Bassett, A-M Weber, M Merchant, D Rodriguez-Leyva, Grant N Pierce

**Study Type** : Animal Study

**Additional Links**

**Substances** : Hemp Seed : CK(446) : AC(5)

**Diseases** : Atherosclerosis : CK(601) : AC(150)

**Pharmacological Actions** : Cardioprotective : CK(1596) : AC(409)

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## Attention Deficit Disorder with Hyperactivity (AC 1) (CK 3)

### A case of oral Delta 9-tetrahydrocannabinol (THC) improving refractory Gilles de la Tourette Syndrome and comorbid ADHD has been reported.

**Pubmed Data** : J Clin Psychopharmacol. 2010 Apr;30(2):190-2. PMID: [20520294](#)

**Article Published Date** : Apr 01, 2010

**Authors** : Alkomiet Hasan, Aribert Rothenberger, Alexander Münchau, Thomas Wobrock, Peter Falkai, Veit Roessner

**Study Type** : Human: Case Report

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Attention Deficit Disorder with Hyperactivity : CK(303) : AC(38) , Tourette Syndrome : CK(152) : AC(19)

## Attention Deficit Hyperactivity Disorder (AC 1) (CK 10)

**Online discussions indicate that cannabis is considered therapeutic for ADHD.**

**Pubmed Data** : PLoS One. 2016 ;11(5):e0156614. Epub 2016 May 26. PMID: [27227537](#)

**Article Published Date** : Dec 31, 2015

**Authors** : John T Mitchell, Maggie M Sweitzer, Angela M Tunno, Scott H Kollins, F Joseph McClernon

**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Attention Deficit Hyperactivity Disorder : CK(165) : AC(19)

## Auditory Diseases (AC 1) (CK 1)

**A cannabinoid receptor 2 agonist attenuates cisplatin-induced apoptosis in auditory cells.**

**Pubmed Data** : J Neurosci Res. 2007 Mar;85(4):896-905. PMID: [17183590](#)

**Article Published Date** : Mar 01, 2007

**Authors** : Hyun-Ja Jeong, Su-Jin Kim, Phil-Dong Moon, Na-Hyun Kim, Jung-Sun Kim, Rae-Kil Park, Min-Sun Kim, Byung-Rim Park, Sejin Jeong, Jae-Young Um, Hyung-Min Kim, Seung-Heon Hong



**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Auditory Diseases : CK(3) : AC(2) , Chemotherapy-Induced Toxicity: Cisplatin : CK(319) : AC(133)

**Pharmacological Actions** : Anti-Apoptotic : CK(384) : AC(212)

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## Autoimmune Diseases (AC 5) (CK 8)

**CBD may represent a promising novel treatment for management of autoimmune myocarditis and possibly other autoimmune disorders**

**Pubmed Data** : Mol Med. 2016 Jan 8. Epub 2016 Jan 8. PMID: [26772776](#)

**Article Published Date** : Jan 07, 2016

**Authors** : Wen-Shin Lee, Katalin Erdelyi, Csaba Matyas, Partha Mukhopadhyay, Zoltan V Varga, Lucas Liaudet, György Haskó, Daniela Čiháková, Raphael Mechoulam, Pal Pacher

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Autoimmune Diseases : CK(6629) : AC(1128) , Myocarditis: Autoimmune : CK(20) : AC(6)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630) , Immunomodulatory : CK(1287) : AC(358)

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**Cannabis may have a therapeutic role to play in reducing inflammation and over-active immune cells in autoimmune diseases.**

**Pubmed Data** : Immunobiology. 2009 May 18; PMID: [19457575](#)

**Article Published Date** : May 18, 2009

**Authors** : Sadiye Amcaoglu Rieder, Ashok Chauhan, Ugra Singh, Mitzi Nagarkatti, Prakash Nagarkatti

**Study Type** : Commentary

**Additional Links**

**Substances** : Marijuana : CK(1952) : AC(456)

**Diseases** : Autoimmune Diseases : CK(6629) : AC(1128)

**Pharmacological Actions** : Immunosuppressive Agents : CK(37) : AC(24)

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## Delta-tetrahydrocannabinol (THC) may modulate immune response through epigenetic regulation involving histone modifications.

**Pubmed Data** : J Biol Chem. 2014 Jul 4 ;289(27):18707-18718. Epub 2014 May 19. PMID: [24841204](#)

**Article Published Date** : Jul 03, 2014

**Authors** : Xiaoming Yang, Venkatesh L Hegde, Roshni Rao, Jiajia Zhang, Prakash S Nagarkatti, Mitzi Nagarkatti

**Study Type** : Animal Study

### Additional Links

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Autoimmune Diseases : CK(6629) : AC(1128)

**Pharmacological Actions** : Immunomodulatory : CK(1287) : AC(358)

**Additional Keywords** : Epigenetic Modification : CK(220) : AC(90), Gene Expression Regulation : CK(431) : AC(214), Histone Modifications : CK(5) : AC(4)

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## The current study clearly demonstrates that exposure to THC leads to suppression of the immune response.

**Pubmed Data** : J Pharmacol Exp Ther. 2002 Aug ;302(2):451-65. PMID: [12130702](#)

**Article Published Date** : Jul 31, 2002

**Authors** : Robert J McKallip, Catherine Lombard, Billy R Martin, Mitzi Nagarkatti, Prakash S Nagarkatti

**Study Type** : Animal Study, In Vitro Study

### Additional Links

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Autoimmune Diseases : CK(6629) : AC(1128), Immune Disorders : CK(28) : AC(8)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075), Immunomodulatory : CK(1287) : AC(358), Immunosuppressive Agents : CK(37) : AC(24)

**Additional Keywords** : Dose Response : CK(1056) : AC(408)

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## This study explains the beneficial role of CBD in pathological memory T cells and in autoimmune diseases.

**Pubmed Data** : J Neuroinflammation. 2016 ;13(1):136. Epub 2016 Jun 3. PMID: [27256343](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Ewa Kozela, Ana Juknat, Fuying Gao, Nathali Kaushansky, Giovanni Coppola, Zvi Vogel

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Autoimmune Diseases : CK(6629) : AC(1128)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Antioxidants : CK(8430) : AC(3132), Immunomodulatory : CK(1287) : AC(358), Immunomodulatory: Th17

## Bladder Cancer (AC 2) (CK 3)

### Cannabidiol could induce apoptosis in bladder cancer cells by TRPV2 activation.

**Pubmed Data** : Urology. 2010 Aug ;76(2):509.e1-7. Epub 2010 May 23. PMID: [20546877](#)

**Article Published Date** : Jul 31, 2010

**Authors** : Takahiro Yamada, Takashi Ueda, Yasuhiro Shibata, Yosuke Ikegami, Masaki Saito, Yusuke Ishida, Shinya Ugawa, Kenjiro Kohri, Shoichi Shimada

**Study Type** : In Vitro Study

#### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Bladder Cancer : CK(349) : AC(100)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075)

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### The in vivo assessment of the role of CB receptors in inflammation and cancer might be instrumental in broadening the understanding about bladder cancer biology.

**Pubmed Data** : Life Sci. 2015 Oct 1 ;138:41-51. Epub 2014 Oct 15. PMID: [25445433](#)

**Article Published Date** : Sep 30, 2015

**Authors** : Valeria Gasperi, Daniela Evangelista, Sergio Oddi, Fulvio Florenzano, Valerio Chiurchiù, Luciana Avigliano, M Valeria Catani, Mauro Maccarrone

**Study Type** : Animal Study, In Vitro Study

#### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Endocannabinoids : CK(9) : AC(1)

**Diseases** : Bladder Cancer : CK(349) : AC(100), Inflammation : CK(3240) : AC(882)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

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# Bladder Dysfunction (AC 3) (CK 22)

## Cannabigerol may be useful in the treatment of bladder dysfunctions.

**Pubmed Data** : Nat Prod Commun. 2015 Jun ;10(6):1009-12. PMID: [26197538](#)

**Article Published Date** : May 31, 2015

**Authors** : Ester Pagano, Vittorino Montanaro, Antonio Di Girolamo, Antonio Pistone, Vincenzo Altieri, Jordan K Zjawiony, Angelo A Izzo, Raffaele Capasso

**Study Type** : Animal Study

**Additional Links**

**Substances** : [Cannabinoids](#) : CK(816) : AC(310), [Cannabis](#) : CK(1776) : AC(408)

**Diseases** : [Bladder Dysfunction](#) : CK(51) : AC(9)

**Additional Keywords** : [Plant Extracts](#) : CK(7645) : AC(2539)

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## Cannabis-based extracts have therapeutic value for bladder dysfunction in advanced multiple sclerosis.

**Pubmed Data** : Mult Scler. 2004 Aug;10(4):425-33. PMID: [15327041](#)

**Article Published Date** : Aug 01, 2004

**Authors** : C M Brady, R DasGupta, C Dalton, O J Wiseman, K J Berkley, C J Fowler

**Study Type** : Human Study

**Additional Links**

**Substances** : [Cannabis](#) : CK(1776) : AC(408)

**Diseases** : [Bladder Dysfunction](#) : CK(51) : AC(9), [Multiple Sclerosis](#) : CK(964) : AC(184)

**Additional Keywords** : [Plant Extracts](#) : CK(7645) : AC(2539)

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## Treatment with THC/CBD spray appears to be a valid answer to some of the unmet needs in patients with multiple sclerosis.

**Pubmed Data** : J Clin Pharmacol. 2015 Nov 26. Epub 2015 Nov 26. PMID: [26608223](#)

**Article Published Date** : Nov 25, 2015

**Authors** : Damiano Paolicelli, Vita Dorenzo, Alessia Manni, Mariangela D'Onghia, Carla Tortorella, Stefano Zoccolella, Valentina Di Lecce, Antonio Iaffaldano, Maria Trojano

**Study Type** : Human Study

**Additional Links**

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338), [Delta-tetrahydrocannabinol \(THC\)](#) : CK(1135) : AC(342)

**Diseases** : [Bladder Dysfunction](#) : CK(51) : AC(9), [Multiple Sclerosis](#) : CK(964) : AC(184)

**Additional Keywords** : [Plant Extracts](#) : CK(7645) : AC(2539)

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## Bone Fractures (AC 1) (CK 2)

**CBD leads to improvement in fracture healing and demonstrate the critical mechanical role of collagen crosslinking enzymes.**

**Pubmed Data** : J Bone Miner Res. 2015 Mar 19. Epub 2015 Mar 19. PMID: [25801536](#)

**Article Published Date** : Mar 18, 2015

**Authors** : Natalya M Kogan, Eitan Melamed, Elad Wasserman, Bitya Raphael, Aviva Breuer, Kathryn S Stok, Rachel Sondergaard, Ana V Villarreal Escudero, Saja Baraghithy, Malka Attar-Namdar, Silvina Friedlander-Barenboim, Neashan Mathavan, Hanna Isaksson, Raphael Mechoulam, Ralph Müller, Alon Bajayo, Yankel Gabet, Itai Bab

**Study Type** : Animal Study

**Additional Links**

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Bone Fractures](#) : CK(514) : AC(78)

**Pharmacological Actions** : [Enzyme Activators](#) : CK(4) : AC(2)

## Brachial Plexus Neuropathies (AC 2) (CK 20)

**Cannabis is well-tolerated and efficacious in the treatment of neuropathic pain from brachial plexus avulsion.**

**Pubmed Data** : Pain. 2004 Dec;112(3):299-306. PMID: [15561385](#)

**Article Published Date** : Dec 01, 2004

**Authors** : Jonathan S Berman, Catherine Symonds, Rolfe Birch

**Study Type** : Human Study

**Additional Links**

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338), [Cannabis](#) : CK(1776) : AC(408), [Delta-tetrahydrocannabinol \(THC\)](#) : CK(1135) : AC(342)

**Diseases** : Brachial Plexus Neuropathies : CK(20) : AC(2) , Neuropathic Pain : CK(284) : AC(69)  
**Additional Keywords** : Plant Extracts : CK(7645) : AC(2539)

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## Whole-plant cannabis extract can improve intractable neurogenic symptoms.

**Pubmed Data** : Clin Rehabil. 2003 Feb;17(1):21-9. PMID: [12617376](#)

**Article Published Date** : Feb 01, 2003

**Authors** : Derick T Wade, Philip Robson, Heather House, Petra Makela, Julia Aram

**Study Type** : Human Study

### Additional Links

**Substances** : Marijuana : CK(1952) : AC(456)

**Diseases** : Brachial Plexus Neuropathies : CK(20) : AC(2) , Multiple Sclerosis : CK(964) : AC(184) , Neurogenic Bladder : CK(91) : AC(10) , Phantom Limb : CK(26) : AC(4) , Spinal Cord Injuries : CK(155) : AC(55)

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## Brain Cancer (AC 3) (CK 5)

### Cannabinoids inhibit glioma (brain cancer) cell growth in vitro.

**Pubmed Data** : Cancer Res. 2008 Mar 15;68(6):1945-52. PMID: [18339876](#)

**Article Published Date** : Mar 15, 2008

**Authors** : Cristina Blázquez, María Salazar, Arkaitz Carracedo, Mar Lorente, Ainara Egia, Luis González-Feria, Amador Haro, Guillermo Velasco, Manuel Guzmán

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Marijuana : CK(1952) : AC(456)

**Diseases** : Brain Cancer : CK(450) : AC(179) , Glioma : CK(177) : AC(86)

**Pharmacological Actions** : Anti-Tumor : CK(146) : AC(73)

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### Cannabinoids inhibit glioma (brain cancer) through the down-regulation of Tissue Inhibitors of Metalloproteinases (TIMPs).

**Pubmed Data** : Neuropharmacology. 2008 Jan;54(1):235-43. Epub 2007 Jul 1. PMID: [17675107](#)

**Article Published Date** : Jan 01, 2008

**Authors** : Cristina Blázquez, Arkaitz Carracedo, María Salazar, Mar Lorente, Ainara Egia, Luis González-Feria, Amador Haro, Guillermo Velasco, Manuel Guzmán

**Study Type** : Human: Case Report, In Vitro Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Marijuana : CK(1952) : AC(456)

**Diseases** : Astrocytoma : CK(12) : AC(6), Astrocytoma: Grade IV : CK(3) : AC(1), Brain Cancer : CK(450) : AC(179), Glioma : CK(177) : AC(86)

**Additional Keywords** : Tissue Inhibitors of Metalloproteinases (TIMPs) : CK(3) : AC(1)

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## High concentrations of cannabinoids are preferable for efficacious treatment of malignant astrocytomas.

**Pubmed Data** : PLoS One. 2010 ;5(1):e8702. Epub 2010 Jan 14. PMID: [20090845](#)

**Article Published Date** : Dec 31, 2009

**Authors** : Eiron Cudaback, William Marrs, Thomas Moeller, Nephi Stella

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Astrocytoma : CK(12) : AC(6), Brain Cancer : CK(450) : AC(179)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075)

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## Brain Damage (AC 3) (CK 4)

### Cannabinoids have neuroprotective properties.

**Pubmed Data** : Recent Pat CNS Drug Discov. 2007 Jun ;2(2):131-9. PMID: [18221224](#)

**Article Published Date** : May 31, 2007

**Authors** : Jose Martínez-Orgado, David Fernández-López, Ignacio Lizasoain, Julián Romero

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Brain Damage : CK(93) : AC(44), Brain Damage: Hypoxic Ischemic Insult : CK(2) : AC(1)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

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The neuroprotective effect of cannabidiol in an in vitro model of newborn hypoxic-ischemic brain damage in mice is mediated by CB(2) and adenosine receptors.

**Pubmed Data** : Neurobiol Dis. 2010 Feb ;37(2):434-40. Epub 2009 Nov 6. PMID: [19900555](#)

**Article Published Date** : Jan 31, 2010

**Authors** : A Castillo, M R Tolón, J Fernández-Ruiz, J Romero, J Martinez-Orgado

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Brain Damage : CK(93) : AC(44) , Brain Damage: Hypoxic Ischemic Insult : CK(2) : AC(1)

**Pharmacological Actions** : Interleukin-6 Downregulation : CK(1137) : AC(354) , Neuroprotective Agents : CK(2360) : AC(1099)

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**This summarizes the therapeutic effects of CBD and their relevance to brain function, neuroprotection and neuropsychiatric disorders.**

**Pubmed Data** : Pharmacol Res. 2016 Feb 1. Epub 2016 Feb 1. PMID: [26845349](#)

**Article Published Date** : Jan 31, 2016

**Authors** : Alline C Campos, Manoela V Fogaça, Andreza B Sonego, Francisco S Guimarães

**Study Type** : Review

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Anxiety Disorders : CK(1225) : AC(180) , Brain Damage : CK(93) : AC(44) , Brain Ischemia : CK(136) : AC(52) , Depression : CK(2043) : AC(290) , Neurodegenerative Diseases : CK(3582) : AC(932) , Psychiatric Disorders : CK(123) : AC(31)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

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## Brain Damage: Hypoxic Ischemic Insult (AC 6) (CK 11)

**Cannabidiol administration after hypoxia-ischemia to newborn rats reduces long-term brain injury and restores neurobehavioral function.**

**Pubmed Data** : Neuropharmacology. 2012 Oct ;63(5):776-83. Epub 2012 May 30. PMID: [22659086](#)

**Article Published Date** : Sep 30, 2012

**Authors** : M R Pazos, V Cinquina, A Gómez, R Layunta, M Santos, J Fernández-Ruiz, José Martínez-Orgado

**Study Type** : Animal Study



### Additional Links

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Brain Damage: Hypoxic Ischemic Insult](#) : CK(2) : AC(1) , [Brain Ischemia](#) : CK(136) : AC(52)

**Pharmacological Actions** : [Neuroprotective Agents](#) : CK(2360) : AC(1099)

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## Cannabidiol reduces lung injury induced by hypoxic-ischemic brain damage.

**Pubmed Data** : [Pediatr Res. 2017 Apr 7. Epub 2017 Apr 7. PMID: 28388598](#)

**Article Published Date** : Apr 06, 2017

**Authors** : Luis Arruza, Maria Ruth Pazos, Nagat Mohammed, Natalia Escribano, Hector Lafuente, Martín Santos, Francisco J Alvarez-Díaz, William Hind, Jose Martínez-Orgado

**Study Type** : Animal Study

### Additional Links

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Brain Damage: Hypoxic Ischemic Insult](#) : CK(2) : AC(1)

**Pharmacological Actions** : [Anti-Inflammatory Agents](#) : CK(4861) : AC(1630) , [Neuroprotective Agents](#) : CK(2360) : AC(1099)

**Additional Keywords** : [Neuroprotective Agents](#) : CK(2360) : AC(1099) , [Neuroprotective Agents](#) : CK(2360) : AC(1099) , [Neuroprotective Agents](#) : CK(2360) : AC(1099) , [Neuroprotective Agents](#) : CK(2360) : AC(1099)

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## Cannabinoids have neuroprotective properties.

**Pubmed Data** : [Recent Pat CNS Drug Discov. 2007 Jun ;2\(2\):131-9. PMID: 18221224](#)

**Article Published Date** : May 31, 2007

**Authors** : Jose Martínez-Orgado, David Fernández-López, Ignacio Lizasoain, Julián Romero

**Study Type** : Review

### Additional Links

**Substances** : [Cannabinoids](#) : CK(816) : AC(310)

**Diseases** : [Brain Damage](#) : CK(93) : AC(44) , [Brain Damage: Hypoxic Ischemic Insult](#) : CK(2) : AC(1)

**Pharmacological Actions** : [Neuroprotective Agents](#) : CK(2360) : AC(1099)

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## Mechanisms of cannabidiol neuroprotection in hypoxic-ischemic newborn pigs have been identified.

**Pubmed Data** : [Neuropharmacology. 2013 Aug ;71:282-91. Epub 2013 Apr 12. PMID: 23587650](#)

**Article Published Date** : Jul 31, 2013

**Authors** : M Ruth Pazos, Nagat Mohammed, Hector Lafuente, Martin Santos, Eva Martínez-Pinilla, Estefania Moreno, Elsa Valdizan, Julián Romero, Angel Pazos, Rafael Franco, Cecilia J Hillard, Francisco J Alvarez, Jose Martínez-Orgado

**Study Type** : Animal Study

### Additional Links

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338) , [Cannabinoids](#) : CK(816) : AC(310)

**Diseases** : Brain Damage: Hypoxic Ischemic Insult : CK(2) : AC(1) , Brain Ischemia : CK(136) : AC(52)  
**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

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## Neuroprotective effects of the nonpsychoactive cannabinoid cannabidiol in hypoxic-ischemic newborn piglets has been observed.

**Pubmed Data** : Pediatr Res. 2008 Dec ;64(6):653-8. PMID: [18679164](#)

**Article Published Date** : Nov 30, 2008

**Authors** : Francisco J Alvarez, Hector Lafuente, M Carmen Rey-Santano, Victoria E Mielgo, Elena Gastiasoro, Miguel Rueda, Roger G Pertwee, Ana I Castillo, Julián Romero, José Martínez-Orgado

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Brain Damage: Hypoxic Ischemic Insult : CK(2) : AC(1) , Brain Ischemia : CK(136) : AC(52)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

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## The neuroprotective effect of cannabidiol in an in vitro model of newborn hypoxic-ischemic brain damage in mice is mediated by CB(2) and adenosine receptors.

**Pubmed Data** : Neurobiol Dis. 2010 Feb ;37(2):434-40. Epub 2009 Nov 6. PMID: [19900555](#)

**Article Published Date** : Jan 31, 2010

**Authors** : A Castillo, M R Tolón, J Fernández-Ruiz, J Romero, J Martinez-Orgado

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Brain Damage : CK(93) : AC(44) , Brain Damage: Hypoxic Ischemic Insult : CK(2) : AC(1)

**Pharmacological Actions** : Interleukin-6 Downregulation : CK(1137) : AC(354) , Neuroprotective Agents : CK(2360) : AC(1099)

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## Brain Edema (AC 1) (CK 2)

Administration of synthetic 2-AG to mice after CHI led to significant reduction of brain oedema, better clinical recovery, reduced infarct volume and reduced

## hippocampal cell death compared with controls.

**Pubmed Data** : Nature. 2001 Oct 4 ;413(6855):527-31. PMID: [11586361](#)

**Article Published Date** : Oct 03, 2001

**Authors** : D Panikashvili, C Simeonidou, S Ben-Shabat, L Hanus, A Breuer, R Mechoulam, E Shohami

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Endocannabinoids : CK(9) : AC(1)

**Diseases** : Brain Edema : CK(49) : AC(13) , Brain Inflammation : CK(274) : AC(145), Traumatic Brain Injury : CK(88) : AC(25)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Neuroprotective Agents : CK(2360) : AC(1099)

**Additional Keywords** : Significant Treatment Outcome : CK(3038) : AC(366)

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## Brain Inflammation (AC 12) (CK 18)

**Administration of synthetic 2-AG to mice after CHI led to significant reduction of brain oedema, better clinical recovery, reduced infarct volume and reduced hippocampal cell death compared with controls.**

**Pubmed Data** : Nature. 2001 Oct 4 ;413(6855):527-31. PMID: [11586361](#)

**Article Published Date** : Oct 03, 2001

**Authors** : D Panikashvili, C Simeonidou, S Ben-Shabat, L Hanus, A Breuer, R Mechoulam, E Shohami

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Endocannabinoids : CK(9) : AC(1)

**Diseases** : Brain Edema : CK(49) : AC(13) , Brain Inflammation : CK(274) : AC(145), Traumatic Brain Injury : CK(88) : AC(25)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Neuroprotective Agents : CK(2360) : AC(1099)

**Additional Keywords** : Significant Treatment Outcome : CK(3038) : AC(366)

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**Cannabidiol and (-)Delta9-tetrahydrocannabinol are neuroprotective antioxidants.**

**Pubmed Data** : Proc Natl Acad Sci U S A. 1998 Jul 7 ;95(14):8268-73. PMID: [9653176](#)

**Article Published Date** : Jul 06, 1998

**Authors** : A J Hampson, M Grimaldi, J Axelrod, D Wink

**Study Type** : Review

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Brain Inflammation : CK(274) : AC(145), Cerebral Ischemia : CK(229) : AC(77), Oxidative Stress : CK(3871) : AC(1382)

**Pharmacological Actions** : Antioxidants : CK(8430) : AC(3132), Neuroprotective Agents : CK(2360) : AC(1099)

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## Cannabidiol may have potential as a preventative treatment for Alzheimer's disease.

**Pubmed Data** : J Alzheimers Dis. 2014 ;42(4):1383-96. PMID: [25024347](#)

**Article Published Date** : Dec 31, 2013

**Authors** : David Cheng, Adena S Spiro, Andrew M Jenner, Brett Garner, Tim Karl

**Study Type** : Transgenic Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Brain: Oxidative Stress : CK(79) : AC(46), Brain Inflammation : CK(274) : AC(145), Memory Disorders : CK(344) : AC(104)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Antioxidants : CK(8430) : AC(3132), Neuroprotective Agents : CK(2360) : AC(1099)

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## Cannabigerol quinone (VCE-003) has high potential for use against MS and perhaps other neuroinflammatory diseases.

**Pubmed Data** : J Neuroimmune Pharmacol. 2012 Dec ;7(4):1002-16. Epub 2012 Sep 14. PMID: [22971837](#)

**Article Published Date** : Nov 30, 2012

**Authors** : Aitor G Granja, Francisco Carrillo-Salinas, Alberto Pagani, María Gómez-Cañas, Roberto Negri, Carmen Navarrete, Miriam Mecha, Leyre Mestre, Bend L Fiebich, Irene Cantarero, Marco A Calzado, Maria L Bellido, Javier Fernandez-Ruiz, Giovanni Appendino, Carmen Guaza, Eduardo Muñoz

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33)

**Diseases** : Brain Inflammation : CK(274) : AC(145), Encephalomyelitis : CK(24) : AC(15), Multiple Sclerosis : CK(964) : AC(184)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Neuroprotective Agents : CK(2360) : AC(1099)

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## Cannabinoids attenuate the effects of aging upon neuroinflammation and neurogenesis.

**Pubmed Data** : Neurobiol Dis. 2009 May ;34(2):300-7. PMID: [19385063](#)

**Article Published Date** : Apr 30, 2009

**Authors** : Yannick Marchalant, Holly M Brothers, Greg J Norman, Kate Karelina, A Courtney DeVries, Gary L Wenk

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Aging : CK(1658) : AC(438), Aging: Brain : CK(248) : AC(85), Brain Inflammation : CK(274) : AC(145)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Calcium Channel Blockers : CK(87) : AC(23), Neuritogenic : CK(133) : AC(59), Neuroprotective Agents : CK(2360) : AC(1099)

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## Cannabinoids may have therapeutic value in neurodegenerative conditions by preventing and/or reducing neuroinflammation.

**Pubmed Data** : Neuroscience. 2007 Feb 23 ;144(4):1516-22. Epub 2006 Dec 18. PMID: [17178196](#)

**Article Published Date** : Feb 22, 2007

**Authors** : Y Marchalant, S Rosi, G L Wenk

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Brain: Microglial Activation : CK(82) : AC(53), Brain Inflammation : CK(274) : AC(145), Lipopolysaccharide-Induced Toxicity : CK(380) : AC(218), Memory Disorders : CK(344) : AC(104)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217), Anti-Inflammatory Agents : CK(4861) : AC(1630), Neuroprotective Agents : CK(2360) : AC(1099)

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## Cannabinoids may have therapeutic value in treating neuroinflammation.

**Pubmed Data** : ScientificWorldJournal. 2011;11:855-65. Epub 2011 Apr 5. PMID: [21479354](#)

**Article Published Date** : Jan 01, 2011

**Authors** : Eric J Downer

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Brain Inflammation : CK(274) : AC(145)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630)

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## Cannabinoids that activate the CB2R inhibit the ECM adhesion process, thus has potential to serve as a therapeutic agent for ablating neuroinflammation associated with HIV.

**Pubmed Data** : Life Sci. 2014 May 28 ;104(1-2):15-23. Epub 2014 Apr 15. PMID: [24742657](#)

**Article Published Date** : May 27, 2014

**Authors** : Erinn S Raborn, Melissa Jamerson, Francine Marciano-Cabral, Guy A Cabral

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Brain Inflammation : CK(274) : AC(145), HIV Infections : CK(680) : AC(219)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630)

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## Grossamide could be a potential therapeutic candidate for inhibiting neuroinflammation in neurodegenerative diseases.

**Pubmed Data** : Mol Cell Biochem. 2017 Apr ;428(1-2):129-137. Epub 2017 Feb 21. PMID: [28224333](#)

**Article Published Date** : Mar 31, 2017

**Authors** : Qian Luo, Xiaoli Yan, Larisa Bobrovskaya, Mei Ji, Huiqing Yuan, Hongxiang Lou, Peihong Fan

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Hemp Seed : CK(446) : AC(5)

**Diseases** : Brain Inflammation : CK(274) : AC(145), Neurodegenerative Diseases : CK(3582) : AC(932)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Interleukin-6 Downregulation : CK(1137) : AC(354), NF-kappaB Inhibitor : CK(1114) : AC(694), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

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## Short-term cannabidiol treatment results in global functional recovery in ischemic mice.

**Pubmed Data** : Prog Neuropsychopharmacol Biol Psychiatry. 2016 Nov 23. Epub 2016 Nov 23. PMID: [27889412](#)

**Article Published Date** : Nov 22, 2016

**Authors** : Marco Aurélio Mori, Erika Meyer, Ligia Mendes Soares, Humberto Milani, Francisco Silveira Guimarães, Rúbia Maria Weffort de Oliveira

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Brain Inflammation : CK(274) : AC(145), Brain Ischemia : CK(136) : AC(52)

**Pharmacological Actions** : Neuroplasticity enhancement : CK(44) : AC(12), Neuroprotective Agents : CK(2360) : AC(1099)

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## The data from this study supports the view that inhibition of microglial activation may improve schizophrenia symptoms.

**Pubmed Data** : Schizophr Res. 2015 May ;164(1-3):155-63. Epub 2015 Feb 10. PMID: [25680767](#)

**Article Published Date** : Apr 30, 2015

**Authors** : Felipe V Gomes, Ricardo Llorente, Elaine A Del Bel, Maria-Paz Viveros, Meritxell López-Gallardo, Francisco S Guimarães

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Brain Inflammation : CK(274) : AC(145), Schizophrenia : CK(445) : AC(70)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Antipsychotic Agents : CK(15) : AC(2), Neuroprotective Agents : CK(2360) : AC(1099)

**Additional Keywords** : Clozapine : CK(2) : AC(1), Natural Substances Versus Drugs : CK(1698) : AC(302)

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## This review details the mechanisms of neurodegeneration and highlights the beneficial effects of cannabinoid treatment.

**Pubmed Data** : Br J Pharmacol. 2014 Mar ;171(6):1347-60. PMID: [24172185](#)

**Article Published Date** : Feb 28, 2014

**Authors** : S G Fagan, V A Campbell

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Alzheimer's Disease : CK(1292) : AC(382), Brain Inflammation : CK(274) : AC(145), Huntington Disease : CK(91) : AC(36), Neurodegenerative Diseases : CK(3582) : AC(932), Parkinson's Disease : CK(1021) : AC(167)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Neurogenesis : CK(59) : AC(30), Neuroprotective Agents : CK(2360) : AC(1099)

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## Brain Injury: Traumatic (AC 1) (CK 10)

**A positive THC screen is associated with decreased mortality in adult patients sustaining traumatic brain injury.**

**Pubmed Data** : Am Surg. 2014 Oct ;80(10):979-83. PMID: [25264643](#)

**Article Published Date** : Sep 30, 2014

**Authors** : Brian M Nguyen, Dennis Kim, Scott Bricker, Fred Bongard, Angela Neville, Brant Putnam, Jennifer Smith, David Plurad

**Study Type** : Human Study

### **Additional Links**

**Substances** : [Delta-tetrahydrocannabinol \(THC\)](#) : CK(1135) : AC(342)

**Diseases** : [Brain Injury: Traumatic](#) : CK(99) : AC(30)

**Additional Keywords** : [Mortality](#) : CK(62) : AC(6) , [Significant Treatment Outcome](#) : CK(3038) : AC(366)

## Brain Ischemia (AC 7) (CK 13)

**Cannabidiol administration after hypoxia-ischemia to newborn rats reduces long-term brain injury and restores neurobehavioral function.**

**Pubmed Data** : Neuropharmacology. 2012 Oct ;63(5):776-83. Epub 2012 May 30. PMID: [22659086](#)

**Article Published Date** : Sep 30, 2012

**Authors** : M R Pazos, V Cinquina, A Gómez, R Layunta, M Santos, J Fernández-Ruiz, José Martínez-Orgado

**Study Type** : Animal Study

### **Additional Links**

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Brain Damage: Hypoxic Ischemic Insult](#) : CK(2) : AC(1) , [Brain Ischemia](#) : CK(136) : AC(52)

**Pharmacological Actions** : [Neuroprotective Agents](#) : CK(2360) : AC(1099)

**Cannabidiol has a neuroprotective property in newborn**



## rodent hypoxic ischemic insult.

**Pubmed Data** : CNS Neurol Disord Drug Targets. 2016 Sep 27. Epub 2016 Sep 27. PMID: [27686886](#)

**Article Published Date** : Sep 26, 2016

**Authors** : Nagat Mohammed, Maria Ceprián, Laura Jimenez, M Ruth Pazos, Jose Martínez-Orgado

**Study Type** : Animal Study

### Additional Links

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Brain Ischemia](#) : CK(136) : AC(52) , [Infant Neurological Development](#) : CK(58) : AC(9)

**Pharmacological Actions** : [Neuroprotective Agents](#) : CK(2360) : AC(1099)

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## Mechanisms of cannabidiol neuroprotection in hypoxic-ischemic newborn pigs have been identified.

**Pubmed Data** : Neuropharmacology. 2013 Aug ;71:282-91. Epub 2013 Apr 12. PMID: [23587650](#)

**Article Published Date** : Jul 31, 2013

**Authors** : M Ruth Pazos, Nagat Mohammed, Hector Lafuente, Martin Santos, Eva Martínez-Pinilla, Estefania Moreno, Elsa Valdizan, Julián Romero, Angel Pazos, Rafael Franco, Cecilia J Hillard, Francisco J Alvarez, Jose Martínez-Orgado

**Study Type** : Animal Study

### Additional Links

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338), [Cannabinoids](#) : CK(816) : AC(310)

**Diseases** : [Brain Damage: Hypoxic Ischemic Insult](#) : CK(2) : AC(1) , [Brain Ischemia](#) : CK(136) : AC(52)

**Pharmacological Actions** : [Neuroprotective Agents](#) : CK(2360) : AC(1099)

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## Neuroprotective effects of the nonpsychoactive cannabinoid cannabidiol in hypoxic-ischemic newborn piglets has been observed.

**Pubmed Data** : Pediatr Res. 2008 Dec ;64(6):653-8. PMID: [18679164](#)

**Article Published Date** : Nov 30, 2008

**Authors** : Francisco J Alvarez, Hector Lafuente, M Carmen Rey-Santano, Victoria E Mielgo, Elena Gastiasoro, Miguel Rueda, Roger G Pertwee, Ana I Castillo, Julián Romero, José Martínez-Orgado

**Study Type** : Animal Study

### Additional Links

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Brain Damage: Hypoxic Ischemic Insult](#) : CK(2) : AC(1) , [Brain Ischemia](#) : CK(136) : AC(52)

**Pharmacological Actions** : [Neuroprotective Agents](#) : CK(2360) : AC(1099)

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## Short-term cannabidiol treatment results in global functional recovery in ischemic mice.

**Pubmed Data** : Prog Neuropsychopharmacol Biol Psychiatry. 2016 Nov 23. Epub 2016 Nov 23. PMID: [27889412](#)

**Article Published Date** : Nov 22, 2016

**Authors** : Marco Aurélio Mori, Erika Meyer, Ligia Mendes Soares, Humberto Milani, Francisco Silveira Guimarães, Rúbia Maria Weffort de Oliveira

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Brain Inflammation : CK(274) : AC(145), Brain Ischemia : CK(136) : AC(52)

**Pharmacological Actions** : Neuroplasticity enhancement : CK(44) : AC(12), Neuroprotective Agents : CK(2360) : AC(1099)

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## The activation of the endocannabinoid system promotes white and gray matter recovery after neonatal HI injury.

**Pubmed Data** : Stroke. 2010 Dec ;41(12):2956-64. PMID: [21115947](#)

**Article Published Date** : Nov 30, 2010

**Authors** : David Fernández-López, Jesús M Pradillo, Isaac García-Yébenes, José A Martínez-Orgado, María A Moro, Ignacio Lizasoain

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Brain Ischemia : CK(136) : AC(52), Neonatal Stroke : CK(4) : AC(2), Stroke: Attenuation/Recovery : CK(347) : AC(75)

**Pharmacological Actions** : Neurogenesis : CK(59) : AC(30)

**Additional Keywords** : Endocannabinoid System : CK(60) : AC(23), Neuro-repair : CK(2) : AC(1)

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## This summarizes the therapeutic effects of CBD and their relevance to brain function, neuroprotection and neuropsychiatric disorders.

**Pubmed Data** : Pharmacol Res. 2016 Feb 1. Epub 2016 Feb 1. PMID: [26845349](#)

**Article Published Date** : Jan 31, 2016

**Authors** : Alline C Campos, Manoela V Fogaça, Andreza B Sonogo, Francisco S Guimarães

**Study Type** : Review

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Anxiety Disorders : CK(1225) : AC(180), Brain Damage : CK(93) : AC(44), Brain Ischemia : CK(136) : AC(52), Depression : CK(2043) : AC(290), Neurodegenerative Diseases : CK(3582) : AC(932), Psychiatric Disorders : CK(123) : AC(31)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

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# Brain: Microglial Activation (AC 5) (CK 8)

## Cannabidiol has a neuroprotective effect in endotoxin-induced uveitis.

**Pubmed Data** : Mol Vis. 2008;14:2190-203. Epub 2008 Dec 3. PMID: [19052649](#)

**Article Published Date** : Jan 01, 2008

**Authors** : A B El-Remessy, Y Tang, G Zhu, S Matragoon, Y Khalifa, E K Liu, J-Y Liu, E Hanson, S Mian, N Fatteh, G I Liou

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408)

**Diseases** : Brain: Microglial Activation : CK(82) : AC(53), Endotoxemia : CK(83) : AC(43), Lipopolysaccharide-Induced Toxicity : CK(380) : AC(218), Oxidative Stress : CK(3871) : AC(1382), Uveitis : CK(91) : AC(17)

**Pharmacological Actions** : Enzyme Inhibitors : CK(473) : AC(251), Neuroprotective Agents : CK(2360) : AC(1099), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

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## Cannabidiol inhibits symptoms of multiple sclerosis-like disease in mice.

**Pubmed Data** : Br J Pharmacol. 2011 Mar 30. Epub 2011 Mar 30. PMID: [21449980](#)

**Article Published Date** : Mar 30, 2011

**Authors** : Ewa Kozela, Nirit Lev, Nathali Kaushansky, Raya Eilam, Neta Rimmerman, Rivka Levy, Avraham Ben-Nun, Ana Juknat, Zvi Vogel

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Brain: Microglial Activation : CK(82) : AC(53), Multiple Sclerosis : CK(964) : AC(184)

**Pharmacological Actions** : Immunomodulatory : CK(1287) : AC(358), Immunomodulatory: T-Cell down-regulation : CK(12) : AC(2)

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## Cannabinoids may have therapeutic value in neurodegenerative conditions by preventing and/or reducing neuroinflammation.

**Pubmed Data** : Neuroscience. 2007 Feb 23 ;144(4):1516-22. Epub 2006 Dec 18. PMID: [17178196](#)

**Article Published Date** : Feb 22, 2007

**Authors** : Y Marchalant, S Rosi, G L Wenk

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Brain: Microglial Activation : CK(82) : AC(53), Brain Inflammation : CK(274) : AC(145), Lipopolysaccharide-Induced Toxicity : CK(380) : AC(218), Memory Disorders : CK(344) : AC(104)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217), Anti-Inflammatory Agents : CK(4861) : AC(1630), Neuroprotective Agents : CK(2360) : AC(1099)

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## It may be possible to prevent Alzheimer's disease pathology by cannabinoids.

**Pubmed Data** : J Neurosci. 2005 Feb 23 ;25(8):1904-13. PMID: [15728830](#)

**Article Published Date** : Feb 22, 2005

**Authors** : Belén G Ramírez, Cristina Blázquez, Teresa Gómez del Pulgar, Manuel Guzmán, María L de Ceballos

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Brain: Microglial Activation : CK(82) : AC(53)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

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## JWH-015, THC, CBD, Abn-CBD and O-1602 all protected SH-SY5Y cells from BV-2 conditioned media activated via LPS.

**Pubmed Data** : Cell Mol Neurobiol. 2014 Jan ;34(1):31-42. Epub 2013 Sep 13. PMID: [24030360](#)

**Article Published Date** : Dec 31, 2013

**Authors** : Emelie Janefjord, Jesper L V Mååg, Benjamin S Harvey, Scott D Smid

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342), Lignans : CK(169) : AC(46)

**Diseases** : Brain: Microglial Activation : CK(82) : AC(53), Lipopolysaccharide-Induced Toxicity : CK(380) : AC(218)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

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**Brain: Oxidative Stress (AC 2) (CK 3)**

## Cannabidiol may have potential as a preventative treatment for Alzheimer's disease.

**Pubmed Data** : J Alzheimers Dis. 2014 ;42(4):1383-96. PMID: [25024347](#)

**Article Published Date** : Dec 31, 2013

**Authors** : David Cheng, Adena S Spiro, Andrew M Jenner, Brett Garner, Tim Karl

**Study Type** : Transgenic Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Brain: Oxidative Stress : CK(79) : AC(46) , Brain Inflammation : CK(274) : AC(145), Memory Disorders : CK(344) : AC(104)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630) , Antioxidants : CK(8430) : AC(3132), Neuroprotective Agents : CK(2360) : AC(1099)

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## THC and other cannabinoids are potent antioxidants, with cannabidiol been superior to both alpha-tocopherol and ascorbate in protective capacity.

**Pubmed Data** : Ann N Y Acad Sci. 2000 ;899:274-82. PMID: [10863546](#)

**Article Published Date** : Dec 31, 1999

**Authors** : A J Hampson, M Grimaldi, M Lolic, D Wink, R Rosenthal, J Axelrod

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Brain: Oxidative Stress : CK(79) : AC(46)

**Pharmacological Actions** : Antioxidants : CK(8430) : AC(3132) , Neuroprotective Agents : CK(2360) : AC(1099)

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## Breast Cancer (AC 19) (CK 30)

### A review of the antiproliferative effects of cannabinoids on cancer cells.

**Pubmed Data** : Mini Rev Med Chem. 2005 Oct ;5(10):941-52. PMID: [16250836](#)

**Article Published Date** : Sep 30, 2005

**Authors** : Natalya M Kogan

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Breast Cancer : CK(3592) : AC(1064), Glioma : CK(177) : AC(86), Lung Cancer : CK(1043) : AC(393)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685)

---

## A synthetic cannabinoid inhibited CXCL12-induced migration and invasive properties of breast cancer cells.

**Pubmed Data** : PLoS One. 2011 ;6(9):e23901. Epub 2011 Sep 7. PMID: [21915267](#)

**Article Published Date** : Dec 31, 2010

**Authors** : Mohd W Nasser, Zahida Qamri, Yadwinder S Deol, Diane Smith, Konstantin Shilo, Xianghong Zou, Ramesh K Ganju

**Study Type** : Animal Study, In Vitro Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Breast Cancer : CK(3592) : AC(1064), Breast Cancer: Metastatic : CK(123) : AC(52)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414), Antiproliferative : CK(2546) : AC(1685)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37), Synthetic Cannabinoids : CK(2) : AC(1)

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## Anandamide is a potent and selective inhibitor of the proliferation of breast cancer cells.

**Pubmed Data** : Proc Natl Acad Sci U S A. 1998 Jul 7 ;95(14):8375-80. PMID: [9653194](#)

**Article Published Date** : Jul 06, 1998

**Authors** : L De Petrocellis, D Melck, A Palmisano, T Bisogno, C Laezza, M Bifulco, V Di Marzo

**Study Type** : Human In Vitro

**Additional Links**

**Substances** : Anandamide : CK(2) : AC(2), Cannabinoids : CK(816) : AC(310)

**Diseases** : Breast Cancer : CK(3592) : AC(1064)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37), Dose Response : CK(1056) : AC(408)

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## CBD can be used as a novel therapeutic option to inhibit growth and metastasis of highly aggressive breast cancer subtypes including TNBC.

**Pubmed Data** : Mol Oncol. 2015 Apr ;9(4):906-19. Epub 2015 Jan 19. PMID: [25660577](#)

**Article Published Date** : Mar 31, 2015

**Authors** : Mohamad Elbaz, Mohd W Nasser, Janani Ravi, Nissar A Wani, Dinesh K Ahirwar, Helong Zhao, Steve Oghumu, Abhay R Satoskar, Konstantin Shilo, William E Carson, Ramesh K Ganju

**Study Type** : Animal Study, In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Breast Cancer : CK(3592) : AC(1064), Breast Cancer: Triple Negative : CK(262) : AC(144)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414), Antiproliferative : CK(2546) :

AC(1685), Epidermal growth factor receptor (EGFR) inhibitor : CK(65) : AC(41), Matrix metalloproteinase-2 (MMP-2) inhibitor : CK(287) : AC(147), Matrix metalloproteinase-9 (MMP-9) inhibitor : CK(212) : AC(128), NF-kappaB Inhibitor : CK(1114) : AC(694)

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## Cannabidiol induces programmed cell death in breast cancer cells.

**Pubmed Data** : Antiviral Res. 2005 Nov;68(2):66-74. Epub 2005 Aug 9. PMID: [21566064](#)

**Article Published Date** : Nov 01, 2005

**Authors** : Ashutosh Shrivastava, Paula M Kuzontkoski, Jerome E Groopman, Anil Prasad

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Breast Cancer : CK(3592) : AC(1064)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075), Autophagy Up-regulation : CK(108) : AC(65)

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## Cannabidiol is a novel inhibitor of a gene associated with aggressive breast cancer.

**Pubmed Data** : Mol Cancer Ther. 2007 Nov;6(11):2921-7. PMID: [18025276](#)

**Article Published Date** : Nov 01, 2007

**Authors** : Sean D McAllister, Rigel T Christian, Maxx P Horowitz, Amaia Garcia, Pierre-Yves Desprez

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Breast Cancer : CK(3592) : AC(1064), Cancer Metastasis : CK(442) : AC(206)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685)

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## Cannabidiol, a non-psychoactive component from Cannabis sativa, is a potent inhibitor of breast and

## thyroid cancer cells.

**Pubmed Data** : J Pharmacol Exp Ther. 2006 Sep;318(3):1375-87. Epub 2006 May 25. PMID: [16728591](#)

**Article Published Date** : Sep 01, 2006

**Authors** : Alessia Ligresti, Aniello Schiano Moriello, Katarzyna Starowicz, Isabel Matias, Simona Pisanti, Luciano De Petrocellis, Chiara Laezza, Giuseppe Portella, Maurizio Bifulco, Vincenzo Di Marzo

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Marijuana : CK(1952) : AC(456)

**Diseases** : Breast Cancer : CK(3592) : AC(1064), Thyroid Cancer : CK(237) : AC(55)

**Pharmacological Actions** : Anti-Tumor : CK(146) : AC(73), Apoptotic : CK(2958) : AC(2075)

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## Cannabidiolic acid an active component in the cannabis plant offers potential therapeutic modality in the abrogation of cancer cell migration.

**Pubmed Data** : Toxicol Lett. 2012 Nov 15 ;214(3):314-9. Epub 2012 Sep 8. PMID: [22963825](#)

**Article Published Date** : Nov 14, 2012

**Authors** : Shuso Takeda, Shunsuke Okajima, Hiroko Miyoshi, Kazutaka Yoshida, Yoshiko Okamoto, Tomoko Okada, Toshiaki Amamoto, Kazuhito Watanabe, Curtis J Omiecinski, Hironori Aramaki

**Study Type** : Human In Vitro

### Additional Links

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Breast Cancer : CK(3592) : AC(1064), Breast Cancer: Triple Negative : CK(262) : AC(144)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414), Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Cyclooxygenase 2 Inhibitors : CK(464) : AC(272), Enzyme Inhibitors : CK(473) : AC(251)

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## Cannabidiolic acid had dual inhibitory effects on COX-2 through down-regulation and enzyme inhibition, and may suppress genes that are positively involved in the metastasis of cancer cells in vitro.

**Pubmed Data** : J Toxicol Sci. 2014 ;39(5):711-6. PMID: [25242400](#)

**Article Published Date** : Dec 31, 2013

**Authors** : Shuso Takeda, Hiroyuki Okazaki, Eriko Ikeda, Satomi Abe, Yasushi Yoshioka, Kazuhito Watanabe, Hironori Aramaki

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Breast Cancer : CK(3592) : AC(1064), Breast Cancer: Metastatic : CK(123) : AC(52), Breast



Cancer: Triple Negative : CK(262) : AC(144)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414), Cyclooxygenase 2 Inhibitors : CK(464) : AC(272), Enzyme Inhibitors : CK(473) : AC(251)

**Additional Keywords** : Gene Expression Regulation : CK(431) : AC(214)

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## Cannabinoid receptor ligands induce decreased viability, growth suppression and cell death by apoptosis in MCL cells.

**Pubmed Data** : FEBS Lett. 2005 Dec 19 ;579(30):6885-9. PMID: [16337199](#)

**Article Published Date** : Dec 18, 2005

**Authors** : Jenny Flygare, Kristin Gustafsson, Eva Kimby, Birger Christensson, Birgitta Sander

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Anandamide : CK(2) : AC(2), Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33)

**Diseases** : Breast Cancer : CK(3592) : AC(1064), Lymphoma : CK(253) : AC(83)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

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## Cannabinoids could be used for the inhibition of tumor growth in a clinical setting.

**Pubmed Data** : Cancer Res. 2008 Jan 15 ;68(2):339-42. PMID: [18199524](#)

**Article Published Date** : Jan 14, 2008

**Authors** : Sami Sarfaraz, Vaqar M Adhami, Deeba N Syed, Farrukh Afaq, Hasan Mukhtar

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Breast Cancer : CK(3592) : AC(1064), Cancers: All : CK(14773) : AC(4596), Glioblastoma Multiforme : CK(200) : AC(88), Lung Cancer : CK(1043) : AC(393), Lymphoma : CK(253) : AC(83), Pancreatic Cancer : CK(890) : AC(260), Prostate Cancer : CK(1586) : AC(463), Skin Cancer : CK(736) : AC(293)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

**Additional Keywords** : Higher Dose Better Than Lower Dose : CK(2) : AC(2)

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## Cannabinoids may be promising tools in combination therapy for breast and prostate cancers.

**Pubmed Data** : Expert Opin Investig Drugs. 2016 Nov ;25(11):1311-1323. Epub 2016 Aug 28. PMID: [27633508](#)

**Article Published Date** : Oct 31, 2016

**Authors** : A I Fraguas-Sánchez, A Fernández-Carballido, A I Torres-Suárez

**Study Type** : Review

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33), Endocannabinoids : CK(9) : AC(1)

**Diseases** : Breast Cancer : CK(3592) : AC(1064), Prostate Cancer : CK(1586) : AC(463)

**Pharmacological Actions** : Chemotherapeutic : CK(397) : AC(152)

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## Cannabinoids reduce ErbB2-positive breast cancer cell progression.

**Pubmed Data** : Mol Cancer. 2010;9:196. Epub 2010 Jul 22. PMID: [20649976](#)

**Article Published Date** : Jan 01, 2010

**Authors** : María M Caffarel, Clara Andradas, Emilia Mira, Eduardo Pérez-Gómez, Camilla Cerutti, Gema Moreno-Bueno, Juana M Flores, Isabel García-Real, José Palacios, Santos Mañes, Manuel Guzmán, Cristina Sánchez

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Breast Cancer : CK(3592) : AC(1064)

**Pharmacological Actions** : Anti-Angiogenic : CK(197) : AC(137), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

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## Delta(9)-tetrahydrocannabinol inhibits 17beta-estradiol-induced proliferation.

**Pubmed Data** : Anticancer Res. 2008 Jan-Feb;28(1A):85-9. PMID: [18383828](#)

**Article Published Date** : Jan 01, 2008

**Authors** : A O von Bueren, M Schlumpf, W Lichtensteiger

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Breast Cancer : CK(3592) : AC(1064)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685)

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## Delta9-tetrahydrocannabinol inhibits cell cycle progression in human breast cancer cells.

**Pubmed Data** : Cancer Res. 2006 Jul 1;66(13):6615-21. PMID: [16818634](#)

**Article Published Date** : Jul 01, 2006

**Authors** : María M Caffarel, David Sarrió, José Palacios, Manuel Guzmán, Cristina Sánchez

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Breast Cancer : CK(3592) : AC(1064)

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## Preclinical and clinical assessment of cannabinoids as anti-cancer agents.

**Pubmed Data** : Front Pharmacol. 2016 ;7:361. Epub 2016 Oct 7. PMID: [27774065](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Daniel A Ladin, Eman Soliman, LaToya Griffin, Rukiyah Van Dross

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33) , Cannabis : CK(1776) : AC(408)

**Diseases** : Breast Cancer : CK(3592) : AC(1064) , Colorectal Cancer : CK(1646) : AC(619) , Glioma : CK(177) : AC(86), Liver Cancer : CK(1235) : AC(462), Lung Cancer : CK(1043) : AC(393), Melanoma : CK(285) : AC(149), Pancreatic Cancer : CK(890) : AC(260), Prostate Cancer : CK(1586) : AC(463) , Skin Cancer : CK(736) : AC(293), Thyroid Cancer : CK(237) : AC(55)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Anticarcinogenic Agents : CK(1099) : AC(519), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

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## TRPV2 activation could be a novel therapeutic strategy to enhance the uptake and efficacy of chemotherapy in TNBC patients.

**Pubmed Data** : Oncotarget. 2016 May 27. Epub 2016 May 27. PMID: [27248470](#)

**Article Published Date** : May 26, 2016

**Authors** : Mohamad Elbaz, Dinesh Ahirwar, Zhang Xiaoli, Xinyu Zhou, Maryam Lustberg, Mohd W Nasser, Konstantin Shilo, Ramesh K Ganju

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Breast Cancer : CK(3592) : AC(1064) , Breast Cancer: Triple Negative : CK(262) : AC(144)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075), Transient receptor potential vanilloid type-2 activation : CK(1) : AC(1)

**Additional Keywords** : Chemotherapeutic Synergy: Doxorubicin : CK(44) : AC(32) , Median Survival Time : CK(31) : AC(3)

---

## This review summarizes our current knowledge on the anti-tumor potential of cannabinoids in breast cancer.

**Pubmed Data** : Cancer Treat Rev. 2012 Nov ;38(7):911-8. Epub 2012 Jul 7. PMID: [22776349](#)

**Article Published Date** : Oct 31, 2012

**Authors** : María M Caffarel, Clara Andradas, Eduardo Pérez-Gómez, Manuel Guzmán, Cristina Sánchez

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Breast Cancer : CK(3592) : AC(1064)

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## Treatment with cannabidiol significantly reduces primary mammary tumor mass as well as the size and number of lung metastatic foci in animals.

**Pubmed Data** : Breast Cancer Res Treat. 2010 Sep 22. Epub 2010 Sep 22. PMID: [20859676](#)

**Article Published Date** : Sep 22, 2010

**Authors** : Sean D McAllister, Ryuichi Murase, Rigel T Christian, Darryl Lau, Anne J Zielinski, Juanita Allison, Carolina Almanza, Arash Pakdel, Jasmine Lee, Chandani Limbad, Yong Liu, Robert J Debs, Dan H Moore, Pierre-Yves Desprez

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408)

**Diseases** : Breast Cancer : CK(3592) : AC(1064), Breast Cancer: Lung Metastasis : CK(23) : AC(14), Breast Cancer: Prevention : CK(552) : AC(82), Cancer Metastasis : CK(442) : AC(206)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414), Antiproliferative : CK(2546) : AC(1685)

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## Breast Cancer: Lung Metastasis (AC 1) (CK 2)

## Treatment with cannabidiol significantly reduces primary mammary tumor mass as well as the size and number of lung metastatic foci in animals.

**Pubmed Data** : Breast Cancer Res Treat. 2010 Sep 22. Epub 2010 Sep 22. PMID: [20859676](#)

**Article Published Date** : Sep 22, 2010

**Authors** : Sean D McAllister, Ryuichi Murase, Rigel T Christian, Darryl Lau, Anne J Zielinski, Juanita Allison, Carolina Almanza, Arash Pakdel, Jasmine Lee, Chandani Limbad, Yong Liu, Robert J Debs, Dan H Moore, Pierre-Yves Desprez

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408)

**Diseases** : Breast Cancer : CK(3592) : AC(1064) , Breast Cancer: Lung Metastasis : CK(23) : AC(14) , Breast Cancer: Prevention : CK(552) : AC(82) , Cancer Metastasis : CK(442) : AC(206)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414) , Antiproliferative : CK(2546) : AC(1685)

---

## Breast Cancer: Metastatic (AC 2) (CK 3)

**A synthetic cannabinoid inhibited CXCL12-induced migration and invasive properties of breast cancer cells.**

**Pubmed Data** : PLoS One. 2011 ;6(9):e23901. Epub 2011 Sep 7. PMID: [21915267](#)

**Article Published Date** : Dec 31, 2010

**Authors** : Mohd W Nasser, Zahida Qamri, Yadwinder S Deol, Diane Smith, Konstantin Shilo, Xianghong Zou, Ramesh K Ganju

**Study Type** : Animal Study, In Vitro Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Breast Cancer : CK(3592) : AC(1064) , Breast Cancer: Metastatic : CK(123) : AC(52)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414) , Antiproliferative : CK(2546) : AC(1685)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37) , Synthetic Cannabinoids : CK(2) : AC(1)

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**Cannabidiolic acid had dual inhibitory effects on COX-2 through down-regulation and enzyme inhibition, and may suppress genes that are positively involved in the metastasis of cancer cells in vitro.**

**Pubmed Data** : J Toxicol Sci. 2014 ;39(5):711-6. PMID: [25242400](#)

**Article Published Date** : Dec 31, 2013

**Authors** : Shuso Takeda, Hiroyuki Okazaki, Eriko Ikeda, Satomi Abe, Yasushi Yoshioka, Kazuhito Watanabe, Hironori Aramaki

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Breast Cancer : CK(3592) : AC(1064) , Breast Cancer: Metastatic : CK(123) : AC(52) , Breast

Cancer: Triple Negative : CK(262) : AC(144)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414), Cyclooxygenase 2 Inhibitors : CK(464) : AC(272), Enzyme Inhibitors : CK(473) : AC(251)

**Additional Keywords** : Gene Expression Regulation : CK(431) : AC(214)

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## Breast Cancer: Prevention (AC 1) (CK 2)

**Treatment with cannabidiol significantly reduces primary mammary tumor mass as well as the size and number of lung metastatic foci in animals.**

**Pubmed Data** : Breast Cancer Res Treat. 2010 Sep 22. Epub 2010 Sep 22. PMID: [20859676](#)

**Article Published Date** : Sep 22, 2010

**Authors** : Sean D McAllister, Ryuichi Murase, Rigel T Christian, Darryl Lau, Anne J Zielinski, Juanita Allison, Carolina Almanza, Arash Pakdel, Jasmine Lee, Chandani Limbad, Yong Liu, Robert J Debs, Dan H Moore, Pierre-Yves Desprez

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408)

**Diseases** : Breast Cancer : CK(3592) : AC(1064), Breast Cancer: Lung Metastasis : CK(23) : AC(14), Breast Cancer: Prevention : CK(552) : AC(82), Cancer Metastasis : CK(442) : AC(206)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414), Antiproliferative : CK(2546) : AC(1685)

---

## Breast Cancer: Triple Negative (AC 6) (CK 11)

**CBD can be used as a novel therapeutic option to inhibit growth and metastasis of highly aggressive breast cancer subtypes including TNBC.**

**Pubmed Data** : Mol Oncol. 2015 Apr ;9(4):906-19. Epub 2015 Jan 19. PMID: [25660577](#)

**Article Published Date** : Mar 31, 2015

**Authors** : Mohamad Elbaz, Mohd W Nasser, Janani Ravi, Nissar A Wani, Dinesh K Ahirwar, Helong Zhao, Steve Oghumu, Abhay R Satoskar, Konstantin Shilo, William E Carson, Ramesh K Ganju

**Study Type** : Animal Study, In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Breast Cancer : CK(3592) : AC(1064), Breast Cancer: Triple Negative : CK(262) : AC(144)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414), Antiproliferative : CK(2546) :

AC(1685), Epidermal growth factor receptor (EGFR) inhibitor : CK(65) : AC(41), Matrix metalloproteinase-2 (MMP-2) inhibitor : CK(287) : AC(147), Matrix metalloproteinase-9 (MMP-9) inhibitor : CK(212) : AC(128), NF-kappaB Inhibitor : CK(1114) : AC(694)

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## Cannabidiolic acid abrogates the expression of COX-2 via the selective down-regulation of c-fos.

**Pubmed Data** : J Nat Med. 2016 Aug 16. Epub 2016 Aug 16. PMID: [27530354](#)

**Article Published Date** : Aug 15, 2016

**Authors** : Shuso Takeda, Taichi Himeno, Kazuhiro Kakizoe, Hiroyuki Okazaki, Tomoko Okada, Kazuhito Watanabe, Hironori Aramaki

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Breast Cancer: Triple Negative : CK(262) : AC(144)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414), Cyclooxygenase 2 Inhibitors : CK(464) : AC(272)

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## Cannabidiolic acid an active component in the cannabis plant offers potential therapeutic modality in the abrogation of cancer cell migration.

**Pubmed Data** : Toxicol Lett. 2012 Nov 15 ;214(3):314-9. Epub 2012 Sep 8. PMID: [22963825](#)

**Article Published Date** : Nov 14, 2012

**Authors** : Shuso Takeda, Shunsuke Okajima, Hiroko Miyoshi, Kazutaka Yoshida, Yoshiko Okamoto, Tomoko Okada, Toshiaki Amamoto, Kazuhito Watanabe, Curtis J Omiecinski, Hironori Aramaki

**Study Type** : Human In Vitro

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Breast Cancer : CK(3592) : AC(1064), Breast Cancer: Triple Negative : CK(262) : AC(144)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414), Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Cyclooxygenase 2 Inhibitors : CK(464) : AC(272), Enzyme Inhibitors : CK(473) : AC(251)

---

## Cannabidiolic acid had dual inhibitory effects on COX-2 through down-regulation and enzyme inhibition, and may suppress genes that are positively involved in the metastasis of cancer cells in vitro.

**Pubmed Data** : J Toxicol Sci. 2014 ;39(5):711-6. PMID: [25242400](#)

**Article Published Date** : Dec 31, 2013

**Authors** : Shuso Takeda, Hiroyuki Okazaki, Eriko Ikeda, Satomi Abe, Yasushi Yoshioka, Kazuhito Watanabe, Hironori Aramaki

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Breast Cancer : CK(3592) : AC(1064) , Breast Cancer: Metastatic : CK(123) : AC(52) , Breast Cancer: Triple Negative : CK(262) : AC(144)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414), Cyclooxygenase 2 Inhibitors : CK(464) : AC(272), Enzyme Inhibitors : CK(473) : AC(251)

**Additional Keywords** : Gene Expression Regulation : CK(431) : AC(214)

---

## TRPV2 activation could be a novel therapeutic strategy to enhance the uptake and efficacy of chemotherapy in TNBC patients.

**Pubmed Data** : Oncotarget. 2016 May 27. Epub 2016 May 27. PMID: [27248470](#)

**Article Published Date** : May 26, 2016

**Authors** : Mohamad Elbaz, Dinesh Ahirwar, Zhang Xiaoli, Xinyu Zhou, Maryam Lustberg, Mohd W Nasser, Konstantin Shilo, Ramesh K Ganju

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Breast Cancer : CK(3592) : AC(1064) , Breast Cancer: Triple Negative : CK(262) : AC(144)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075), Transient receptor potential vanilloid type-2 activation : CK(1) : AC(1)

**Additional Keywords** : Chemotherapeutic Synergy: Doxorubicin : CK(44) : AC(32) , Median Survival Time : CK(31) : AC(3)

---

## This review summarizes the anti-cancer properties of the cannabinoids and their potential mechanisms of action.

**Pubmed Data** : Cancer Lett. 2009 Nov 18 ;285(1):6-12. Epub 2009 May 12. PMID: [19442435](#)

**Article Published Date** : Nov 17, 2009

**Authors** : Amy Alexander, Paul F Smith, Rhonda J Rosengren

**Study Type** : Review



### Additional Links

**Substances** : [Cannabinoids](#) : CK(816) : AC(310)

**Diseases** : [Breast Cancer: Triple Negative](#) : CK(262) : AC(144)

**Pharmacological Actions** : [Antiproliferative](#) : CK(2546) : AC(1685)

---

## Bronchial Asthma (AC 1) (CK 10)

**Cannabis reverses exercise-induced asthma and hyperinflation in subjects with clinically stable bronchial asthma.**

**Pubmed Data** : Am Rev Respir Dis. 1975 Sep;112(3):377-86. PMID: [1099949](#)

**Article Published Date** : Sep 01, 1975

**Authors** : D P Tashkin, B J Shapiro, Y E Lee, C E Harper

**Study Type** : Human Study

### Additional Links

**Substances** : [Cannabis](#) : CK(1776) : AC(408)

**Diseases** : [Bronchial Asthma](#) : CK(1265) : AC(194)

**Pharmacological Actions** : [Bronchodilator Agents](#) : CK(56) : AC(12)

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## Bronchial Diseases (AC 1) (CK 1)

**THC prevents cytokine-induced increase in airway epithelial permeability through CB2 receptor activation.**

**Pubmed Data** : Biochem Pharmacol. 2016 Sep 15. Epub 2016 Sep 15. PMID: [27641813](#)

**Article Published Date** : Sep 14, 2016

**Authors** : Valerie C M Shang, David A Kendall, Richard E Roberts

**Study Type** : In Vitro Study

### Additional Links

**Substances** : [Delta-tetrahydrocannabinol \(THC\)](#) : CK(1135) : AC(342)

**Diseases** : [Allergic Airway Diseases](#) : CK(69) : AC(25), [Bronchial Diseases](#) : CK(1) : AC(1)

**Pharmacological Actions** : [Anti-Inflammatory Agents](#) : CK(4861) : AC(1630)

## C-Reactive Protein (CRP) (AC 1) (CK 10)

**This study's CRP evidence points toward possible anti-inflammatory effects of cannabis smoking.**

**Pubmed Data** : Drug Alcohol Depend. 2015 Feb 1 ;147:203-7. Epub 2014 Nov 28. PMID: [25529540](#)

**Article Published Date** : Jan 31, 2015

**Authors** : Omayma Alshaarawy, James C Anthony

**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : C-Reactive Protein (CRP) : CK(20) : AC(2), Inflammation : CK(3240) : AC(882)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630)

## Cachexia (AC 3) (CK 4)

**Cannabigerol is able to stimulate appetite in pre-satiated rats.**

**Pubmed Data** : Psychopharmacology (Berl). 2016 Aug 9. Epub 2016 Aug 9. PMID: [27503475](#)

**Article Published Date** : Aug 08, 2016

**Authors** : Daniel I Brierley, James Samuels, Marnie Duncan, Benjamin J Whalley, Claire M Williams

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Cachexia : CK(77) : AC(25), Cachexia: Chemotherapy Induced : CK(8) : AC(4)

**Pharmacological Actions** : Appetite Stimulants : CK(10) : AC(1)

**Cannabinoid type 1 receptor activation stimulates appetite and promotes lipogenesis and energy storage.**

**Pubmed Data** : Curr Opin Clin Nutr Metab Care. 2007 Jul ;10(4):443-8. PMID: [17563462](#)

**Article Published Date** : Jun 30, 2007

**Authors** : Douglas Osei-Hyiaman

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342), Endocannabinoids : CK(9) : AC(1)

**Diseases** : Cachexia : CK(77) : AC(25)

**Pharmacological Actions** : Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

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## The possible role of cannabimimetic fatty acid derivatives in the pathological consequences of cancer and inflammation are examined.

**Pubmed Data** : Chem Phys Lipids. 2000 Nov ;108(1-2):191-209. PMID: [11106791](#)

**Article Published Date** : Oct 31, 2000

**Authors** : L De Petrocellis, D Melck, T Bisogno, V Di Marzo

**Study Type** : Review

**Additional Links**

**Substances** : Anandamide : CK(2) : AC(2), Cannabinoids : CK(816) : AC(310), Endocannabinoids : CK(9) : AC(1)

**Diseases** : Asthma : CK(1157) : AC(190), Cachexia : CK(77) : AC(25), Cancers: All : CK(14773) : AC(4596), Chronic Pain : CK(206) : AC(33), Inflammation : CK(3240) : AC(882)

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## Cachexia: Cancer (AC 1) (CK 1)

### A review of cannabis and cannabinoids and their benefits in many health conditions.

**Pubmed Data** : Clin Pharmacol Ther. 2015 Jun ;97(6):575-86. Epub 2015 Apr 17. PMID: [25777363](#)

**Article Published Date** : May 31, 2015

**Authors** : D I Abrams, M Guzman

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : AIDS : CK(79) : AC(13), Cachexia: Cancer : CK(50) : AC(15), Cancer: Pain : CK(55) : AC(8), Cancers: All : CK(14773) : AC(4596), Peripheral Neuropathies : CK(218) : AC(37)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Appetite Stimulants : CK(10) : AC(1), Chemopreventive : CK(2835) : AC(787)

**Additional Keywords** : [Natural Substance/Drug Synergy](#) : CK(352) : AC(142)

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## Cachexia: Chemotherapy Induced (AC 1) (CK 2)

**Cannabigerol is able to stimulate appetite in pre-satiated rats.**

**Pubmed Data** : Psychopharmacology (Berl). 2016 Aug 9. Epub 2016 Aug 9. PMID: [27503475](#)

**Article Published Date** : Aug 08, 2016

**Authors** : Daniel I Brierley, James Samuels, Marnie Duncan, Benjamin J Whalley, Claire M Williams

**Study Type** : Animal Study

**Additional Links**

**Substances** : [Cannabinoids](#) : CK(816) : AC(310)

**Diseases** : [Cachexia](#) : CK(77) : AC(25), [Cachexia: Chemotherapy Induced](#) : CK(8) : AC(4)

**Pharmacological Actions** : [Appetite Stimulants](#) : CK(10) : AC(1)

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## Cancer Metastasis (AC 11) (CK 18)

**A cannabinoid quinone has anti-angiogenic and anticancer activity.**

**Pubmed Data** : Mol Pharmacol. 2006 Jul;70(1):51-9. Epub 2006 Mar 29. PMID: [16571653](#)

**Article Published Date** : Jul 01, 2006

**Authors** : Natalya M Kogan, Cristina Blázquez, Luis Alvarez, Ruth Gallily, Michael Schlesinger, Manuel Guzmán, Raphael Mechoulam

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : [Marijuana](#) : CK(1952) : AC(456)

**Diseases** : [Cancer Metastasis](#) : CK(442) : AC(206), [Cancers: All](#) : CK(14773) : AC(4596)

**Pharmacological Actions** : [Anti-Angiogenic](#) : CK(197) : AC(137), [Anti-Tumor](#) : CK(146) : AC(73)

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## Cannabidiol enhanced the ability of THC to inhibit cell proliferation, induce cell cycle arrest and apoptosis.

**Pubmed Data** : Mol Cancer Ther. 2010 Jan ;9(1):180-9. Epub 2010 Jan 6. PMID: [20053780](#)

**Article Published Date** : Dec 31, 2009

**Authors** : Jahan P Marcu, Rigel T Christian, Darryl Lau, Anne J Zielinski, Maxx P Horowitz, Jasmine Lee, Arash Pakdel, Juanita Allison, Chandani Limbad, Dan H Moore, Garret L Yount, Pierre-Yves Desprez, Sean D McAllister

**Study Type** : Animal Study, In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Cancer Metastasis : CK(442) : AC(206), Glioblastoma : CK(200) : AC(88)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Cell cycle arrest : CK(810) : AC(612)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37), Natural Substance Synergy : CK(540) : AC(249)

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## Cannabidiol exhibits anti-invasive action on human lung cancer cells.

**Pubmed Data** : Pharm Res. 2010 Oct;27(10):2162-74. Epub 2010 Jul 29. PMID: [20668920](#)

**Article Published Date** : Oct 01, 2010

**Authors** : Robert Ramer, Anja Rohde, Jutta Merkord, Helga Rohde, Burkhard Hinz

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408)

**Diseases** : Cancer Metastasis : CK(442) : AC(206), Lung Cancer : CK(1043) : AC(393)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414)

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## Cannabidiol inhibits cancer cell invasion via upregulation of tissue inhibitor of matrix metalloproteinases-1.

**Pubmed Data** : Biochem Pharmacol. 2010 Apr 1;79(7):955-66. Epub 2009 Nov 13. PMID: [19914218](#)

**Article Published Date** : Apr 01, 2010

**Authors** : Robert Ramer, Jutta Merkord, Helga Rohde, Burkhard Hinz

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408)

**Diseases** : Cancer Metastasis : CK(442) : AC(206), Lung Cancer : CK(1043) : AC(393)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639), Matrix metalloproteinase-1 (MMP-1) inhibitor : CK(32) : AC(16)

---

## Cannabidiol inhibits lung cancer cell invasion and metastasis via intercellular adhesion molecule-1.

**Pubmed Data** : FASEB J. 2012 Apr ;26(4):1535-48. Epub 2011 Dec 23. PMID: [22198381](#)

**Article Published Date** : Apr 01, 2012

**Authors** : Robert Ramer, Katharina Bublitz, Nadine Freimuth, Jutta Merkord, Helga Rohde, Maria Haustein, Philipp Borchert, Ellen Schmuhl, Michael Linnebacher, Burkhard Hinz

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Cancer Metastasis : CK(442) : AC(206), Lung Cancer : CK(1043) : AC(393)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414), Intracellular adhesion molecule-1 (ICAM-1) : CK(4) : AC(3)

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## Cannabidiol is a novel inhibitor of a gene associated with aggressive breast cancer.

**Pubmed Data** : Mol Cancer Ther. 2007 Nov;6(11):2921-7. PMID: [18025276](#)

**Article Published Date** : Nov 01, 2007

**Authors** : Sean D McAllister, Rigel T Christian, Maxx P Horowitz, Amaia Garcia, Pierre-Yves Desprez

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Breast Cancer : CK(3592) : AC(1064), Cancer Metastasis : CK(442) : AC(206)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685)

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## Substances aiming at the endocannabinoid system may represent potential antimetastatics.

**Pubmed Data** : Expert Opin Ther Targets. 2016 May 11:1-17. Epub 2016 May 11. PMID: [27070944](#)

**Article Published Date** : May 10, 2016

**Authors** : Robert Ramer, Burkhard Hinz

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Endocannabinoids : CK(9) : AC(1)

**Diseases** : Cancer Metastasis : CK(442) : AC(206), Cancers: All : CK(14773) : AC(4596)

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## THC inhibited cell proliferation, migration and invasion, and induced cell apoptosis in cholangiocarcinoma cells.

**Pubmed Data** : Cancer Invest. 2010 May ;28(4):357-63. PMID: [19916793](#).

**Article Published Date** : Apr 30, 2010

**Authors** : Surang Leelawat, Kawin Leelawat, Siriluck Narong, Oraphan Matangkasombut

**Study Type** : Human In Vitro

**Additional Links**

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Cancer Metastasis : CK(442) : AC(206), Cholangiocarcinoma : CK(96) : AC(21)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

**Additional Keywords** : Dose Response : CK(1056) : AC(408)

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## The endocannabinoid system controls the growth and metastasis of malignant cells.

**Pubmed Data** : Recent Prog Med. 2003 May ;94(5):194-8. PMID: [12723496](#)

**Article Published Date** : Apr 30, 2003

**Authors** : Maurizio Bifulco, Vincenzo Di Marzo

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342), Endocannabinoids : CK(9) : AC(1)

**Diseases** : Cancer Metastasis : CK(442) : AC(206), Cancers: All : CK(14773) : AC(4596), Endocannabinoid System : CK(22) : AC(12)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

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## The present investigation confirms the antiproliferative and antiinvasive effects of CBD in U87-MG cells.

**Pubmed Data** : PLoS One. 2013 ;8(10):e76918. Epub 2013 Oct 21. PMID: [24204703](#)

**Article Published Date** : Dec 31, 2012

**Authors** : Marta Solinas, Paola Massi, Valentina Cinquina, Marta Valenti, Daniele Bolognini, Marzia Gariboldi, Elena Monti, Tiziana Rubino, Daniela Parolaro

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Cancer Metastasis : CK(442) : AC(206), Glioma : CK(177) : AC(86)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Anti-metastatic : CK(634) : AC(414), Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Hypoxia inducible factor-1 alpha (HIF-1 $\alpha$ ) inhibitor : CK(22) : AC(15)

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## Treatment with cannabidiol significantly reduces primary

## mammary tumor mass as well as the size and number of lung metastatic foci in animals.

**Pubmed Data** : Breast Cancer Res Treat. 2010 Sep 22. Epub 2010 Sep 22. PMID: [20859676](#)

**Article Published Date** : Sep 22, 2010

**Authors** : Sean D McAllister, Ryuichi Murase, Rigel T Christian, Darryl Lau, Anne J Zielinski, Juanita Allison, Carolina Almanza, Arash Pakdel, Jasmine Lee, Chandani Limbad, Yong Liu, Robert J Debs, Dan H Moore, Pierre-Yves Desprez

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408)

**Diseases** : Breast Cancer : CK(3592) : AC(1064), Breast Cancer: Lung Metastasis : CK(23) : AC(14), Breast Cancer: Prevention : CK(552) : AC(82), Cancer Metastasis : CK(442) : AC(206)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414), Antiproliferative : CK(2546) : AC(1685)

## Cancer: Pain (AC 2) (CK 2)

### A review of cannabis and cannabinoids and their benefits in many health conditions.

**Pubmed Data** : Clin Pharmacol Ther. 2015 Jun ;97(6):575-86. Epub 2015 Apr 17. PMID: [25777363](#)

**Article Published Date** : May 31, 2015

**Authors** : D I Abrams, M Guzman

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : AIDS : CK(79) : AC(13), Cachexia: Cancer : CK(50) : AC(15), Cancer: Pain : CK(55) : AC(8), Cancers: All : CK(14773) : AC(4596), Peripheral Neuropathies : CK(218) : AC(37)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Appetite Stimulants : CK(10) : AC(1), Chemopreventive : CK(2835) : AC(787)

**Additional Keywords** : Natural Substance/Drug Synergy : CK(352) : AC(142)

**Some studies have thus far shown evidence to support the use of cannabinoids for some cancer, neuropathic, spasticity, acute pain, and chronic pain conditions.**



**Pubmed Data** : Curr Pain Headache Rep. 2015 Oct ;19(10):524. PMID: [26325482](#)

**Article Published Date** : Sep 30, 2015

**Authors** : Bjorn Jensen, Jeffrey Chen, Tim Furnish, Mark Wallace

**Study Type** : Review

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33), Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342), Endocannabinoids : CK(9) : AC(1)

**Diseases** : Cancer: Pain : CK(55) : AC(8), Cancers: All : CK(14773) : AC(4596)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217)

## Cancers: All (AC 33) (CK 47)

### A cannabinoid quinone has anti-angiogenic and anticancer activity.

**Pubmed Data** : Mol Pharmacol. 2006 Jul;70(1):51-9. Epub 2006 Mar 29. PMID: [16571653](#)

**Article Published Date** : Jul 01, 2006

**Authors** : Natalya M Kogan, Cristina Blázquez, Luis Alvarez, Ruth Gallily, Michael Schlesinger, Manuel Guzmán, Raphael Mechoulam

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Marijuana : CK(1952) : AC(456)

**Diseases** : Cancer Metastasis : CK(442) : AC(206), Cancers: All : CK(14773) : AC(4596)

**Pharmacological Actions** : Anti-Angiogenic : CK(197) : AC(137), Anti-Tumor : CK(146) : AC(73)

### A cannabinoid quinone has cancer-destroying activity superior to doxorubicin without cardiotoxicity, in vitro.

**Pubmed Data** : Expert Opin Investig Drugs. 2007 Sep;16(9):1405-13. PMID: [17714026](#)

**Article Published Date** : Sep 01, 2007

**Authors** : Maximilian Peters, Natalya M Kogan

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Marijuana : CK(1952) : AC(456)

**Diseases** : Cancers: All : CK(14773) : AC(4596), Chemotherapy-Induced Toxicity: Doxorubicin : CK(132) : AC(56)

**Additional Keywords** : Superiority of Natural Substances versus Drugs : CK(1316) : AC(251)

## A growing amount of experimental data imply possible exploitation of cannabinoids in cancer therapy.

**Pubmed Data** : Onco Targets Ther. 2016 ;9:4323-36. Epub 2016 Jul 18. PMID: [27486335](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Maria Pyszniak, Jacek Tabarkiewicz, Jarogniew J Łuszczki

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Cancers: All : CK(14773) : AC(4596)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Anti-metastatic : CK(634) : AC(414), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Autophagy Up-regulation : CK(108) : AC(65), Cell cycle arrest : CK(810) : AC(612)

**Additional Keywords** : Endocannabinoid System : CK(60) : AC(23)

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## A review of cannabis and cannabinoids and their benefits in many health conditions.

**Pubmed Data** : Clin Pharmacol Ther. 2015 Jun ;97(6):575-86. Epub 2015 Apr 17. PMID: [25777363](#)

**Article Published Date** : May 31, 2015

**Authors** : D I Abrams, M Guzman

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : AIDS : CK(79) : AC(13), Cachexia: Cancer : CK(50) : AC(15), Cancer: Pain : CK(55) : AC(8), Cancers: All : CK(14773) : AC(4596), Peripheral Neuropathies : CK(218) : AC(37)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Appetite Stimulants : CK(10) : AC(1), Chemopreventive : CK(2835) : AC(787)

**Additional Keywords** : Natural Substance/Drug Synergy : CK(352) : AC(142)

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## A review of the many benefits of cannabinoids in health and disease.

**Pubmed Data** : Dialogues Clin Neurosci. 2007 ;9(4):413-30. PMID: [18286801](#)

**Article Published Date** : Dec 31, 2006

**Authors** : Natalya M Kogan, Raphael Mechoulam

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33)

**Diseases** : Anorexia : CK(73) : AC(9), Cancers: All : CK(14773) : AC(4596), Epilepsy : CK(255) : AC(66), Inflammation : CK(3240) : AC(882), Multiple Sclerosis : CK(964) : AC(184), Neurodegenerative Diseases : CK(3582) : AC(932), Obesity : CK(2443) : AC(521), Schizophrenia : CK(445) : AC(70)

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## A review of the pharmacokinetics and pharmacodynamics of cannabinoids.

**Pubmed Data** : Clin Pharmacokinet. 2003 ;42(4):327-60. PMID: [12648025](#)

**Article Published Date** : Dec 31, 2002

**Authors** : Franjo Grotenhermen

**Study Type** : Review

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Cancers: All : CK(14773) : AC(4596)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217), Apoptotic : CK(2958) : AC(2075), Immunosuppressive Agents : CK(37) : AC(24), Neuroprotective Agents : CK(2360) : AC(1099)

**Additional Keywords** : Phytotherapy : CK(1216) : AC(221)

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## A tetrahydrocannabinol:cannabidiol (THC:CBD) extract is efficacious for relief of pain in patients with advanced cancer pain not fully relieved by strong opioids.

**Pubmed Data** : Hum Reprod. 2009 Jul;24(7):1717-25. Epub 2009 Mar 11. PMID: [19896326](#)

**Article Published Date** : Jul 01, 2009

**Authors** : Jeremy R Johnson, Mary Burnell-Nugent, Dominique Lossignol, Elena Doina Ganae-Motan, Richard Potts, Marie T Fallon

**Study Type** : Human Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Cancers: All : CK(14773) : AC(4596), Pain : CK(880) : AC(142)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217)

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## Cannabidiol exerts a potent anti-angiogenic effect by widely affecting several pathways involved in this process.

**Pubmed Data** : Br J Pharmacol. 2012 Nov ;167(6):1218-31. PMID: [22624859](#)

**Article Published Date** : Oct 31, 2012

**Authors** : M Solinas, P Massi, A R Cantelmo, M G Cattaneo, R Cammarota, D Bartolini, V Cinquina, M Valenti, L M Vicentini, D M Noonan, A Albini, D Parolaro

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Cancers: All : CK(14773) : AC(4596)

**Pharmacological Actions** : Anti-Angiogenic : CK(197) : AC(137), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669), Vascular Endothelial Growth Factor Inhibitors : CK(123) : AC(61)

---

## **Cannabinoid use showed no significant association between increased cancer incidence and cannabinoids use and it does not depend on the amount of used cannabis.**

**Pubmed Data** : Cas Lek Cesk. 2006 ;145(6):453-7; discussion 458-9. PMID: [16835997](#)

**Article Published Date** : Dec 31, 2005

**Authors** : B Vidinský, P Gál, J Mojzis

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Cancers: All : CK(14773) : AC(4596), Endocannabinoid System : CK(22) : AC(12)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639)

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## **Cannabinoids could be used for the inhibition of tumor growth in a clinical setting.**

**Pubmed Data** : Cancer Res. 2008 Jan 15 ;68(2):339-42. PMID: [18199524](#)

**Article Published Date** : Jan 14, 2008

**Authors** : Sami Sarfaraz, Vaqar M Adhami, Deeba N Syed, Farrukh Afaq, Hasan Mukhtar

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Breast Cancer : CK(3592) : AC(1064), Cancers: All : CK(14773) : AC(4596), Glioblastoma Multiforme : CK(200) : AC(88), Lung Cancer : CK(1043) : AC(393), Lymphoma : CK(253) : AC(83), Pancreatic Cancer : CK(890) : AC(260), Prostate Cancer : CK(1586) : AC(463), Skin Cancer : CK(736) : AC(293)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

**Additional Keywords** : Higher Dose Better Than Lower Dose : CK(2) : AC(2)

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## **Cannabinoids inhibit the growth of gliomas in vivo by targeting both tumor cells and vascular endothelial cells.**

**Pubmed Data** : FASEB J. 2003 Mar ;17(3):529-31. Epub 2003 Jan 2. PMID: [12514108](#)

**Article Published Date** : Feb 28, 2003

**Authors** : Cristina Blázquez, M Llanos Casanova, Anna Planas, Teresa Gómez Del Pulgar, Concepción Villanueva, María J Fernández-Aceñero, Julián Aragonés, John W Huffman, José L Jorcano, Manuel Guzmán

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Cancers: All : CK(14773) : AC(4596) , Gliomas : CK(5) : AC(3)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62) , Matrix metalloproteinase-2 (MMP-2) inhibitor : CK(287) : AC(147), Vascular Endothelial Growth Factor Regulator : CK(31) : AC(14)

**Additional Keywords** : Disease Regression : CK(150) : AC(26)

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## Cannabinoids may therapeutic value in neurodegenerative conditions and cancer.

**Pubmed Data** : J Mol Med. 2001;78(11):613-25. PMID: [11269508](#)

**Article Published Date** : Jan 01, 2001

**Authors** : M Guzmán, C Sánchez, I Galve-Roperh

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Cancers: All : CK(14773) : AC(4596) , Neurodegenerative Diseases : CK(3582) : AC(932)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Neuroprotective Agents : CK(2360) : AC(1099)

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## Cannabinoids seem to be selective antitumoral compounds, killing glioma cells but not non transformed cells.

**Pubmed Data** : Mol Neurobiol. 2007 Aug ;36(1):60-7. Epub 2007 Jun 28. PMID: [17952650](#)

**Article Published Date** : Jul 31, 2007

**Authors** : Guillermo Velasco, Arkaitz Carracedo, Cristina Blázquez, Mar Lorente, Tania Aguado, Amador Haro, Cristina Sánchez, Ismael Galve-Roperh, Manuel Guzmán

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Cancers: All : CK(14773) : AC(4596) , Glioma : CK(177) : AC(86)

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## Cannabis-derived substances may have anti-cancer activity through reducing inflammation.

**Pubmed Data** : Curr Clin Pharmacol. 2010 Sep 6. Epub 2010 Sep 6. PMID: [20925645](#)

**Article Published Date** : Sep 06, 2010

**Authors** : Wai M Liu, Daniel W Fowler, Angus G Dalgleish

**Study Type** : Commentary

### Additional Links

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Cancers: All : CK(14773) : AC(4596) , Inflammation : CK(3240) : AC(882)  
**Additional Keywords** : Diseases that are Linked : CK(2335) : AC(304)

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## Cannabinoids have antitumor activity.

**Pubmed Data** : J Pharmacol Exp Ther. 2009 Nov 4. PMID: [19889794](#)

**Article Published Date** : Nov 04, 2009

**Authors** : Nadine Freimuth, Robert Ramer, Burkhard Hinz

**Study Type** : Commentary

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Cancers: All : CK(14773) : AC(4596) , Tumors : CK(205) : AC(120)

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## New insights into antimetastatic and antiangiogenic effects of cannabinoids.

**Pubmed Data** : Int Rev Cell Mol Biol. 2015 ;314:43-116. Epub 2014 Dec 18. PMID: [25619715](#)

**Article Published Date** : Dec 31, 2014

**Authors** : Robert Ramer, Burkhard Hinz

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Cancers: All : CK(14773) : AC(4596)

**Pharmacological Actions** : Anti-Angiogenic : CK(197) : AC(137) , Anti-metastatic : CK(634) : AC(414) , Antineoplastic Agents : CK(1158) : AC(639)

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## Some studies have thus far shown evidence to support the use of cannabinoids for some cancer, neuropathic, spasticity, acute pain, and chronic pain conditions.

**Pubmed Data** : Curr Pain Headache Rep. 2015 Oct ;19(10):524. PMID: [26325482](#)

**Article Published Date** : Sep 30, 2015

**Authors** : Bjorn Jensen, Jeffrey Chen, Tim Furnish, Mark Wallace

**Study Type** : Review

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338) , Cannabinoids : CK(816) : AC(310) , Cannabinoids: Synthetic : CK(78) : AC(33) , Cannabis : CK(1776) : AC(408) , Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342) , Endocannabinoids : CK(9) : AC(1)

**Diseases** : Cancer: Pain : CK(55) : AC(8) , Cancers: All : CK(14773) : AC(4596)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217)

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## Substances aiming at the endocannabinoid system may

## represent potential antimetastatics.

**Pubmed Data** : Expert Opin Ther Targets. 2016 May 11:1-17. Epub 2016 May 11. PMID: [27070944](#)

**Article Published Date** : May 10, 2016

**Authors** : Robert Ramer, Burkhard Hinz

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Endocannabinoids : CK(9) : AC(1)

**Diseases** : Cancer Metastasis : CK(442) : AC(206), Cancers: All : CK(14773) : AC(4596)

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## Targeting calcium signaling in cancer therapy.

**Pubmed Data** : Acta Pharm Sin B. 2017 Jan ;7(1):3-17. Epub 2016 Dec 13. PMID: [28119804](#)

**Article Published Date** : Dec 31, 2016

**Authors** : Chaochu Cui, Robert Merritt, Liwu Fu, Zui Pan

**Study Type** : Review

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310)

**Diseases** : Cancers: All : CK(14773) : AC(4596)

**Pharmacological Actions** : Chemotherapeutic : CK(397) : AC(152)

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## The cannabinoid system along with other neuroimmune systems has a subtle but significant role in the regulation of immunity.

**Pubmed Data** : Pain Res Manag. 2001 ;6(2):95-101. PMID: [11854771](#)

**Article Published Date** : Dec 31, 2000

**Authors** : T W Klein, C A Newton, H Friedman

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Acquired Immunodeficiency Syndrome : CK(16) : AC(12), Cancers: All : CK(14773) : AC(4596), Multiple Sclerosis : CK(964) : AC(184)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Apoptotic : CK(2958) : AC(2075), Immunomodulatory : CK(1287) : AC(358), Neuroimmunomodulation : CK(1) : AC(1)

**Additional Keywords** : Immunocannabinoid System : CK(1) : AC(1)

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## The endocannabinoid system controls the growth and metastasis of malignant cells.

**Pubmed Data** : Recent Prog Med. 2003 May ;94(5):194-8. PMID: [12723496](#)

**Article Published Date** : Apr 30, 2003

**Authors** : Maurizio Bifulco, Vincenzo Di Marzo

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342), Endocannabinoids : CK(9) : AC(1)

**Diseases** : Cancer Metastasis : CK(442) : AC(206), Cancers: All : CK(14773) : AC(4596), Endocannabinoid System : CK(22) : AC(12)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

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## The evidences in favour of both proapoptotic, pronecrotic and protective, antiapoptotic effects of cannabinoids and, especially N-acylethanolamines, are evaluated.

**Pubmed Data** : Exp Oncol. 2008 Mar ;30(1):6-21. PMID: [18438336](#)

**Article Published Date** : Feb 29, 2008

**Authors** : V M Pushkarev, O I Kovzun, M D Tronko

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Cancers: All : CK(14773) : AC(4596)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639), Apoptotic : CK(2958) : AC(2075)

---

## The experimental evidence reviewed in this article argues in favor of the therapeutic potential of these compounds in immune disorders and cancer.

**Pubmed Data** : Prostaglandins Leukot Essent Fatty Acids. 2002 Feb-Mar;66(2-3):319-32. PMID: [12052046](#)

**Article Published Date** : Jan 31, 2002

**Authors** : Daniela Parolaro, P Massi, T Rubino, E Monti

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Endocannabinoids : CK(9) : AC(1)

**Diseases** : Cancers: All : CK(14773) : AC(4596), Endocannabinoid System : CK(22) : AC(12), Immune Disorders : CK(28) : AC(8)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Immunosuppressive Agents : CK(37) : AC(24)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

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## The possible role of cannabimimetic fatty acid derivatives



## in the pathological consequences of cancer and inflammation are examined.

**Pubmed Data** : Chem Phys Lipids. 2000 Nov ;108(1-2):191-209. PMID: [11106791](#)

**Article Published Date** : Oct 31, 2000

**Authors** : L De Petrocellis, D Melck, T Bisogno, V Di Marzo

**Study Type** : Review

**Additional Links**

**Substances** : Anandamide : CK(2) : AC(2), Cannabinoids : CK(816) : AC(310), Endocannabinoids : CK(9) : AC(1)

**Diseases** : Asthma : CK(1157) : AC(190), Cachexia : CK(77) : AC(25), Cancers: All : CK(14773) : AC(4596), Chronic Pain : CK(206) : AC(33), Inflammation : CK(3240) : AC(882)

---

## The potential therapeutic applications of cannabinoids are discussed.

**Pubmed Data** : Pharmacol Ther. 2002 Aug ;95(2):175-84. PMID: [12182964](#)

**Article Published Date** : Jul 31, 2002

**Authors** : Manuel Guzmán, Cristina Sánchez, Ismael Galve-Roperh

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Cancers: All : CK(14773) : AC(4596)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Immunomodulatory : CK(1287) : AC(358), Neuroprotective Agents : CK(2360) : AC(1099)

---

## The proapoptotic effect of cannabinoids on tumor cells is mediated by a ceramide dependent upregulation of the stress protein p8.

**Pubmed Data** : Cancer Cell. 2006 Apr ;9(4):301-12. PMID: [16616335](#)

**Article Published Date** : Mar 31, 2006

**Authors** : Arkaitz Carracedo, Mar Lorente, Ainara Egia, Cristina Blázquez, Stephane García, Valentin Giroux, Cedric Malicet, Raquel Villuendas, Meritxell Gironella, Luis González-Feria, Miguel Angel Piris, Juan L Iovanna, Manuel Guzmán, Guillermo Velasco

**Study Type** : Animal Study, Human In Vitro

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Astrocytoma : CK(12) : AC(6), Cancers: All : CK(14773) : AC(4596), Glioblastoma : CK(200) : AC(88)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

**Additional Keywords** : Altered Protein Expression : CK(6) : AC(2), Gene Expression Regulation : CK(431) : AC(214)

---

## There exists solid scientific evidence supporting that cannabinoids exhibit a remarkable anticancer activity in preclinical models of cancer.

**Pubmed Data** : Prog Neuropsychopharmacol Biol Psychiatry. 2016 Jan 4 ;64:259-66. Epub 2015 Jun 10. PMID: [26071989](#)

**Article Published Date** : Jan 03, 2016

**Authors** : Guillermo Velasco, Sonia Hernández-Tiedra, David Dávila, Mar Lorente

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Cancers: All : CK(14773) : AC(4596)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075), Autophagy Up-regulation : CK(108) : AC(65)

---

## This review critically discusses the pharmacology of CB receptor activation as a novel therapeutic anticancer strategy

**Pubmed Data** : J Pharm Pharmacol. 2009 Jul ;61(7):839-53. PMID: [19589225](#)

**Article Published Date** : Jun 30, 2009

**Authors** : Susanne Oesch, Jürg Gertsch

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Endocannabinoids : CK(9) : AC(1)

**Diseases** : Cancers: All : CK(14773) : AC(4596)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Anti-Inflammatory Agents : CK(4861) : AC(1630), Anti-metastatic : CK(634) : AC(414), Anticarcinogenic Agents : CK(1099) : AC(519), Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37), Endocannabinoid System : CK(60) : AC(23)

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## This review discusses the current understanding of cannabinoids as antitumour agents.

**Pubmed Data** : Handb Exp Pharmacol. 2015 ;231:449-72. PMID: [26408171](#)

**Article Published Date** : Dec 31, 2014

**Authors** : Guillermo Velasco, Cristina Sánchez, Manuel Guzmán

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Cancers: All : CK(14773) : AC(4596)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

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## **This review focuses on the mechanisms of cannabinoid induced apoptosis and potential therapeutic applications.**

**Pubmed Data** : Mini Rev Med Chem. 2005 Jan ;5(1):97-106. PMID: [15638794](#)

**Article Published Date** : Dec 31, 2004

**Authors** : María L López-Rodríguez, Alma Viso, Silvia Ortega-Gutiérrez, Inés Díaz-Laviada

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Cancers: All : CK(14773) : AC(4596)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Antiproliferative : CK(2546) : AC(1685)

**Additional Keywords** : Endogenous Canabinoid System : CK(1) : AC(1)

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## **This review summarises the demonstrated antitumour actions of cannabinoids and indicating possible avenues for cannabinoids as antitumour agents.**

**Pubmed Data** : Expert Opin Ther Targets. 2003 Dec ;7(6):749-58. PMID: [14640910](#)

**Article Published Date** : Nov 30, 2003

**Authors** : Sarah Jones, John Howl

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Endocannabinoids : CK(9) : AC(1)

**Diseases** : Cancers: All : CK(14773) : AC(4596)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

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## **This review will center on mechanisms by which CBD, and other plant-derived cannabinoids inefficient at activating cannabinoid receptors, inhibit tumor cell viability, invasion, metastasis, angiogenesis.**

**Pubmed Data** : J Neuroimmune Pharmacol. 2015 Jun ;10(2):255-67. Epub 2015 Apr 28. PMID: [25916739](#)

**Article Published Date** : May 31, 2015

**Authors** : Sean D McAllister, Liliana Soroceanu, Pierre-Yves Desprez

**Study Type** : Review

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Cancers: All : CK(14773) : AC(4596)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Anti-metastatic : CK(634) : AC(414), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Autophagy Up-regulation : CK(108) : AC(65)

**Additional Keywords** : Cancer Stem Cells : CK(135) : AC(88)

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## This reviews the basis for the use of cannabinoids in the treatment of cancers and neurodegenerative diseases.

**Pubmed Data** : Handb Exp Pharmacol. 2005(168):627-42. PMID: [16596790](#)

**Article Published Date** : Dec 31, 2004

**Authors** : M Guzmán

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Cancers: All : CK(14773) : AC(4596), Neurodegenerative Diseases : CK(3582) : AC(932)

**Pharmacological Actions** : Anti-Angiogenic : CK(197) : AC(137), Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Neuroprotective Agents : CK(2360) : AC(1099)

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## Cancers: Drug Resistant (AC 1) (CK 1)

### Cannabinoids reduce multidrug resistance in a human T lymphoblastoid leukaemia cell line.

**Pubmed Data** : Biochem Pharmacol. 2006 Apr 14;71(8):1146-54. Epub 2006 Feb 2. PMID: [16458258](#)

**Article Published Date** : Apr 14, 2006

**Authors** : M L Holland, J A Panetta, J M Hoskins, M Bebawy, B D Roufogalis, J D Allen, J C Arnold

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Cancers: Drug Resistant : CK(352) : AC(223), Cancers: Multi-Drug Resistant : CK(121) : AC(94), Leukemia: T-cell acute Lymphoblastic : CK(21) : AC(11)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639)

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# Cancers: Multi-Drug Resistant (AC 1) (CK 1)

## Cannabinoids reduce multidrug resistance in a human T lymphoblastoid leukaemia cell line.

**Pubmed Data** : Biochem Pharmacol. 2006 Apr 14;71(8):1146-54. Epub 2006 Feb 2. PMID: [16458258](#)

**Article Published Date** : Apr 14, 2006

**Authors** : M L Holland, J A Panetta, J M Hoskins, M Bebawy, B D Roufogalis, J D Allen, J C Arnold

**Study Type** : In Vitro Study

### Additional Links

**Substances** : [Cannabinoids](#) : CK(816) : AC(310)

**Diseases** : [Cancers: Drug Resistant](#) : CK(352) : AC(223) , [Cancers: Multi-Drug Resistant](#) : CK(121) : AC(94), [Leukemia: T-cell acute Lymphoblastic](#) : CK(21) : AC(11)

**Pharmacological Actions** : [Antineoplastic Agents](#) : CK(1158) : AC(639)

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# Candida Infection (AC 1) (CK 1)

## Biologically active cannabinoids from high-potency Cannabis sativa displayed significant antibacterial and antifungal activities.

**Pubmed Data** : J Nat Prod. 2009 May 22 ;72(5):906-11. PMID: [19344127](#)

**Article Published Date** : May 21, 2009

**Authors** : Mohamed M Radwan, Mahmoud A Elsohly, Desmond Slade, Safwat A Ahmed, Ikhlas A Khan, Samir A Ross

**Study Type** : In Vitro Study

### Additional Links

**Substances** : [Cannabinoids](#) : CK(816) : AC(310), [Cannabis](#) : CK(1776) : AC(408)

**Diseases** : [Candida Infection](#) : CK(241) : AC(112), [Leishmaniasis](#) : CK(53) : AC(36), [Pseudomonas aeruginosa](#) : CK(115) : AC(73), [Staphylococcus aureus: Methicillin-resistant \(MRSA\)](#) : CK(257) : AC(103)

**Pharmacological Actions** : [Anti-Bacterial Agents](#) : CK(1367) : AC(475) , [Antifungal Agents](#) : CK(234) : AC(146)

## Carcinoma: Non-Small-Cell Lung (AC 1) (CK 1)

**This study demonstrates that AEA, THC, and HU 210 are all able to cause changes in integrated mitochondrial function, directly, in the absence of cannabinoid receptors.**

**Pubmed Data** : Biochem Biophys Res Commun. 2007 Dec 7 ;364(1):131-7. Epub 2007 Oct 2. PMID: [17931597](#)

**Article Published Date** : Dec 06, 2007

**Authors** : Andriani Athanasiou, Anna B Clarke, Amy E Turner, Nethia M Kumaran, Sara Vakilpour, Paul A Smith, Dimitra Bagiokou, Tracey D Bradshaw, Andrew D Westwell, Lin Fang, Dileep N Lobo, Cris S Constantinescu, Vittorio Calabrese, Andrzej Loesch, Stephen P H Alexander, Richard H Clothier, David A Kendall, Timothy E Bates

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Anandamide : CK(2) : AC(2), Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Carcinoma: Non-Small-Cell Lung : CK(134) : AC(71), Lung Cancer : CK(1043) : AC(393)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075)

## Cardiac Arrhythmias (AC 1) (CK 2)

**Acute administration of cannabidiol in vivo suppresses ischaemia-induced cardiac arrhythmias and reduces infarct size when given at reperfusion.**

**Pubmed Data** : Br J Pharmacol. 2010 Jul;160(5):1234-42. PMID: [20590615](#)

**Article Published Date** : Jul 01, 2010

**Authors** : Sarah K Walsh, Claire Y Hepburn, Kathleen A Kane, Cherry L Wainwright

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408)

**Diseases** : Cardiac Arrhythmias : CK(573) : AC(75), Myocardial Infarction : CK(1101) : AC(162), Myocardial Ischemia : CK(137) : AC(61)

**Pharmacological Actions** : Cardioprotective : CK(1596) : AC(409)

---

## Cardiomyopathy (AC 1) (CK 2)

**Cannabidiol attenuates cardiac dysfunction, oxidative stress, fibrosis, and inflammatory and cell death signaling pathways in diabetic cardiomyopathy.**

**Pubmed Data** : J Am Coll Cardiol. 2010 Dec 14;56(25):2115-25. PMID: [21144973](#)

**Article Published Date** : Dec 14, 2010

**Authors** : Mohanraj Rajesh, Partha Mukhopadhyay, Sándor Bátkai, Vivek Patel, Keita Saito, Shingo Matsumoto, Yoshihiro Kashiwaya, Béla Horváth, Bani Mukhopadhyay, Lauren Becker, György Haskó, Lucas Liaudet, David A Wink, Aristidis Veves, Raphael Mechoulam, Pál Pacher

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Cardiomyopathy : CK(79) : AC(16), Cardiovascular Diseases : CK(7342) : AC(916), Diabetes: Cardiovascular Illness : CK(700) : AC(107)

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## Cardiovascular Disease: Prevention (AC 1) (CK 1)

**This review supports the hypothesis that hempseed has the potential to beneficially influence heart disease.**

**Pubmed Data** : Nutr Metab (Lond). 2010 ;7:32. Epub 2010 Apr 21. PMID: [20409317](#)

**Article Published Date** : Dec 31, 2009

**Authors** : Delfin Rodriguez-Leyva, Grant N Pierce

**Study Type** : Review

**Additional Links**

**Substances** : Hemp Seed : CK(446) : AC(5)

**Diseases** : Cardiovascular Disease: Prevention : CK(3250) : AC(433) , Cardiovascular Diseases : CK(7342) : AC(916)

**Pharmacological Actions** : Cardioprotective : CK(1596) : AC(409)

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## Cardiovascular Diseases (AC 3) (CK 8)

**Cannabidiol attenuates cardiac dysfunction, oxidative stress, fibrosis, and inflammatory and cell death signaling pathways in diabetic cardiomyopathy.**

**Pubmed Data** : J Am Coll Cardiol. 2010 Dec 14;56(25):2115-25. PMID: [21144973](#)

**Article Published Date** : Dec 14, 2010

**Authors** : Mohanraj Rajesh, Partha Mukhopadhyay, Sándor Bátkai, Vivek Patel, Keita Saito, Shingo Matsumoto, Yoshihiro Kashiwaya, Béla Horváth, Bani Mukhopadhyay, Lauren Becker, György Haskó, Lucas Liaudet, David A Wink, Aristidis Veves, Raphael Mechoulam, Pál Pacher

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Cardiomyopathy : CK(79) : AC(16) , Cardiovascular Diseases : CK(7342) : AC(916) , Diabetes: Cardiovascular Illness : CK(700) : AC(107)

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**Cannabidiol causes vasorelaxation of the human mesenteric artery.**

**Pubmed Data** : Cardiovasc Res. 2015 Sep 1 ;107(4):568-78. Epub 2015 Jun 19. PMID: [26092099](#)

**Article Published Date** : Aug 31, 2015

**Authors** : Christopher P Stanley, William H Hind, Cristina Tufarelli, Saoirse E O'Sullivan

**Study Type** : Human In Vitro

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Cardiovascular Diseases : CK(7342) : AC(916)

**Pharmacological Actions** : Vasodilator Agents : CK(347) : AC(74)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

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## This review supports the hypothesis that hempseed has the potential to beneficially influence heart disease.

**Pubmed Data** : Nutr Metab (Lond). 2010 ;7:32. Epub 2010 Apr 21. PMID: [20409317](#)

**Article Published Date** : Dec 31, 2009

**Authors** : Delfin Rodriguez-Leyva, Grant N Pierce

**Study Type** : Review

**Additional Links**

**Substances** : Hemp Seed : CK(446) : AC(5)

**Diseases** : Cardiovascular Disease: Prevention : CK(3250) : AC(433) , Cardiovascular Diseases : CK(7342) : AC(916)

**Pharmacological Actions** : Cardioprotective : CK(1596) : AC(409)

## Central Nervous System Diseases (AC 1) (CK 1)

### Cannabinoids have therapeutic potential in central nervous system disease.

**Pubmed Data** : Eur J Pharmacol. 2011 Jan 13. Epub 2011 Jan 13. PMID: [12617697](#)

**Article Published Date** : Jan 13, 2011

**Authors** : J Ludovic Croxford

**Study Type** : Review

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408)

**Diseases** : Central Nervous System Diseases : CK(6) : AC(6) , Neurodegenerative Diseases : CK(3582) : AC(932)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

## Cerebral Ischemia (AC 2) (CK 3)

## Cannabidiol and (-)Delta9-tetrahydrocannabinol are neuroprotective antioxidants.

**Pubmed Data** : Proc Natl Acad Sci U S A. 1998 Jul 7 ;95(14):8268-73. PMID: [9653176](#)

**Article Published Date** : Jul 06, 1998

**Authors** : A J Hampson, M Grimaldi, J Axelrod, D Wink

**Study Type** : Review

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Brain Inflammation : CK(274) : AC(145), Cerebral Ischemia : CK(229) : AC(77), Oxidative Stress : CK(3871) : AC(1382)

**Pharmacological Actions** : Antioxidants : CK(8430) : AC(3132), Neuroprotective Agents : CK(2360) : AC(1099)

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## Cannabidiol will have a palliative action and open new therapeutic possibilities for treating cerebrovascular disorders.

**Pubmed Data** : Neuropharmacology. 2007 Mar ;52(4):1079-87. Epub 2007 Feb 21. PMID: [17320118](#)

**Article Published Date** : Feb 28, 2007

**Authors** : Kazuhide Hayakawa, Kenichi Mishima, Masanori Nozako, Ayumi Ogata, Mai Hazekawa, An-Xin Liu, Masayuki Fujioka, Kohji Abe, Nobuyoshi Hasebe, Nobuaki Egashira, Katsunori Iwasaki, Michihiro Fujiwara

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Cerebral Ischemia : CK(229) : AC(77)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

**Additional Keywords** : Risk Reduction : CK(6417) : AC(686)

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## Cervical Cancer (AC 1) (CK 1)

**This further demonstrates the ability of Cannabis sativa to induce apoptosis with or without cell cycle arrest and via mitochondrial pathway.**

**Pubmed Data** : BMC Complement Altern Med. 2016 ;16(1):335. Epub 2016 Sep 1. PMID: [27586579](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Sindiswa T Lukhele, Lesetja R Motadi

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408)

**Diseases** : Cervical Cancer : CK(345) : AC(144)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

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## Chemotherapy (AC 1) (CK 10)

**Cannabis extract is safe and efficacious in reducing chemotherapy-induced nausea and vomiting.**

**Pubmed Data** : Br J Clin Pharmacol. 2010 Nov;70(5):656-63. PMID: [21039759](#)

**Article Published Date** : Nov 01, 2010

**Authors** : Marta Duran, Eulàlia Pérez, Sergio Abanades, Xavier Vidal, Cristina Saura, Margarita Majem, Edurne Arriola, Manel Rabanal, Antoni Pastor, Magí Farré, Neus Rams, Joan-Ramon Laporte, Dolors Capellà

**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Chemotherapy : CK(83) : AC(17), Chemotherapy-Induced Toxicity : CK(1033) : AC(327), Nausea: Chemotherapy-Induced : CK(173) : AC(19)

**Pharmacological Actions** : Antiemetics : CK(40) : AC(4)

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## Chemotherapy-Induced Nausea (AC 2) (CK 2)

**Cannabis-based medications may be useful for treating refractory chemotherapy-induced nausea and vomiting.**

**Pubmed Data** : Cochrane Database Syst Rev. 2015 Nov 12 ;11:CD009464. Epub 2015 Nov 12.

PMID: [26561338](#)

**Article Published Date** : Nov 11, 2015

**Authors** : Lesley A Smith, Fredric Azariah, Verna Tc Lavender, Nicola S Stoner, Silvana Bettiol

**Study Type** : Review

**Additional Links**

**Substances** : [Cannabinoids](#) : CK(816) : AC(310), [Cannabis](#) : CK(1776) : AC(408)

**Diseases** : [Chemotherapy-Induced Nausea](#) : CK(153) : AC(17)

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## Recent evidence suggests a role for the endocannabinoid system in modulating chemotherapy-induced nausea and vomiting.

**Pubmed Data** : Front Pharmacol. 2016 ;7:221. Epub 2016 Jul 26. PMID: [27507945](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Erin M Rock, Linda A Parker

**Study Type** : Review

**Additional Links**

**Substances** : [Cannabinoids](#) : CK(816) : AC(310), [Delta-tetrahydrocannabinol \(THC\)](#) : CK(1135) : AC(342)

**Diseases** : [Chemotherapy-Induced Nausea](#) : CK(153) : AC(17)

**Additional Keywords** : [Endocannabinoid System](#) : CK(60) : AC(23)

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# Chemotherapy-Induced Toxicity (AC 1) (CK 10)

## Cannabis extract is safe and efficacious in reducing chemotherapy-induced nausea and vomiting.

**Pubmed Data** : Br J Clin Pharmacol. 2010 Nov;70(5):656-63. PMID: [21039759](#)

**Article Published Date** : Nov 01, 2010

**Authors** : Marta Duran, Eulàlia Pérez, Sergio Abanades, Xavier Vidal, Cristina Saura, Margarita Majem, Eurne Arriola, Manel Rabanal, Antoni Pastor, Magí Farré, Neus Rams, Joan-Ramon Laporte, Dolors Capellà

**Study Type** : Human Study

**Additional Links**

**Substances** : [Cannabis](#) : CK(1776) : AC(408)

**Diseases** : [Chemotherapy](#) : CK(83) : AC(17), [Chemotherapy-Induced Toxicity](#) : CK(1033) : AC(327),

Nausea: Chemotherapy-Induced : CK(173) : AC(19)

**Pharmacological Actions** : Antiemetics : CK(40) : AC(4)

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## Chemotherapy-Induced Toxicity: Cisplatin (AC 3) (CK 5)

### A cannabinoid receptor 2 agonist attenuates cisplatin-induced apoptosis in auditory cells.

**Pubmed Data** : J Neurosci Res. 2007 Mar;85(4):896-905. PMID: [17183590](#)

**Article Published Date** : Mar 01, 2007

**Authors** : Hyun-Ja Jeong, Su-Jin Kim, Phil-Dong Moon, Na-Hyun Kim, Jung-Sun Kim, Rae-Kil Park, Min-Sun Kim, Byung-Rim Park, Sejin Jeong, Jae-Young Um, Hyung-Min Kim, Seung-Heon Hong

**Study Type** : In Vitro Study

#### Additional Links

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Auditory Diseases : CK(3) : AC(2) , Chemotherapy-Induced Toxicity: Cisplatin : CK(319) : AC(133)

**Pharmacological Actions** : Anti-Apoptotic : CK(384) : AC(212)

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### Cannabidiol may represent a promising new protective strategy against cisplatin-induced nephrotoxicity.

**Pubmed Data** : J Pharmacol Exp Ther. 2009 Mar ;328(3):708-14. Epub 2008 Dec 12. PMID: [19074681](#)

**Article Published Date** : Feb 28, 2009

**Authors** : Hao Pan, Partha Mukhopadhyay, Mohanraj Rajesh, Vivek Patel, Bani Mukhopadhyay, Bin Gao, György Haskó, Pál Pacher

**Study Type** : Animal Study

#### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Chemotherapy-Induced Toxicity: Cisplatin : CK(319) : AC(133) , Inflammation : CK(3240) : AC(882), Oxidative Stress : CK(3871) : AC(1382)

**Pharmacological Actions** : Chemoprotective Agents : CK(356) : AC(146)

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### Cannabis cannabinoids can achieve analgesic effects

## against cisplatin neuropathy.

**Pubmed Data** : Planta Med. 2016 May 23. Epub 2016 May 23. PMID: [27214593](#)

**Article Published Date** : May 22, 2016

**Authors** : Hannah M Harris, Kenneth J Sufka, Waseem Gul, Mahmoud A ElSohly

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Chemotherapy-Induced Toxicity: Cisplatin : CK(319) : AC(133)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217)

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## Chemotherapy-Induced Toxicity: Doxorubicin (AC 3) (CK 5)

### A cannabinoid quinone has cancer-destroying activity superior to doxorubicin without cardiotoxicity, in vitro.

**Pubmed Data** : Expert Opin Investig Drugs. 2007 Sep;16(9):1405-13. PMID: [17714026](#)

**Article Published Date** : Sep 01, 2007

**Authors** : Maximilian Peters, Natalya M Kogan

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Marijuana : CK(1952) : AC(456)

**Diseases** : Cancers: All : CK(14773) : AC(4596) , Chemotherapy-Induced Toxicity: Doxorubicin : CK(132) : AC(56)

**Additional Keywords** : Superiority of Natural Substances versus Drugs : CK(1316) : AC(251)

---

### CBD exerts protective effects against Doxorubicin induced cardiotoxicity and cardiac dysfunction by attenuating oxidative and nitrative stress.

**Pubmed Data** : Mol Med. 2015 Jan 6. Epub 2015 Jan 6. PMID: [25569804](#)

**Article Published Date** : Jan 05, 2015

**Authors** : Enkui Hao, Partha Mukhopadhyay, Zongxian Cao, Katalin Erdélyi, Eileen Holovac, Lucas Liaudet, Wen-Shin Lee, György Haskó, Raphael Mechoulam, Pál Pacher

**Study Type** : Animal Study, In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Chemotherapy-Induced Toxicity: Doxorubicin : CK(132) : AC(56) , Oxidative Stress : CK(3871) : AC(1382)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Cardioprotective : CK(1596) : AC(409), Chemoprotective Agents : CK(356) : AC(146) , Chemoprotective Agents : CK(356) : AC(146)

---

## Cannabidiol represents a potential protective agent against doxorubicin cardiac injury.

**Pubmed Data** : Environ Toxicol Pharmacol. 2013 Sep ;36(2):347-57. Epub 2013 May 10. PMID: [23721741](#)

**Article Published Date** : Aug 31, 2013

**Authors** : Amr A Fouad, Waleed H Albuali, Abdulruhman S Al-Mulhim, Iyad Jresat

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Chemotherapy-Induced Toxicity: Doxorubicin : CK(132) : AC(56) , Oxidative Stress : CK(3871) : AC(1382)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Antioxidants : CK(8430) : AC(3132), Cardioprotective : CK(1596) : AC(409), Malondialdehyde Down-regulation : CK(554) : AC(152), NF-kappaB Inhibitor : CK(1114) : AC(694) , Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

---

## Cholangiocarcinoma (AC 1) (CK 5)

### THC inhibited cell proliferation, migration and invasion, and induced cell apoptosis in cholangiocarcinoma cells.

**Pubmed Data** : Cancer Invest. 2010 May ;28(4):357-63. PMID: [19916793](#).

**Article Published Date** : Apr 30, 2010

**Authors** : Surang Leelawat, Kawin Leelawat, Siriluck Narong, Oraphan Matangkasombut

**Study Type** : Human In Vitro

### Additional Links

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Cancer Metastasis : CK(442) : AC(206), Cholangiocarcinoma : CK(96) : AC(21)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

**Additional Keywords** : Dose Response : CK(1056) : AC(408)

## Chronic Pain (AC 7) (CK 25)

### Cannabis users report greater pain relief in combination with opioids than when opioids are used alone.

**Pubmed Data** : Drug Alcohol Depend. 2015 Feb 1 ;147:144-50. Epub 2014 Dec 10. PMID: [25533893](#)

**Article Published Date** : Jan 31, 2015

**Authors** : Louisa Degenhardt, Nicholas Lintzeris, Gabrielle Campbell, Raimondo Bruno, Milton Cohen, Michael Farrell, Wayne D Hall

**Study Type** : Human Study

#### Additional Links

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Chronic Pain : CK(206) : AC(33)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217)

**Additional Keywords** : Natural Substance/Drug Synergy : CK(352) : AC(142)

### The authors concluded that cannabinoids demonstrate a modest analgesic effect and are safe for the management of chronic pain.

**Pubmed Data** : J Basic Clin Physiol Pharmacol. 2015 Nov 18. Epub 2015 Nov 18. PMID: [26581068](#)

**Article Published Date** : Nov 17, 2015

**Authors** : Mary E Lynch

**Study Type** : Review

#### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Chronic Pain : CK(206) : AC(33)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217)

### The literature suggests that the medicinal use of cannabis may have a therapeutic role for a multitude of diseases.

**Pubmed Data** : Headache. 2015 Jun ;55(6):885-916. Epub 2015 May 25. PMID: [26015168](#)

**Article Published Date** : May 31, 2015

**Authors** : Eric P Baron



**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Chronic Pain : CK(206) : AC(33), Headache : CK(785) : AC(92)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217)

**Additional Keywords** : Natural Substance/Drug Synergy : CK(352) : AC(142)

---

## The possible role of cannabimimetic fatty acid derivatives in the pathological consequences of cancer and inflammation are examined.

**Pubmed Data** : Chem Phys Lipids. 2000 Nov ;108(1-2):191-209. PMID: [11106791](#)

**Article Published Date** : Oct 31, 2000

**Authors** : L De Petrocellis, D Melck, T Bisogno, V Di Marzo

**Study Type** : Review

**Additional Links**

**Substances** : Anandamide : CK(2) : AC(2), Cannabinoids : CK(816) : AC(310), Endocannabinoids : CK(9) : AC(1)

**Diseases** : Asthma : CK(1157) : AC(190), Cachexia : CK(77) : AC(25), Cancers: All : CK(14773) : AC(4596), Chronic Pain : CK(206) : AC(33), Inflammation : CK(3240) : AC(882)

---

## The present study suggests that THC does not selectively affect limbic regions, but rather interferes with sensory processing.

**Pubmed Data** : Neuropsychopharmacology. 2015 Oct 30. Epub 2015 Oct 30. PMID: [26514581](#)

**Article Published Date** : Oct 29, 2015

**Authors** : Carmen Walter, Bruno G Oertel, Lisa Felden, Christian A Kell, Ulrike Nöth, Johannes Vermehren, Jochen Kaiser, Ralf Deichmann, Jörn Lötsch

**Study Type** : Human Study

**Additional Links**

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Chronic Pain : CK(206) : AC(33)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217)

---

## This review adds further support that currently available cannabinoids are safe, modestly effective analgesics.

**Pubmed Data** : J Neuroimmune Pharmacol. 2015 Jun ;10(2):293-301. Epub 2015 Mar 22. PMID: [25796592](#)

**Article Published Date** : May 31, 2015

**Authors** : M E Lynch, Mark A Ware

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Chronic Pain : CK(206) : AC(33)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217)

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**This review suggests that cannabinoids may provide effective analgesia in chronic neuropathic pain conditions that are refractory to other treatments.**

**Pubmed Data** : J Oral Facial Pain Headache. 2015 ;29(1):7-14. PMID: [25635955](#)

**Article Published Date** : Dec 31, 2014

**Authors** : Darrell G Boychuk, Greg Goddard, Giovanni Mauro, Maria F Orellana

**Study Type** : Review

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Chronic Pain : CK(206) : AC(33), Neuropathic Pain : CK(284) : AC(69)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217)

---

## Cocaine Toxicity (AC 1) (CK 2)

**Activation of cannabinoid system may have protective actions on both liver and brain induced by cocaine, minimizing inflammatory injury promoted by cocaine.**

**Pubmed Data** : Mediators Inflamm. 2015 ;2015:523418. Epub 2015 Apr 27. PMID: [25999668](#)

**Article Published Date** : Dec 31, 2014

**Authors** : Luciano Rezende Vilela, Lindisley Ferreira Gomides, Bruna Araújo David, Maísa Mota Antunes, Ariane Barros Diniz, Fabrício de Araújo Moreira, Gustavo Batista Menezes

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Cocaine Toxicity : CK(19) : AC(6), Drug Abuse : CK(16) : AC(5)

**Pharmacological Actions** : Drug Abuse : CK(16) : AC(5), Neuroprotective Agents : CK(2360) : AC(1099)

---

# Cognitive Decline/Dysfunction (AC 2) (CK 4)

## Nigella sativa oil could be a promising agent against moto-cognitive dysfunction and cerebello-hippocampal alterations induced by cannabis.

**Pubmed Data** : Malays J Med Sci. 2016 Sep ;23(5):17-28. Epub 2016 Oct 5. PMID: [27904421](#)

**Article Published Date** : Aug 31, 2016

**Authors** : Aminu Imam, Moyosore Saliu Ajao, Abdulbasit Amin, Wahab Imam Abdulmajeed, Abdulmumin Ibrahim, Olayemi Joseph Olajide, Musa Iyiola Ajibola, Abdulmusawir Alli-Oluwafuyi, Wasiu Gbolahan Balogun

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabis : CK(1776) : AC(408), Nigella sativa (aka Black Seed) : CK(377) : AC(100)

**Diseases** : Cognitive Decline/Dysfunction : CK(1163) : AC(215)

**Additional Keywords** : Plant Extracts : CK(7645) : AC(2539)

---

## Pre or post-conditioning treatment with extremely low doses of THC before or after brain injury, may provide safe and effective long-term neuroprotection.

**Pubmed Data** : Behav Brain Res. 2011 Jun 20 ;220(1):194-201. Epub 2011 Feb 18. PMID: [21315768](#)

**Article Published Date** : Jun 19, 2011

**Authors** : Fadi Assaf, Miriam Fishbein, Mikhal Gafni, Ora Keren, Yosef Sarne

**Study Type** : Animal Study

### Additional Links

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Cognitive Decline/Dysfunction : CK(1163) : AC(215), Drug-Induced Toxicity: Epilepsy

Drugs : CK(2) : AC(1)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

**Additional Keywords** : Risk Reduction : CK(6417) : AC(686)

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# Colitis (AC 6) (CK 11)

## A cannabis extract with high content in cannabidiol attenuated chemically-induced intestinal inflammation.

**Pubmed Data** : Front Pharmacol. 2016 ;7:341. Epub 2016 Aug 4. PMID: [27757083](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Ester Pagano, Raffaele Capasso, Fabiana Piscitelli, Barbara Romano, Olga A Parisi, Stefania Finizio, Anna Lauritano, Vincenzo Di Marzo, Angelo A Izzo, Francesca Borrelli

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Colitis : CK(255) : AC(111), Gastrointestinal Inflammation : CK(118) : AC(41), Inflammatory Bowel Diseases : CK(1052) : AC(197)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630)

**Additional Keywords** : Plant Extracts : CK(7645) : AC(2539)

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## Cannabichromene could be considered for clinical experimentation in inflammatory bowel disease patients.

**Pubmed Data** : Biochem Pharmacol. 2013 May 1 ;85(9):1306-16. Epub 2013 Feb 12. PMID: [23415610](#)

**Article Published Date** : Apr 30, 2013

**Authors** : Francesca Borrelli, Ines Fasolino, Barbara Romano, Raffaele Capasso, Francesco Maiello, Diana Coppola, Pierangelo Orlando, Giovanni Battista, Ester Pagano, Vincenzo Di Marzo, Angelo A Izzo

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Colitis : CK(255) : AC(111), Inflammatory Bowel Diseases : CK(1052) : AC(197)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Interleukin-10 downregulation : CK(128) : AC(45), Interleukin-1 beta downregulation : CK(478) : AC(205), Nitric Oxide Inhibitor : CK(223) : AC(108), Superoxide Dismutase Up-regulation : CK(530) : AC(174)

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## Cannabichromene exerts anti-inflammatory actions in activated macrophages.

**Pubmed Data** : Br J Pharmacol. 2013 May ;169(1):213-29. PMID: [23373571](#)

**Article Published Date** : Apr 30, 2013

**Authors** : B Romano, F Borrelli, I Fasolino, R Capasso, F Piscitelli, Mg Cascio, Rg Pertwee, D Coppola, L Vassallo, P Orlando, V Di Marzo, Aa Izzo

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Colitis : CK(255) : AC(111), Inflammation : CK(3240) : AC(882), Inflammatory Bowel Diseases : CK(1052) : AC(197), Lipopolysaccharide-Induced Toxicity : CK(380) : AC(218)  
**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630)

---

## O-1602 is protective against experimentally induced colitis and inhibits neutrophil recruitment independently of CB1, CB2 and GPR55 receptors.

**Pubmed Data** : Inflamm Bowel Dis. 2011 Aug ;17(8):1651-64. Epub 2010 Nov 15. PMID: [21744421](#)

**Article Published Date** : Jul 31, 2011

**Authors** : Rudolf Schicho, Mohammad Bashashati, Misha Bawa, Douglas McHugh, Dieter Saur, Huang-Ming Hu, Andreas Zimmer, Beat Lutz, Ken Mackie, Heather B Bradshaw, Donna-Marie McCafferty, Keith A Sharkey, Martin Storr

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Colitis : CK(255) : AC(111), Inflammation: Neutrophil-Mediated : CK(12) : AC(7)

**Additional Keywords** : Dose Response : CK(1056) : AC(408)

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## THC and cannabidiol may have therapeutic value in reducing damage and inflammation associated with colitis.

**Pubmed Data** : Br J Pharmacol. 2010 Jun;160(3):712-23. PMID: [20590574](#)

**Article Published Date** : Jun 01, 2010

**Authors** : J M Jamontt, A Molleman, R G Pertwee, M E Parsons

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Colitis : CK(255) : AC(111), Inflammatory Bowel Diseases : CK(1052) : AC(197)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630)

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## The antitumorigenic effects of O-1602 are multiple in that it reduces viability and proliferation of cancer cells and further promotes their apoptosis.

**Pubmed Data** : J Mol Med (Berl). 2013 Apr ;91(4):449-58. Epub 2012 Sep 11. PMID: [22965195](#)

**Article Published Date** : Mar 31, 2013

**Authors** : Julia Kargl, Johannes Haybaeck, Angela Stančić, Liisa Andersen, Gunther Marsche, Akos Heinemann, Rudolf Schicho

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Colitis : CK(255) : AC(111), Colon Cancer : CK(749) : AC(430)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Chemopreventive : CK(2835) : AC(787), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

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## Colon Cancer (AC 5) (CK 8)

### Cannabidiol protected DNA from oxidative damage, increased endocannabinoid levels and reduced cell proliferation.

**Pubmed Data** : J Mol Med (Berl). 2012 Aug ;90(8):925-34. Epub 2012 Jan 10. PMID: [22231745](#)

**Article Published Date** : Jul 31, 2012

**Authors** : Gabriella Aviello, Barbara Romano, Francesca Borrelli, Raffaele Capasso, Laura Gallo, Fabiana Piscitelli, Vincenzo Di Marzo, Angelo A Izzo

**Study Type** : Animal Study

#### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Colon Cancer : CK(749) : AC(430)

**Pharmacological Actions** : Anticarcinogenic Agents : CK(1099) : AC(519), Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Chemopreventive : CK(2835) : AC(787)

**Additional Keywords** : Endocannabinoid System : CK(60) : AC(23)

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### Cannabigerol hampers colon cancer progression in vivo and selectively inhibits the growth of colorectal cancer cells.

**Pubmed Data** : Carcinogenesis. 2014 Dec ;35(12):2787-97. Epub 2014 Sep 30. PMID: [25269802](#)

**Article Published Date** : Nov 30, 2014

**Authors** : Francesca Borrelli, Ester Pagano, Barbara Romano, Stefania Panzera, Francesco Maiello, Diana Coppola, Luciano De Petrocellis, Lorena Buono, Pierangelo Orlando, Angelo A Izzo

**Study Type** : Animal Study

#### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Colon Cancer : CK(749) : AC(430), Colon Cancer: Prevention : CK(178) : AC(57)

**Pharmacological Actions** : Anticarcinogenic Agents : CK(1099) : AC(519), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

**Additional Keywords** : Selective Antiproliferation : CK(4) : AC(4)

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## **Cannabinoids - via direct or indirect activation of CB(1) and/or CB(2) receptors exert protective effects in well-established models of intestinal inflammation and colon cancer.**

**Pubmed Data** : Pharmacol Res. 2009 Aug ;60(2):117-25. Epub 2009 Mar 18. PMID: [19442536](#)

**Article Published Date** : Jul 31, 2009

**Authors** : Angelo A Izzo, Michael Camilleri

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Colon Cancer : CK(749) : AC(430), Endocannabinoid System : CK(22) : AC(12), Gastrointestinal Inflammation : CK(118) : AC(41), Inflammation : CK(3240) : AC(882), Inflammatory Bowel Diseases : CK(1052) : AC(197)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Anticarcinogenic Agents : CK(1099) : AC(519)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

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## **Induction of apoptosis by cannabinoids in prostate and colon cancer cells is phosphatase dependent.**

**Pubmed Data** : Anticancer Res. 2011 Nov ;31(11):3799-807. PMID: [22110202](#)

**Article Published Date** : Oct 31, 2011

**Authors** : Sandeep Sreevalsan, Sonia Joseph, Indira Jutooru, Gayathri Chadalapaka, Stephen H Safe

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids: Synthetic : CK(78) : AC(33)

**Diseases** : Colon Cancer : CK(749) : AC(430), Prostate Cancer : CK(1586) : AC(463)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

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## **The antitumorigenic effects of O-1602 are multiple in that it reduces viability and proliferation of cancer cells and further promotes their apoptosis.**

**Pubmed Data** : J Mol Med (Berl). 2013 Apr ;91(4):449-58. Epub 2012 Sep 11. PMID: [22965195](#)

**Article Published Date** : Mar 31, 2013

**Authors** : Julia Kargl, Johannes Haybaeck, Angela Stančić, Liisa Andersen, Gunther Marsche, Akos Heinemann, Rudolf Schicho

**Study Type** : Animal Study

### **Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Colitis : CK(255) : AC(111), Colon Cancer : CK(749) : AC(430)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Chemopreventive : CK(2835) : AC(787), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

---

## **Colon Cancer: Prevention (AC 1) (CK 2)**

**Cannabigerol hampers colon cancer progression in vivo and selectively inhibits the growth of colorectal cancer cells.**

**Pubmed Data** : Carcinogenesis. 2014 Dec ;35(12):2787-97. Epub 2014 Sep 30. PMID: [25269802](#)

**Article Published Date** : Nov 30, 2014

**Authors** : Francesca Borrelli, Ester Pagano, Barbara Romano, Stefania Panzera, Francesco Maiello, Diana Coppola, Luciano De Petrocellis, Lorena Buono, Pierangelo Orlando, Angelo A Izzo

**Study Type** : Animal Study

### **Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Colon Cancer : CK(749) : AC(430), Colon Cancer: Prevention : CK(178) : AC(57)

**Pharmacological Actions** : Anticarcinogenic Agents : CK(1099) : AC(519), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

**Additional Keywords** : Selective Antiproliferation : CK(4) : AC(4)

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## **Colorectal Cancer (AC 3) (CK 3)**

**Preclinical and clinical assessment of cannabinoids as anti-cancer agents.**

**Pubmed Data** : Front Pharmacol. 2016 ;7:361. Epub 2016 Oct 7. PMID: [27774065](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Daniel A Ladin, Eman Soliman, LaToya Griffin, Rukiyah Van Dross



**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33) , Cannabis : CK(1776) : AC(408)

**Diseases** : Breast Cancer : CK(3592) : AC(1064) , Colorectal Cancer : CK(1646) : AC(619) , Glioma : CK(177) : AC(86) , Liver Cancer : CK(1235) : AC(462) , Lung Cancer : CK(1043) : AC(393) , Melanoma : CK(285) : AC(149) , Pancreatic Cancer : CK(890) : AC(260) , Prostate Cancer : CK(1586) : AC(463) , Skin Cancer : CK(736) : AC(293) , Thyroid Cancer : CK(237) : AC(55)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62) , Anticarcinogenic Agents : CK(1099) : AC(519) , Antiproliferative : CK(2546) : AC(1685) , Apoptotic : CK(2958) : AC(2075)

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## THC, the active metabolite of cannabis induces programmed cell death in colorectal cancer cells.

**Pubmed Data** : Eur J Clin Invest. 1990 Oct;20 Suppl 1:S65-71. PMID: [17583570](#)

**Article Published Date** : Oct 01, 1990

**Authors** : Alexander Greenhough, Helena A Patsos, Ann C Williams, Christos Paraskeva

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Marijuana : CK(1952) : AC(456)

**Diseases** : Colorectal Cancer : CK(1646) : AC(619)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075)

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## The cannabinoid quinone HU-331 is a highly specific inhibitor of topoisomerase II.

**Pubmed Data** : Mol Cancer Ther. 2007 Jan ;6(1):173-83. PMID: [17237277](#)

**Article Published Date** : Dec 31, 2006

**Authors** : Natalya M Kogan, Michael Schlesinger, Esther Priel, Ruth Rabinowitz, Eduard Berenshtein, Mordechai Chevion, Raphael Mechoulam

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338) , Cannabinoids: Synthetic : CK(78) : AC(33)

**Diseases** : Colorectal Cancer : CK(1646) : AC(619)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639) , Cell cycle arrest : CK(810) : AC(612) , Chemotherapeutic : CK(397) : AC(152) , Paraptosis : CK(1) : AC(1) , Topoisomerase II Inhibitor : CK(3) : AC(3)

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**Constipation (AC 1) (CK 10)**

## A hemp seed containing proprietary Chinese herbal medicine alleviates symptoms of functional constipation.

**Pubmed Data** : Am J Gastroenterol. 2010 Nov 2. Epub 2010 Nov 2. PMID: [21045817](#)

**Article Published Date** : Nov 02, 2010

**Authors** : Chung-Wah Cheng, Zhao-Xiang Bian, Li-Xing Zhu, Justin C Y Wu, Joseph J Y Sung

**Study Type** : Human Study

**Additional Links**

**Substances** : Hemp Seed : CK(446) : AC(5)

**Diseases** : Constipation : CK(418) : AC(45)

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## Crack Addiction/Withdrawal (AC 1) (CK 10)

### Marihuana may have therapeutic value in overcoming crack addiction.

**Pubmed Data** : J Psychoactive Drugs. 1999 Oct-Dec;31(4):451-5. PMID: [10681113](#)

**Article Published Date** : Oct 01, 1999

**Authors** : E Labigalini, L R Rodrigues, D X Da Silveira

**Study Type** : Human Study

**Additional Links**

**Substances** : Marijuana : CK(1952) : AC(456)

**Diseases** : Crack Addiction/Withdrawal : CK(10) : AC(1)

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## Degenerative Disk Disease (AC 1) (CK 2)

### Cannabidiol significantly attenuated the effects of disc injury induced by the needle puncture and could be

## useful in the treatment of intervertebral disc degeneration.

**Pubmed Data** : PLoS One. 2014 ;9(12):e113161. Epub 2014 Dec 17. PMID: [25517414](#)

**Article Published Date** : Dec 31, 2013

**Authors** : João W Silveira, Ana Carolina Issy, Vitor A Castania, Carlos E G Salmon, Marcello H Nogueira-Barbosa, Francisco S Guimarães, Helton L A Defino, Elaine Del Bel

**Study Type** : Animal Study

**Additional Links**

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Degenerative Disk Disease](#) : CK(21) : AC(9)

## Delirium: Drug-Induced (AC 1) (CK 10)

**Cannabidiol has antipsychotic properties which balance out the psychotomimetic effects of THC in cannabis.**

**Pubmed Data** : Br J Psychiatry. 2008 Apr;192(4):306-7. PMID: [18378995](#)

**Article Published Date** : Apr 01, 2008

**Authors** : Celia J A Morgan, H Valerie Curran

**Study Type** : Human Study

**Additional Links**

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Delirium: Drug-Induced](#) : CK(26) : AC(6) , [Marijuana Addiction/Withdrawal](#) : CK(44) : AC(7)

**Additional Keywords** : [The Whole is Superior to the Monochemical Part](#) : CK(16) : AC(5) , [Whole Food Balance](#) : CK(10) : AC(1)

## Dementia (AC 4) (CK 23)

**A review of phytochemicals and their neuroprotective effects in the treatment of dementia.**

**Pubmed Data** : Molecules. 2016 ;21(4). Epub 2016 Apr 21. PMID: [27110749](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Rosaliana Libro, Sabrina Giacoppo, Thangavelu Soundara Rajan, Placido Bramanti, Emanuela Mazzon

**Study Type** : Review

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310), Flavonoids : CK(1215) : AC(379), Polyphenols : CK(931) : AC(335)

**Diseases** : Alzheimer's Disease : CK(1292) : AC(382) , Dementia : CK(571) : AC(79)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

**Additional Keywords** : Risk Reduction : CK(6417) : AC(686)

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## Adding medical cannabis oil to AD patients' pharmacotherapy is safe and a promising treatment option.

**Pubmed Data** : J Alzheimers Dis. 2016 Jan 12. Epub 2016 Jan 12. PMID: [26757043](#)

**Article Published Date** : Jan 11, 2016

**Authors** : Assaf Shelef, Yoram Barak, Uri Berger, Diana Paleacu, Shelly Tadger, Igor Plopsky, Yehuda Baruch

**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Alzheimer's Disease : CK(1292) : AC(382) , Dementia : CK(571) : AC(79)

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## Cannabinoids are effective in reducing memory impairment in A $\beta$ PP/PS1 mice.

**Pubmed Data** : J Alzheimers Dis. 2016 Aug 10. Epub 2016 Aug 10. PMID: [27567873](#)

**Article Published Date** : Aug 09, 2016

**Authors** : Ester Aso, Pol Andrés-Benito, Isidro Ferrer

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Dementia : CK(571) : AC(79)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

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## Delta-9-tetrahydrocannabinol appears to be therapeutic for nighttime agitation in severe dementia.

**Pubmed Data** : Psychopharmacology (Berl). 2006 May ;185(4):524-8. Epub 2006 Mar 7. PMID: [16521031](#)

**Article Published Date** : Apr 30, 2006

**Authors** : Sebastian Walther, Richard Mahlberg, Uta Eichmann, Dieter Kunz

**Study Type** : Human Study

**Additional Links**

**Substances** : [Delta-tetrahydrocannabinol \(THC\)](#) : CK(1135) : AC(342)

**Diseases** : [Dementia](#) : CK(571) : AC(79), [Sleep Disorders](#) : CK(361) : AC(44)

---

## Depression (AC 5) (CK 8)

**CBD may be beneficial for the treatment of clinical depression and other states with prominent anhedonia.**

**Pubmed Data** : Neuropsychobiology. 2016 ;73(2):123-9. Epub 2016 Mar 25. PMID: [27010632](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Gal Shoval, Liat Shbiro, Liron HersHKovitz, Noa Hazut, Gil Zalsman, Raphael Mechoulam, Aron Weller

**Study Type** : Animal Study

**Additional Links**

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Depression](#) : CK(2043) : AC(290)

**Pharmacological Actions** : [Antidepressive Agents](#) : CK(1115) : AC(168)

---

**Cannabidiol could represent a novel fast antidepressant drug, via enhancing both serotonergic and glutamate cortical signalling.**

**Pubmed Data** : Neuropharmacology. 2015 Dec 19. Epub 2015 Dec 19. PMID: [26711860](#)

**Article Published Date** : Dec 18, 2015

**Authors** : Raquel Linge, Laura Jiménez-Sánchez, Leticia Campa, Fuencisla Pilar-Cuéllar, Rebeca Vidal, Angel Pazos, Albert Adell, Álvaro Díaz

**Study Type** : Animal Study

**Additional Links**

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Depression](#) : CK(2043) : AC(290)

**Pharmacological Actions** : [Antidepressive Agents](#) : CK(1115) : AC(168)

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**Delta-tetrahydrocannabinol, cannabidiol, and cannabichromene exert antidepressant-like actions in**

## animal models.

**Pubmed Data** : Pharmacol Biochem Behav. 2010 Jun ;95(4):434-42. Epub 2010 Mar 21. PMID: [20332000](#)

**Article Published Date** : May 31, 2010

**Authors** : Abir T El-Alfy, Kelly Ivey, Keisha Robinson, Safwat Ahmed, Mohamed Radwan, Desmond Slade, Ikhlas Khan, Mahmoud ElSohly, Samir Ross

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Depression : CK(2043) : AC(290)

**Pharmacological Actions** : Antidepressive Agents : CK(1115) : AC(168)

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## This reviews preclinical and clinical on the efficacy of CBD for the treatment of motivational disorders.

**Pubmed Data** : Annu Rev Neurosci. 2016 Feb 24. Epub 2016 Feb 24. PMID: [27023732](#)

**Article Published Date** : Feb 23, 2016

**Authors** : Natalie E Zlebnik, Joseph F Cheer

**Study Type** : Review

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Anxiety Disorders : CK(1225) : AC(180), Depression : CK(2043) : AC(290), Drug Abuse : CK(16) : AC(5)

---

## This summarizes the therapeutic effects of CBD and their relevance to brain function, neuroprotection and neuropsychiatric disorders.

**Pubmed Data** : Pharmacol Res. 2016 Feb 1. Epub 2016 Feb 1. PMID: [26845349](#)

**Article Published Date** : Jan 31, 2016

**Authors** : Alline C Campos, Manoela V Fogaça, Andreza B Sonego, Francisco S Guimarães

**Study Type** : Review

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Anxiety Disorders : CK(1225) : AC(180), Brain Damage : CK(93) : AC(44), Brain Ischemia : CK(136) : AC(52), Depression : CK(2043) : AC(290), Neurodegenerative Diseases : CK(3582) : AC(932), Psychiatric Disorders : CK(123) : AC(31)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

---

## Dermatitis (AC 1) (CK 2)

**Topically applied THC can effectively attenuate contact allergic inflammation.**

**Pubmed Data** : Allergy. 2013 Aug ;68(8):994-1000. Epub 2013 Jul 29. PMID: [23889474](#)

**Article Published Date** : Jul 31, 2013

**Authors** : E Gaffal, M Cron, N Glodde, T Tüting

**Study Type** : Animal Study

**Additional Links**

**Substances** : [Cannabinoids](#) : CK(816) : AC(310), [Delta-tetrahydrocannabinol \(THC\)](#) : CK(1135) : AC(342)

**Diseases** : [Dermatitis](#) : CK(1392) : AC(137), [Inflammation](#) : CK(3240) : AC(882)

**Pharmacological Actions** : [Anti-Inflammatory Agents](#) : CK(4861) : AC(1630)

---

## Diabetes (AC 1) (CK 20)

**Recently active cannabis smoking and diabetes mellitus are inversely associated.**

**Pubmed Data** : Epidemiology. 2015 May 14. Epub 2015 May 14. PMID: [25978795](#)

**Article Published Date** : May 13, 2015

**Authors** : Omayma Alshaarawy, James C Anthony

**Study Type** : Meta Analysis

**Additional Links**

**Substances** : [Cannabis](#) : CK(1776) : AC(408)

**Diseases** : [Diabetes](#) : CK(136) : AC(28)

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## Diabetes Mellitus: Type 1 (AC 2) (CK 4)

**Cannabidiol has a neuroprotective and blood-retinal-**

## preserving effect in experimental diabetes.

**Pubmed Data** : Int Urol Nephrol. 2004;36(4):591-8. PMID: [16400026](#)

**Article Published Date** : Jan 01, 2004

**Authors** : Azza B El-Remessy, Mohamed Al-Shabrawey, Yousuf Khalifa, Nai-Tse Tsai, Ruth B Caldwell, Gregory I Liou

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Diabetes: Cataract : CK(22) : AC(14), Diabetes Mellitus: Type 1 : CK(1130) : AC(301), Diabetes Mellitus: Type 2 : CK(3572) : AC(624), Oxidative Stress : CK(3871) : AC(1382)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669), Vascular Endothelial Growth Factor A Inhibitor : CK(132) : AC(71)

---

## Experimental cannabidiol treatment reduces early pancreatic inflammation in type 1 diabetes.

**Pubmed Data** : Clin Hemorheol Microcirc. 2016 Oct 18. Epub 2016 Aug 18. PMID: [27767974](#)

**Article Published Date** : Oct 17, 2016

**Authors** : Christian Lehmann, Nicholas B Fisher, Barna Tugwell, Anna Szczesniak, Mel Kelly, Juan Zhou

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Diabetes Mellitus: Type 1 : CK(1130) : AC(301)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Pancreato Protective Agents : CK(40) : AC(23)

---

## Diabetes Mellitus: Type 1: Prevention (AC 2) (CK 3)

### Cannabidiol treatment significantly reduces the incidence of diabetes in NOD mice.

**Pubmed Data** : Autoimmunity. 2006 Mar ;39(2):143-51. PMID: [16698671](#)

**Article Published Date** : Feb 28, 2006

**Authors** : L Weiss, M Zeira, S Reich, M Har-Noy, R Mechoulam, S Slavin, R Gallily



**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Diabetes Mellitus: Type 1: Prevention : CK(255) : AC(50)

**Pharmacological Actions** : Immunomodulatory : CK(1287) : AC(358) , Interferon Gamma Reducer : CK(58) : AC(24), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

**Additional Keywords** : Risk Reduction : CK(6417) : AC(686) , Significant Treatment Outcome : CK(24) : AC(4)

---

## Cannabinoids and endocannabinoids may have therapeutic value in metabolic disorders and diabetes.

**Pubmed Data** : Handb Exp Pharmacol. 2011(203):75-104. PMID: [21484568](#)

**Article Published Date** : Jan 01, 2011

**Authors** : Vincenzo Di Marzo, Fabiana Piscitelli, Raphael Mechoulam

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408), Endocannabinoids : CK(9) : AC(1)

**Diseases** : Diabetes Mellitus: Type 1: Prevention : CK(255) : AC(50) , Diabetes Mellitus: Type 2 : CK(3572) : AC(624), Endocannabinoid System : CK(22) : AC(12)

**Additional Keywords** : Beta Cell Protection : CK(61) : AC(25)

---

## Diabetes Mellitus: Type 2 (AC 6) (CK 19)

### Cannabidiol has a neuroprotective and blood-retinal-preserving effect in experimental diabetes.

**Pubmed Data** : Int Urol Nephrol. 2004;36(4):591-8. PMID: [16400026](#)

**Article Published Date** : Jan 01, 2004

**Authors** : Azza B El-Remessy, Mohamed Al-Shabrawey, Yousuf Khalifa, Nai-Tse Tsai, Ruth B Caldwell, Gregory I Liou

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Diabetes: Cataract : CK(22) : AC(14), Diabetes Mellitus: Type 1 : CK(1130) : AC(301), Diabetes Mellitus: Type 2 : CK(3572) : AC(624), Oxidative Stress : CK(3871) : AC(1382)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099) , Tumor Necrosis Factor

(TNF) Alpha Inhibitor : CK(1823) : AC(669), Vascular Endothelial Growth Factor A Inhibitor : CK(132) : AC(71)

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## Cannabinoids and endocannabinoids may have therapeutic value in metabolic disorders and diabetes.

**Pubmed Data** : Handb Exp Pharmacol. 2011(203):75-104. PMID: [21484568](#)

**Article Published Date** : Jan 01, 2011

**Authors** : Vincenzo Di Marzo, Fabiana Piscitelli, Raphael Mechoulam

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408), Endocannabinoids : CK(9) : AC(1)

**Diseases** : Diabetes Mellitus: Type 1: Prevention : CK(255) : AC(50), Diabetes Mellitus: Type 2 : CK(3572) : AC(624), Endocannabinoid System : CK(22) : AC(12)

**Additional Keywords** : Beta Cell Protection : CK(61) : AC(25)

---

## THC improved endothelium-dependent relaxation in STZ/NIC induced diabetic rat aorta.

**Pubmed Data** : Acta Physiol Hung. 2015 Mar ;102(1):51-9. PMID: [25804389](#)

**Article Published Date** : Feb 28, 2015

**Authors** : A Altınok, Z M Coşkun, K Karaoğlu, S Bolkent, A G Akkan, Sibel Özyazgan

**Study Type** : Animal Study

**Additional Links**

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Diabetes Mellitus: Type 2 : CK(3572) : AC(624), Endothelial Dysfunction : CK(1210) : AC(237)

---

## THC may provide a protective effect against oxidative damage induced by diabetes.

**Pubmed Data** : Cell Biochem Funct. 2014 Oct ;32(7):612-9. Epub 2014 Sep 3. PMID: [25187240](#)

**Article Published Date** : Sep 30, 2014

**Authors** : Zeynep Mine Coskun, Sema Bolkent

**Study Type** : Animal Study

**Additional Links**

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Diabetes Mellitus: Type 2 : CK(3572) : AC(624), Oxidative Stress : CK(3871) : AC(1382)

**Pharmacological Actions** : Catalase Up-Regulation : CK(118) : AC(42), Superoxide Dismutase Up-regulation : CK(530) : AC(174)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

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## THC treatment may attenuate slightly the oxidative stress in diabetic rats.

**Pubmed Data** : Iran J Basic Med Sci. 2016 Feb ;19(2):154-8. PMID: [27081459](#)

**Article Published Date** : Jan 31, 2016

**Authors** : Zeynep Mine Coskun, Sema Bolkent

**Study Type** : Animal Study

### Additional Links

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Diabetes: Oxidative Stress : CK(131) : AC(40) , Diabetes Mellitus: Type 2 : CK(3572) : AC(624)

**Pharmacological Actions** : Antioxidants : CK(8430) : AC(3132) , Superoxide Dismutase Up-regulation : CK(530) : AC(174)

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## Tetrahydrocannabivarin could represent a new therapeutic agent in glycemic control in subjects with type 2 diabetes.

**Pubmed Data** : Diabetes Care. 2016 Aug 29. Epub 2016 Aug 29. PMID: [27573936](#)

**Article Published Date** : Aug 28, 2016

**Authors** : Khalid A Jadoon, Stuart H Ratcliffe, David A Barrett, E Louise Thomas, Colin Stott, Jimmy D Bell, Saoirse E O'Sullivan, Garry D Tan

**Study Type** : Human Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310)

**Diseases** : Diabetes Mellitus: Type 2 : CK(3572) : AC(624) , Hypoglycemia : CK(189) : AC(30)

**Pharmacological Actions** : Hypoglycemic Agents : CK(1446) : AC(342)

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## Diabetes: Cardiovascular Illness (AC 1) (CK 2)

**Cannabidiol attenuates cardiac dysfunction, oxidative stress, fibrosis, and inflammatory and cell death signaling pathways in diabetic cardiomyopathy.**

**Pubmed Data** : J Am Coll Cardiol. 2010 Dec 14;56(25):2115-25. PMID: [21144973](#)

**Article Published Date** : Dec 14, 2010

**Authors** : Mohanraj Rajesh, Partha Mukhopadhyay, Sándor Bátkai, Vivek Patel, Keita Saito, Shingo Matsumoto, Yoshihiro Kashiwaya, Béla Horváth, Bani Mukhopadhyay, Lauren Becker, György Haskó, Lucas Liaudet, David A Wink, Aristidis Veves, Raphael Mechoulam, Pál Pacher

**Study Type** : Animal Study

**Additional Links**

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Cardiomyopathy](#) : CK(79) : AC(16), [Cardiovascular Diseases](#) : CK(7342) : AC(916), [Diabetes: Cardiovascular Illness](#) : CK(700) : AC(107)

## Diabetes: Cataract (AC 2) (CK 4)

**Cannabidiol has a neuroprotective and blood-retinal-preserving effect in experimental diabetes.**

**Pubmed Data** : Int Urol Nephrol. 2004;36(4):591-8. PMID: [16400026](#)

**Article Published Date** : Jan 01, 2004

**Authors** : Azza B El-Remessy, Mohamed Al-Shabrawey, Yousuf Khalifa, Nai-Tse Tsai, Ruth B Caldwell, Gregory I Liou

**Study Type** : Animal Study

**Additional Links**

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Diabetes: Cataract](#) : CK(22) : AC(14), [Diabetes Mellitus: Type 1](#) : CK(1130) : AC(301), [Diabetes Mellitus: Type 2](#) : CK(3572) : AC(624), [Oxidative Stress](#) : CK(3871) : AC(1382)

**Pharmacological Actions** : [Neuroprotective Agents](#) : CK(2360) : AC(1099), [Tumor Necrosis Factor \(TNF\) Alpha Inhibitor](#) : CK(1823) : AC(669), [Vascular Endothelial Growth Factor A Inhibitor](#) : CK(132) : AC(71)

**Cannabidiol protects retinal neurons by preserving glutamine synthetase activity in diabetes.**

**Pubmed Data** : Mol Vis. 2010;16:1487-95. Epub 2010 Aug 4. PMID: [20806080](#)

**Article Published Date** : Jan 01, 2010

**Authors** : A B El-Remessy, Y Khalifa, S Ola, A S Ibrahim, G I Liou

**Study Type** : Animal Study

**Additional Links**

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338), [Cannabis](#) : CK(1776) : AC(408)

**Diseases** : [Diabetes: Cataract](#) : CK(22) : AC(14)

## Diabetes: Oxidative Stress (AC 1) (CK 2)

### THC treatment may attenuate slightly the oxidative stress in diabetic rats.

**Pubmed Data** : Iran J Basic Med Sci. 2016 Feb ;19(2):154-8. PMID: [27081459](#)

**Article Published Date** : Jan 31, 2016

**Authors** : Zeynep Mine Coskun, Sema Bolkent

**Study Type** : Animal Study

#### Additional Links

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Diabetes: Oxidative Stress : CK(131) : AC(40) , Diabetes Mellitus: Type 2 : CK(3572) : AC(624)

**Pharmacological Actions** : Antioxidants : CK(8430) : AC(3132) , Superoxide Dismutase Up-regulation : CK(530) : AC(174)

## Diabetic Neuropathies (AC 2) (CK 12)

### Cannabis sativa extract attenuates diabetic neuropathic pain in rats.

**Pubmed Data** : Phytother Res. 2009 May 13;23(12):1678-1684. PMID: [19441010](#)

**Article Published Date** : May 13, 2009

**Authors** : Francesca Comelli, Isabella Bettoni, Mariapia Colleoni, Gabriella Giagnoni, Barbara Costa

**Study Type** : Animal Study

#### Additional Links

**Substances** : Marijuana : CK(1952) : AC(456)

**Diseases** : Diabetic Neuropathies : CK(233) : AC(36)

**Inhaled cannabis demonstrated a dose dependent**

## reduction in diabetic peripheral neuropathy pain in patients with treatment refractory pain.

**Pubmed Data** : J Pain. 2015 Jul ;16(7):616-27. Epub 2015 Apr 3. PMID: [25843054](#)

**Article Published Date** : Jun 30, 2015

**Authors** : Mark S Wallace, Thomas D Marcotte, Anya Umlauf, Ben Gouaux, Joseph H Atkinson

**Study Type** : Human Study

### Additional Links

**Substances** : Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Diabetic Neuropathies : CK(233) : AC(36)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217)

**Additional Keywords** : Dose Response : CK(1056) : AC(408), Significant Treatment Outcome : CK(3038) : AC(366)

## Dravet syndrome (AC 1) (CK 10)

### Cannabidiol could be useful in Dravet syndrome treatments.

**Pubmed Data** : Pharmacol Res Perspect. 2016 Apr ;4(2):e00220. Epub 2016 Mar 5. PMID: [27069631](#)

**Article Published Date** : Mar 31, 2016

**Authors** : Marta Rubio, Sara Valdeolivas, Fabiana Piscitelli, Roberta Verde, Valentina Satta, Eva Barroso, Marisol Montolio, Luis Miguel Aras, Vincenzo Di Marzo, Onintza Sagredo, Javier Fernández-Ruiz

**Study Type** : Human Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Dravet syndrome : CK(40) : AC(4), Endocannabinoid Disorders : CK(46) : AC(13)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630)

**Additional Keywords** : Endocannabinoid System : CK(60) : AC(23)

## Drug Abuse (AC 3) (CK 5)

## Activation of cannabinoid system may have protective actions on both liver and brain induced by cocaine, minimizing inflammatory injury promoted by cocaine.

**Pubmed Data** : Mediators Inflamm. 2015 ;2015:523418. Epub 2015 Apr 27. PMID: [25999668](#)

**Article Published Date** : Dec 31, 2014

**Authors** : Luciano Rezende Vilela, Lindisley Ferreira Gomides, Bruna Araújo David, Maísa Mota Antunes, Ariane Barros Diniz, Fabrício de Araújo Moreira, Gustavo Batista Menezes

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Cocaine Toxicity : CK(19) : AC(6), Drug Abuse : CK(16) : AC(5)

**Pharmacological Actions** : Drug Abuse : CK(16) : AC(5), Neuroprotective Agents : CK(2360) : AC(1099)

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## CBD has therapeutic potential to attenuate contextual memories associated with drugs of abuse and consequently to reduce the risk of relapse.

**Pubmed Data** : Addict Biol. 2016 Feb 1. Epub 2016 Feb 1. PMID: [26833888](#)

**Article Published Date** : Jan 31, 2016

**Authors** : Cristiane Ribeiro de Carvalho, Reinaldo Naoto Takahashi

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Drug Abuse : CK(16) : AC(5)

**Additional Keywords** : Risk Reduction : CK(6417) : AC(686)

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## This reviews preclinical and clinical on the efficacy of CBD for the treatment of motivational disorders.

**Pubmed Data** : Annu Rev Neurosci. 2016 Feb 24. Epub 2016 Feb 24. PMID: [27023732](#)

**Article Published Date** : Feb 23, 2016

**Authors** : Natalie E Zlebnik, Joseph F Cheer

**Study Type** : Review

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Anxiety Disorders : CK(1225) : AC(180), Depression : CK(2043) : AC(290), Drug Abuse : CK(16) : AC(5)

---

## Drug Addiction (AC 1) (CK 1)

**Cannabidiol is an exogenous cannabinoid that acts on several neurotransmission systems involved in addiction.**

**Pubmed Data** : Subst Abuse. 2015 ;9:33-8. Epub 2015 May 21. PMID: [26056464](#)

**Article Published Date** : Dec 31, 2014

**Authors** : Méliissa Prud'homme, Romulus Cata, Didier Jutras-Aswad

**Study Type** : Review

**Additional Links**

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Drug Addiction](#) : CK(35) : AC(7)

---

## Drug-Induced Toxicity: Epilepsy Drugs (AC 1) (CK 2)

**Pre or post-conditioning treatment with extremely low doses of THC before or after brain injury, may provide safe and effective long-term neuroprotection.**

**Pubmed Data** : Behav Brain Res. 2011 Jun 20 ;220(1):194-201. Epub 2011 Feb 18. PMID: [21315768](#)

**Article Published Date** : Jun 19, 2011

**Authors** : Fadi Assaf, Miriam Fishbein, Mikhal Gafni, Ora Keren, Yosef Sarne

**Study Type** : Animal Study

**Additional Links**

**Substances** : [Delta-tetrahydrocannabinol \(THC\)](#) : CK(1135) : AC(342)

**Diseases** : [Cognitive Decline/Dysfunction](#) : CK(1163) : AC(215), [Drug-Induced Toxicity: Epilepsy Drugs](#) : CK(2) : AC(1)

**Pharmacological Actions** : [Neuroprotective Agents](#) : CK(2360) : AC(1099)

**Additional Keywords** : [Risk Reduction](#) : CK(6417) : AC(686)

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## Dry Skin (AC 1) (CK 5)

### Phytocannabinoids could be efficient and safe novel treatments in the management of cutaneous inflammations.

**Pubmed Data** : Exp Dermatol. 2016 Apr 20. Epub 2016 Apr 20. PMID: [27094344](#)

**Article Published Date** : Apr 19, 2016

**Authors** : Attila Oláh, Arnold Markovics, Judit Szabó-Papp, Pálma Tímea Szabó, Colin Stott, Christos C Zouboulis, Tamás Bíró

**Study Type** : Human In Vitro

#### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310)

**Diseases** : Acne : CK(327) : AC(53), Dry Skin : CK(104) : AC(17)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630)

## Dystonia (AC 1) (CK 1)

### Cannabinoids may have therapeutic value in the treatment of movement disorders.

**Pubmed Data** : Forsch Komplementarmed. 1999 Oct;6 Suppl 3:23-7. PMID: [10627163](#)

**Article Published Date** : Oct 01, 1999

**Authors** : K R Müller-Vahl, H Kolbe, U Schneider, H M Emrich

**Study Type** : Commentary

#### Additional Links

**Substances** : Marijuana : CK(1952) : AC(456)

**Diseases** : Dystonia : CK(1) : AC(1), Movement Disorders : CK(7) : AC(4), Tremor : CK(44) : AC(10)

## Ebola Virus Infections (AC 1) (CK 1)

## CBD has pharmacological effects that may significantly improve the mental and somatic health of patients suffering from post Ebola sequelae.

**Pubmed Data** : Int J Infect Dis. 2016 Sep 26 ;52:74-76. Epub 2016 Aug 26. PMID: [27686726](#)

**Article Published Date** : Sep 25, 2016

**Authors** : Sandra E Reznik, Eliot L Gardner, Charles R Ashby

**Study Type** : Commentary

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Ebola Virus Infections : CK(19) : AC(12)

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## Emesis (AC 1) (CK 2)

**This study found a synergy between cannabidiol, cannabidiolic acid, and THC in the regulation of emesis in animals.**

**Pubmed Data** : Behav Neurosci. 2015 Jun ;129(3):368-70. PMID: [26030435](#)

**Article Published Date** : May 31, 2015

**Authors** : Erin M Rock, Linda A Parker

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Emesis : CK(2) : AC(1), Vomiting : CK(12) : AC(2)

**Additional Keywords** : Natural Substance Synergy : CK(540) : AC(249)

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## Encephalomyelitis (AC 1) (CK 1)

**Cannabigerol quinone (VCE-003) has high potential for use**

## against MS and perhaps other neuroinflammatory diseases.

**Pubmed Data** : J Neuroimmune Pharmacol. 2012 Dec ;7(4):1002-16. Epub 2012 Sep 14. PMID: [22971837](#)

**Article Published Date** : Nov 30, 2012

**Authors** : Aitor G Granja, Francisco Carrillo-Salinas, Alberto Pagani, María Gómez-Cañas, Roberto Negri, Carmen Navarrete, Miriam Mecha, Leyre Mestre, Bend L Fiebich, Irene Cantarero, Marco A Calzado, Maria L Bellido, Javier Fernandez-Ruiz, Giovanni Appendino, Carmen Guaza, Eduardo Muñoz

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33)

**Diseases** : Brain Inflammation : CK(274) : AC(145), Encephalomyelitis : CK(24) : AC(15), Multiple Sclerosis : CK(964) : AC(184)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Neuroprotective Agents : CK(2360) : AC(1099)

# Endocannabinoid Disorders (AC 2) (CK 11)

## Cannabidiol could be useful in Dravet syndrome treatments.

**Pubmed Data** : Pharmacol Res Perspect. 2016 Apr ;4(2):e00220. Epub 2016 Mar 5. PMID: [27069631](#)

**Article Published Date** : Mar 31, 2016

**Authors** : Marta Rubio, Sara Valdeolivas, Fabiana Piscitelli, Roberta Verde, Valentina Satta, Eva Barroso, Marisol Montolio, Luis Miguel Aras, Vincenzo Di Marzo, Onintza Sagredo, Javier Fernández-Ruiz

**Study Type** : Human Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Dravet syndrome : CK(40) : AC(4), Endocannabinoid Disorders : CK(46) : AC(13)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630)

**Additional Keywords** : Endocannabinoid System : CK(60) : AC(23)

**The endocannabinoid system may play a valuable role in**

## the development of treatment options for amyotrophic lateral sclerosis.

**Pubmed Data** : Curr Pharm Des. 2008;14(23):2306-16. PMID: [18781981](#)

**Article Published Date** : Jan 01, 2008

**Authors** : Lynsey G Bilisland, Linda Greensmith

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Amyotrophic Lateral Sclerosis : CK(567) : AC(140) , Endocannabinoid Disorders : CK(46) : AC(13), Endocannabinoid System : CK(22) : AC(12)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

**Additional Keywords** : Diseases that are Linked : CK(2335) : AC(304)

---

## Endocannabinoid System (AC 7) (CK 7)

### "Endocannabinoids in nervous system health and disease: the big picture in a nutshell."

**Pubmed Data** : Philos Trans R Soc Lond B Biol Sci. 2012 Dec 5 ;367(1607):3193-200. PMID: [23108539](#)

**Article Published Date** : Dec 04, 2012

**Authors** : Stephen D Skaper, Vincenzo Di Marzo

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Endocannabinoid System : CK(22) : AC(12)

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### Cannabinoid use showed no significant association between increased cancer incidence and cannabinoids use and it does not depend on the amount of used cannabis.

**Pubmed Data** : Cas Lek Cesk. 2006 ;145(6):453-7; discussion 458-9. PMID: [16835997](#)

**Article Published Date** : Dec 31, 2005

**Authors** : B Vidinský, P Gál, J Mojzis

**Study Type** : Review

### **Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Cancers: All : CK(14773) : AC(4596) , Endocannabinoid System : CK(22) : AC(12)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639)

---

## **Cannabinoids - via direct or indirect activation of CB(1) and/or CB(2) receptors exert protective effects in well-established models of intestinal inflammation and colon cancer.**

**Pubmed Data** : Pharmacol Res. 2009 Aug ;60(2):117-25. Epub 2009 Mar 18. PMID: [19442536](#)

**Article Published Date** : Jul 31, 2009

**Authors** : Angelo A Izzo, Michael Camilleri

**Study Type** : Review

### **Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Colon Cancer : CK(749) : AC(430) , Endocannabinoid System : CK(22) : AC(12) , Gastrointestinal Inflammation : CK(118) : AC(41) , Inflammation : CK(3240) : AC(882) , Inflammatory Bowel Diseases : CK(1052) : AC(197)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630) , Anticarcinogenic Agents : CK(1099) : AC(519)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

---

## **Cannabinoids and endocannabinoids may have therapeutic value in metabolic disorders and diabetes.**

**Pubmed Data** : Handb Exp Pharmacol. 2011(203):75-104. PMID: [21484568](#)

**Article Published Date** : Jan 01, 2011

**Authors** : Vincenzo Di Marzo, Fabiana Piscitelli, Raphael Mechoulam

**Study Type** : Review

### **Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310) , Cannabis : CK(1776) : AC(408) , Endocannabinoids : CK(9) : AC(1)

**Diseases** : Diabetes Mellitus: Type 1: Prevention : CK(255) : AC(50) , Diabetes Mellitus: Type 2 : CK(3572) : AC(624) , Endocannabinoid System : CK(22) : AC(12)

**Additional Keywords** : Beta Cell Protection : CK(61) : AC(25)

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## **The endocannabinoid system controls the growth and metastasis of malignant cells.**

**Pubmed Data** : Recent Prog Med. 2003 May ;94(5):194-8. PMID: [12723496](#)

**Article Published Date** : Apr 30, 2003

**Authors** : Maurizio Bifulco, Vincenzo Di Marzo

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342), Endocannabinoids : CK(9) : AC(1)

**Diseases** : Cancer Metastasis : CK(442) : AC(206), Cancers: All : CK(14773) : AC(4596), Endocannabinoid System : CK(22) : AC(12)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

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## The endocannabinoid system may play a valuable role in the development of treatment options for amyotrophic lateral sclerosis.

**Pubmed Data** : Curr Pharm Des. 2008;14(23):2306-16. PMID: [18781981](#)

**Article Published Date** : Jan 01, 2008

**Authors** : Lynsey G Bilsland, Linda Greensmith

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Amyotrophic Lateral Sclerosis : CK(567) : AC(140), Endocannabinoid Disorders : CK(46) : AC(13), Endocannabinoid System : CK(22) : AC(12)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

**Additional Keywords** : Diseases that are Linked : CK(2335) : AC(304)

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## The experimental evidence reviewed in this article argues in favor of the therapeutic potential of these compounds in immune disorders and cancer.

**Pubmed Data** : Prostaglandins Leukot Essent Fatty Acids. 2002 Feb-Mar;66(2-3):319-32. PMID: [12052046](#)

**Article Published Date** : Jan 31, 2002

**Authors** : Daniela Parolaro, P Massi, T Rubino, E Monti

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Endocannabinoids : CK(9) : AC(1)

**Diseases** : Cancers: All : CK(14773) : AC(4596), Endocannabinoid System : CK(22) : AC(12), Immune Disorders : CK(28) : AC(8)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Immunosuppressive Agents : CK(37) : AC(24)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

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## Endothelial Dysfunction (AC 1) (CK 2)

### THC improved endothelium-dependent relaxation in STZ/NIC induced diabetic rat aorta.

**Pubmed Data** : Acta Physiol Hung. 2015 Mar ;102(1):51-9. PMID: [25804389](#)

**Article Published Date** : Feb 28, 2015

**Authors** : A Altınok, Z M Coşkun, K Karaoğlu, S Bolkent, A G Akkan, Sibel Özyazgan

**Study Type** : Animal Study

#### Additional Links

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Diabetes Mellitus: Type 2 : CK(3572) : AC(624) , Endothelial Dysfunction : CK(1210) : AC(237)

## Endotoxemia (AC 2) (CK 4)

### Cannabidiol has a neuroprotective effect in endotoxin-induced uveitis.

**Pubmed Data** : Mol Vis. 2008;14:2190-203. Epub 2008 Dec 3. PMID: [19052649](#)

**Article Published Date** : Jan 01, 2008

**Authors** : A B El-Remessy, Y Tang, G Zhu, S Matragoon, Y Khalifa, E K Liu, J-Y Liu, E Hanson, S Mian, N Fatteh, G I Liou

**Study Type** : Animal Study

#### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408)

**Diseases** : Brain: Microglial Activation : CK(82) : AC(53) , Endotoxemia : CK(83) : AC(43) , Lipopolysaccharide-Induced Toxicity : CK(380) : AC(218) , Oxidative Stress : CK(3871) : AC(1382) , Uveitis : CK(91) : AC(17)

**Pharmacological Actions** : Enzyme Inhibitors : CK(473) : AC(251) , Neuroprotective Agents : CK(2360) : AC(1099) , Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

### Treatment with cannabidiol reverses oxidative stress parameters, cognitive impairment and mortality in rats

## submitted to sepsis by cecal ligation and puncture.

**Pubmed Data** : Brain Res. 2010 Aug 12;1348:128-38. Epub 2010 Jun 16. PMID: [20561509](#)

**Article Published Date** : Aug 12, 2010

**Authors** : Omar J Cassol-Jr, Clarissa M Comim, Bruno R Silva, Fernanda V Hermani, Larissa S Constantino, Francine Felisberto, Fabricia Petronilho, Jaime Eduardo C Hallak, Bruno S De Martinis, Antonio W Zuardi, José A S Crippa, João Quevedo, Felipe Dal-Pizzol

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408)

**Diseases** : Endotoxemia : CK(83) : AC(43), Sepsis : CK(216) : AC(61)

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## Epilepsy (AC 15) (CK 54)

### A review of the many benefits of cannabinoids in health and disease.

**Pubmed Data** : Dialogues Clin Neurosci. 2007 ;9(4):413-30. PMID: [18286801](#)

**Article Published Date** : Dec 31, 2006

**Authors** : Natalya M Kogan, Raphael Mechoulam

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33)

**Diseases** : Anorexia : CK(73) : AC(9), Cancers: All : CK(14773) : AC(4596), Epilepsy : CK(255) : AC(66), Inflammation : CK(3240) : AC(882), Multiple Sclerosis : CK(964) : AC(184), Neurodegenerative Diseases : CK(3582) : AC(932), Obesity : CK(2443) : AC(521), Schizophrenia : CK(445) : AC(70)

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### A review of the therapeutic effects of cannabinoids in animal models of seizures, epilepsy, epileptogenesis.

**Pubmed Data** : Epilepsy Behav. 2017 Feb 9. Epub 2017 Feb 9. PMID: [28190698](#)

**Article Published Date** : Feb 08, 2017

**Authors** : Evan C Rosenberg, Pabitra H Patra, Benjamin J Whalley

**Study Type** : Review

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310)

**Diseases** : Epilepsy : CK(255) : AC(66), Seizures : CK(208) : AC(60)

**Pharmacological Actions** : Anticonvulsants : CK(238) : AC(67), Neuroprotective Agents : CK(2360) : AC(1099)



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## Aberrant epilepsy-associated mutant Nav1.6 sodium channel activity can be targeted with cannabidiol.

**Pubmed Data** : Brain. 2016 Jun 5. Epub 2016 Jun 5. PMID: [27267376](#)

**Article Published Date** : Jun 04, 2016

**Authors** : Reesha R Patel, Cindy Barbosa, Tatiana Brustovetsky, Nickolay Brustovetsky, Theodore R Cummins

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Epilepsy : CK(255) : AC(66)

**Pharmacological Actions** : Anticonvulsants : CK(238) : AC(67)

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## Cannabidiol could enhance the induction of autophagy pathway and antioxidant defense in the chronic phase of epilepsy,

**Pubmed Data** : J Mol Neurosci. 2016 Jan 6. Epub 2016 Jan 6. PMID: [26738731](#)

**Article Published Date** : Jan 05, 2016

**Authors** : Mahshid Hosseinzadeh, Sara Nikseresht, Fariba Khodagholi, Nima Naderi, Nader Maghsoudi

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Epilepsy : CK(255) : AC(66)

**Pharmacological Actions** : Anticonvulsants : CK(238) : AC(67), Antioxidants : CK(8430) : AC(3132), Autophagy Up-regulation : CK(108) : AC(65)

---

## Cannabidiol exhibits an anticonvulsive effect in the rats with chronic epilepsy.

**Pubmed Data** : Int J Clin Exp Med. 2015 ;8(6):8820-7. Epub 2015 Jun 15. PMID: [26309534](#)

**Article Published Date** : Dec 31, 2014

**Authors** : Ke Mao, Chao You, Ding Lei, Heng Zhang

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Epilepsy : CK(255) : AC(66), Epilepsy: Drug-Induced : CK(20) : AC(6)

**Pharmacological Actions** : Anticonvulsants : CK(238) : AC(67), Neuroprotective Agents : CK(2360) : AC(1099)

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## Cannabidiol might reduce seizure frequency and might have an adequate safety profile in children and young adults with treatment-resistant epilepsy.

**Pubmed Data** : Lancet Neurol. 2015 Dec 23. Epub 2015 Dec 23. PMID: [26724101](#)

**Article Published Date** : Dec 22, 2015

**Authors** : Orrin Devinsky, Eric Marsh, Daniel Friedman, Elizabeth Thiele, Linda Laux, Joseph Sullivan, Ian Miller, Robert Flamini, Angus Wilfong, Francis Filloux, Matthew Wong, Nicole Tilton, Patricia Bruno, Judith Bluvstein, Julie Hedlund, Rebecca Kamens, Jane Maclean, Srishti Nangia, Nilika Shah Singhal, Carey A Wilson, Anup Patel, Maria Roberta Cilio

**Study Type** : Human Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Epilepsy : CK(255) : AC(66), Epilepsy: Childhood : CK(120) : AC(12)

**Pharmacological Actions** : Anticonvulsants : CK(238) : AC(67)

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## Cannabidiol treatment in children with treatment resistant epilepsies led to 42% of children reporting a greater than 80% reduction in seizure frequency and 32% reporting a 25-60% seizure reduction.

**Pubmed Data** : Epilepsy Behav. 2013 Dec ;29(3):574-7. PMID: [24237632](#)

**Article Published Date** : Nov 30, 2013

**Authors** : Brenda E Porter, Catherine Jacobson

**Study Type** : Human Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Epilepsy : CK(255) : AC(66), Epilepsy: Childhood : CK(120) : AC(12), Epileptic Seizures : CK(192) : AC(10)

**Pharmacological Actions** : Anticonvulsants : CK(238) : AC(67)

**Additional Keywords** : Treatment Resistant : CK(31) : AC(4)

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## Cannabidiol treatment yielded a significant positive effect on seizure load in patients with intractable epilepsy.

**Pubmed Data** : Seizure. 2016 Jan 6 ;35:41-44. Epub 2016 Jan 6. PMID: [26800377](#)

**Article Published Date** : Jan 05, 2016

**Authors** : Michal Tzadok, Shimrit Uliel-Siboni, Ilan Linder, Uri Kramer, Orna Epstein, Shay Menascu, Andrea Nissenkorn, Omer Bar Yosef, Eli Hyman, Dorit Granot, Michael Dor, Tali Lerman-Sagie, Bruria Ben-Zeev

**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408)

**Diseases** : Epilepsy : CK(255) : AC(66), Epilepsy: Childhood : CK(120) : AC(12)

**Pharmacological Actions** : Anticonvulsants : CK(238) : AC(67)

**Additional Keywords** : Plant Extracts : CK(7645) : AC(2539), Significant Treatment Outcome : CK(3038) : AC(366)

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## Cannabidivarin-rich cannabis extracts exerted significant anticonvulsant effects in three rat models of seizure.

**Pubmed Data** : Br J Pharmacol. 2013 Oct ;170(3):679-92. PMID: [23902406](#)

**Article Published Date** : Sep 30, 2013

**Authors** : T D M Hill, M-G Cascio, B Romano, M Duncan, R G Pertwee, C M Williams, B J Whalley, A J Hill

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Epilepsy : CK(255) : AC(66), Seizures : CK(208) : AC(60)

**Pharmacological Actions** : Anticonvulsants : CK(238) : AC(67)

**Additional Keywords** : Plant Extracts : CK(7645) : AC(2539)

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## Cannabinoids in treatment-resistant epilepsy: A review.

**Pubmed Data** : Epilepsy Behav. 2017 Feb 8. Epub 2017 Feb 8. PMID: [28188044](#)

**Article Published Date** : Feb 07, 2017

**Authors** : Brooke K O'Connell, David Gloss, Orrin Devinsky

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Epilepsy : CK(255) : AC(66)

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## Cannabis and epilepsy: An ancient treatment returns to the fore.

**Pubmed Data** : Epilepsy Behav. 2016 Dec 15. Epub 2016 Dec 15. PMID: [27989385](#)

**Article Published Date** : Dec 14, 2016

**Authors** : Ethan B Russo

**Study Type** : Review

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Epilepsy : CK(255) : AC(66)

**Pharmacological Actions** : Anticonvulsants : CK(238) : AC(67)

**Additional Keywords** : Plant Extracts : CK(7645) : AC(2539)

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## **Eighty five percent of all parents reported a reduction in seizure frequency and 14% reported complete seizure freedom.**

**Pubmed Data** : Epilepsy Behav. 2015 Apr 29. Epub 2015 Apr 29. PMID: [25935511](#)

**Article Published Date** : Apr 28, 2015

**Authors** : Shaun A Hussain, Raymond Zhou, Catherine Jacobson, Julius Weng, Emily Cheng, Johnson Lay, Phoebe Hung, Jason T Lerner, Raman Sankar

**Study Type** : Human Study

### **Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408)

**Diseases** : Epilepsy : CK(255) : AC(66), Epilepsy: Childhood : CK(120) : AC(12)

**Pharmacological Actions** : Anticonvulsants : CK(238) : AC(67)

**Additional Keywords** : Plant Extracts : CK(7645) : AC(2539)

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## **Phytocannabinoids produce anticonvulsant effects through the endocannabinoid system, with few adverse effects.**

**Pubmed Data** : J Clin Pharm Ther. 2015 Apr ;40(2):135-43. Epub 2014 Dec 4. PMID: [25475762](#)

**Article Published Date** : Mar 31, 2015

**Authors** : R G dos Santos, J E C Hallak, J P Leite, A W Zuardi, J A S Crippa

**Study Type** : Review

### **Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310)

**Diseases** : Epilepsy : CK(255) : AC(66), Epileptic Seizures : CK(192) : AC(10)

**Pharmacological Actions** : Anticonvulsants : CK(238) : AC(67)

**Additional Keywords** : Natural Substance/Drug Synergy : CK(352) : AC(142) , Natural Substances Versus Drugs : CK(1698) : AC(302)

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## **There is preliminary evidence that non-psychoactive cannabinoids may be useful as anticonvulsants.**

**Pubmed Data** : Expert Opin Pharmacother. 2015 ;16(13):1911-4. Epub 2015 Aug 3. PMID: [26234319](#)

**Article Published Date** : Dec 31, 2014

**Authors** : Robert E Blair, Laxmikant S Deshpande, Robert J DeLorenzo

**Study Type** : Commentary

### **Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : [Epilepsy](#) : CK(255) : AC(66)

**Pharmacological Actions** : [Anticonvulsants](#) : CK(238) : AC(67)

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## These results reinforce the potential role of CBD in the treatment of epileptic disorders.

**Pubmed Data** : Front Pharmacol. 2017 ;8:131. Epub 2017 Mar 17. PMID: [28367124](#)

**Article Published Date** : Dec 31, 2016

**Authors** : Raquel A Do Val-da Silva, Jose E Peixoto-Santos, Ludmyla Kandratavicius, Jana B De Ross, Ingrid Esteves, Bruno S De Martinis, Marcela N R Alves, Renata C Scandiuizzi, Jaime E C Hallak, Antonio W Zuardi, Jose A Crippa, Joao P Leite

**Study Type** : Animal Study

### Additional Links

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Epilepsy](#) : CK(255) : AC(66)

**Pharmacological Actions** : [Anticonvulsants](#) : CK(238) : AC(67), [Neuroprotective Agents](#) : CK(2360) : AC(1099)

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## Epilepsy: Childhood (AC 5) (CK 43)

### Cannabidiol might reduce seizure frequency and might have an adequate safety profile in children and young adults with treatment-resistant epilepsy.

**Pubmed Data** : Lancet Neurol. 2015 Dec 23. Epub 2015 Dec 23. PMID: [26724101](#)

**Article Published Date** : Dec 22, 2015

**Authors** : Orrin Devinsky, Eric Marsh, Daniel Friedman, Elizabeth Thiele, Linda Laux, Joseph Sullivan, Ian Miller, Robert Flamini, Angus Wilfong, Francis Filloux, Matthew Wong, Nicole Tilton, Patricia Bruno, Judith Bluvstein, Julie Hedlund, Rebecca Kamens, Jane Maclean, Srishti Nangia, Nilika Shah Singhal, Carey A Wilson, Anup Patel, Maria Roberta Cilio

**Study Type** : Human Study

### Additional Links

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Epilepsy](#) : CK(255) : AC(66), [Epilepsy: Childhood](#) : CK(120) : AC(12)

**Pharmacological Actions** : [Anticonvulsants](#) : CK(238) : AC(67)

---

## Cannabidiol treatment in children with treatment

## resistant epilepsies led to 42% of children reporting a greater than 80% reduction in seizure frequency and 32% reporting a 25-60% seizure reduction.

**Pubmed Data** : Epilepsy Behav. 2013 Dec ;29(3):574-7. PMID: [24237632](#)

**Article Published Date** : Nov 30, 2013

**Authors** : Brenda E Porter, Catherine Jacobson

**Study Type** : Human Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Epilepsy : CK(255) : AC(66) , Epilepsy: Childhood : CK(120) : AC(12) , Epileptic Seizures : CK(192) : AC(10)

**Pharmacological Actions** : Anticonvulsants : CK(238) : AC(67)

**Additional Keywords** : Treatment Resistant : CK(31) : AC(4)

---

## Cannabidiol treatment yielded a significant positive effect on seizure load in patients with intractable epilepsy.

**Pubmed Data** : Seizure. 2016 Jan 6 ;35:41-44. Epub 2016 Jan 6. PMID: [26800377](#)

**Article Published Date** : Jan 05, 2016

**Authors** : Michal Tzadok, Shimrit Uliel-Siboni, Ilan Linder, Uri Kramer, Orna Epstein, Shay Menascu, Andrea Nissenkorn, Omer Bar Yosef, Eli Hyman, Dorit Granot, Michael Dor, Tali Lerman-Sagie, Bruria Ben-Zeev

**Study Type** : Human Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408)

**Diseases** : Epilepsy : CK(255) : AC(66) , Epilepsy: Childhood : CK(120) : AC(12)

**Pharmacological Actions** : Anticonvulsants : CK(238) : AC(67)

**Additional Keywords** : Plant Extracts : CK(7645) : AC(2539) , Significant Treatment Outcome : CK(3038) : AC(366)

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## Eighty five percent of all parents reported a reduction in seizure frequency and 14% reported complete seizure freedom.

**Pubmed Data** : Epilepsy Behav. 2015 Apr 29. Epub 2015 Apr 29. PMID: [25935511](#)

**Article Published Date** : Apr 28, 2015

**Authors** : Shaun A Hussain, Raymond Zhou, Catherine Jacobson, Julius Weng, Emily Cheng, Johnson Lay, Phoebe Hung, Jason T Lerner, Raman Sankar

**Study Type** : Human Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408)

**Diseases** : Epilepsy : CK(255) : AC(66) , Epilepsy: Childhood : CK(120) : AC(12)

**Pharmacological Actions** : Anticonvulsants : CK(238) : AC(67)

**Additional Keywords** : Plant Extracts : CK(7645) : AC(2539)

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**These cases support pre-clinical and preliminary clinical evidence suggesting that CBD may be effective for some patients with epilepsy.**

**Pubmed Data** : Front Pharmacol. 2016 ;7:359. Epub 2016 Aug 30. PMID: [27746737](#)

**Article Published Date** : Dec 31, 2015

**Authors** : José A S Crippa, Ana C S Crippa, Jaime E C Hallak, Rocio Martín-Santos, Antonio W Zuardi

**Study Type** : Human: Case Report

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Epilepsy: Childhood : CK(120) : AC(12)

**Pharmacological Actions** : Anticonvulsants : CK(238) : AC(67)

---

## Epilepsy: Drug-Induced (AC 1) (CK 2)

**Cannabidiol exhibits an anticonvulsive effect in the rats with chronic epilepsy.**

**Pubmed Data** : Int J Clin Exp Med. 2015 ;8(6):8820-7. Epub 2015 Jun 15. PMID: [26309534](#)

**Article Published Date** : Dec 31, 2014

**Authors** : Ke Mao, Chao You, Ding Lei, Heng Zhang

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Epilepsy : CK(255) : AC(66) , Epilepsy: Drug-Induced : CK(20) : AC(6)

**Pharmacological Actions** : Anticonvulsants : CK(238) : AC(67) , Neuroprotective Agents : CK(2360) : AC(1099)

---

## Epilepsy: Infant (AC 1) (CK 3)

## A 10-month-old boy with malignant migrating partial seizures in infancy made developmental gains and sustained seizure reduction with the addition of cannabidiol to his antiepileptic regimen.

**Pubmed Data** : Pediatr Neurol. 2015 May ;52(5):544-7. Epub 2015 Feb 19. PMID: [25882081](#)

**Article Published Date** : Apr 30, 2015

**Authors** : Dimah Saade, Charuta Joshi

**Study Type** : Human: Case Report

### Additional Links

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Epilepsy: Infant](#) : CK(26) : AC(4) , [Epilepsy: Malignant Migrating Partial Seizures](#) : CK(3) : AC(1)

**Pharmacological Actions** : [Anticonvulsants](#) : CK(238) : AC(67)

## Epilepsy: Malignant Migrating Partial Seizures (AC 1) (CK 3)

## A 10-month-old boy with malignant migrating partial seizures in infancy made developmental gains and sustained seizure reduction with the addition of cannabidiol to his antiepileptic regimen.

**Pubmed Data** : Pediatr Neurol. 2015 May ;52(5):544-7. Epub 2015 Feb 19. PMID: [25882081](#)

**Article Published Date** : Apr 30, 2015

**Authors** : Dimah Saade, Charuta Joshi

**Study Type** : Human: Case Report

### Additional Links

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Epilepsy: Infant](#) : CK(26) : AC(4) , [Epilepsy: Malignant Migrating Partial Seizures](#) : CK(3) : AC(1)

**Pharmacological Actions** : [Anticonvulsants](#) : CK(238) : AC(67)



## Epileptic Seizures (AC 2) (CK 11)

**Cannabidiol treatment in children with treatment resistant epilepsies led to 42% of children reporting a greater than 80% reduction in seizure frequency and 32% reporting a 25-60% seizure reduction.**

**Pubmed Data** : Epilepsy Behav. 2013 Dec ;29(3):574-7. PMID: [24237632](#)

**Article Published Date** : Nov 30, 2013

**Authors** : Brenda E Porter, Catherine Jacobson

**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Epilepsy : CK(255) : AC(66) , Epilepsy: Childhood : CK(120) : AC(12) , Epileptic Seizures : CK(192) : AC(10)

**Pharmacological Actions** : Anticonvulsants : CK(238) : AC(67)

**Additional Keywords** : Treatment Resistant : CK(31) : AC(4)

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**Phytocannabinoids produce anticonvulsant effects through the endocannabinoid system, with few adverse effects.**

**Pubmed Data** : J Clin Pharm Ther. 2015 Apr ;40(2):135-43. Epub 2014 Dec 4. PMID: [25475762](#)

**Article Published Date** : Mar 31, 2015

**Authors** : R G dos Santos, J E C Hallak, J P Leite, A W Zuardi, J A S Crippa

**Study Type** : Review

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310)

**Diseases** : Epilepsy : CK(255) : AC(66) , Epileptic Seizures : CK(192) : AC(10)

**Pharmacological Actions** : Anticonvulsants : CK(238) : AC(67)

**Additional Keywords** : Natural Substance/Drug Synergy : CK(352) : AC(142) , Natural Substances Versus Drugs : CK(1698) : AC(302)

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## Epstein-Barr Virus Infections (AC 1)

## (CK 1)

### THC, the compound in cannabis, inhibits replication of Epstein-Barr and Kaposi's Sarcoma Associated Herpesvirus in vitro.

**Pubmed Data** : BMC Med. 2004 Sep 15;2:34. Epub 2004 Sep 15. PMID: [15369590](#)

**Article Published Date** : Sep 15, 2004

**Authors** : Maria M Medveczky, Tracy A Sherwood, Thomas W Klein, Herman Friedman, Peter G Medveczky

**Study Type** : In Vitro Study

#### Additional Links

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Epstein-Barr Virus Infections : CK(132) : AC(47) , Herpes family viruses : CK(1152) : AC(219), Kaposi's Sarcoma : CK(2) : AC(2), Oncovirus : CK(4) : AC(4)

**Pharmacological Actions** : Antiviral Agents : CK(938) : AC(433)

## Fatigue (AC 1) (CK 2)

### Hemp seed protein has an immunomodulatory and antifatigue effect in mice.

**Pubmed Data** : Wei Sheng Yan Jiu. 2008 Mar;37(2):175-8. PMID: [18589601](#)

**Article Published Date** : Mar 01, 2008

**Authors** : Yongjin Li, Ruiyue Yang, Xuefeng Hu, Zhu Long, et al

**Study Type** : Animal Study

#### Additional Links

**Substances** : Hemp Protein : CK(3) : AC(2), Hemp Seed : CK(446) : AC(5)

**Diseases** : Fatigue : CK(312) : AC(49) , Immune Disorders: Low Immune Function : CK(489) : AC(118) , Low Immune Function: Splenic Dysfunction : CK(11) : AC(6)

## Fatty Liver (AC 1) (CK 2)

## Cannabidiol protects mouse liver from acute alcohol-induced steatosis through multiple mechanisms.

**Pubmed Data** : Free Radic Biol Med. 2014 Mar ;68:260-7. Epub 2014 Jan 4. PMID: [24398069](#)

**Article Published Date** : Feb 28, 2014

**Authors** : Lili Yang, Raphael Rozenfeld, Defeng Wu, Lakshmi A Devi, Zhenfeng Zhang, Arthur Cederbaum

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Alcohol Toxicity : CK(337) : AC(125), Fatty Liver : CK(887) : AC(204), Oxidative Stress : CK(3871) : AC(1382)

**Pharmacological Actions** : Antioxidants : CK(8430) : AC(3132), Autophagy Up-regulation : CK(108) : AC(65), Autophagy Up-regulation : CK(108) : AC(65)

## Febrile Seizures (AC 1) (CK 3)

### Cannabidiol Has Potential As A Treatment for Febrile Infection-Related Epilepsy Syndrome (FIRES) in the Acute and Chronic Phases.

**Pubmed Data** : J Child Neurol. 2017 Jan ;32(1):35-40. Epub 2016 Sep 29. PMID: [27655472](#)

**Article Published Date** : Dec 31, 2016

**Authors** : Jacqueline S Gofshteyn, Angus Wilfong, Orrin Devinsky, Judith Bluvstein, Joshi Charuta, Michael A Ciliberto, Linda Laux, Eric D Marsh

**Study Type** : Human: Case Report

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Febrile Seizures : CK(33) : AC(5)

## Fibromyalgia (AC 1) (CK 10)

## Cannabis reduces symptoms in patients with fibromyalgia.

**Pubmed Data** : PLoS One. 2011;6(4):e18440. Epub 2011 Apr 21. PMID: [21533029](#)

**Article Published Date** : Jan 01, 2011

**Authors** : Jimena Fiz, Marta Durán, Dolors Capellà, Jordi Carbonell, Magí Farré

**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Fibromyalgia : CK(619) : AC(67)

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## Fibrosis (AC 1) (CK 1)

### Several cannabinoids may be considered candidates for development as anti-inflammatory and antifibrotic agents.

**Pubmed Data** : FASEB J. 2016 Jul 19. Epub 2016 Jul 19. PMID: [27435265](#)

**Article Published Date** : Jul 18, 2016

**Authors** : Robert B Zurier, Sumner H Burstein

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Fibrosis : CK(16) : AC(10), Inflammation : CK(3240) : AC(882)

**Pharmacological Actions** : Anti-Fibrotic : CK(46) : AC(29), Anti-Inflammatory Agents : CK(4861) : AC(1630)

---

## Fulminant Hepatic Failure (AC 1) (CK 2)

Cannabidiol improves brain and liver function in a

## fulminant hepatic failure-induced model of hepatic encephalopathy in mice.

**Pubmed Data** : Br J Pharmacol. 2010 Dec 23. Epub 2010 Dec 23. PMID: [21182490](#)

**Article Published Date** : Dec 23, 2010

**Authors** : Y Avraham, Nc Grigoriadis, T Poutahidis, L Vorobiev, I Magen, Y Ilan, R Mechoulam, Em Berry

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408)

**Diseases** : Fulminant Hepatic Failure : CK(4) : AC(2), Hepatic Encephalopathy : CK(46) : AC(10), Liver Failure: Acute : CK(8) : AC(4)

**Pharmacological Actions** : Liver Failure: Acute : CK(8) : AC(4), Neuroprotective Agents : CK(2360) : AC(1099)

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## Gastric Cancer (AC 1) (CK 1)

### Cannabinoids work synergistically with paclitaxel in gastric cancer cell lines.

**Pubmed Data** : J Surg Res. 2009 Jul;155(1):40-7. Epub 2008 Aug 9. PMID: [19394652](#)

**Article Published Date** : Jul 01, 2009

**Authors** : Hideyo Miyato, Joji Kitayama, Hiroharu Yamashita, Daisuke Souma, Masahiro Asakage, Jun Yamada, Hirokazu Nagawa

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Gastric Cancer : CK(622) : AC(198)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Cell cycle arrest : CK(810) : AC(612), Chemosensitizer : CK(394) : AC(286)

**Additional Keywords** : Drug: Paclitaxel : CK(36) : AC(13), Drug Synergy : CK(351) : AC(156)

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## Gastrointestinal Diseases (AC 1) (CK

1)

## Cannabinoids are promising candidates for gastrointestinal and urinary diseases.

**Pubmed Data** : Handb Exp Pharmacol. 2015 ;231:423-47. PMID: [26408170](#)

**Article Published Date** : Dec 31, 2014

**Authors** : Angelo A Izzo, Giulio G Muccioli, Michael R Ruggieri, Rudolf Schicho

**Study Type** : Review

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310)

**Diseases** : Gastrointestinal Diseases : CK(76) : AC(24), Urinary Bladder Diseases : CK(3) : AC(2)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

---

## Gastrointestinal Inflammation (AC 2) (CK 3)

### A cannabis extract with high content in cannabidiol attenuated chemically-induced intestinal inflammation.

**Pubmed Data** : Front Pharmacol. 2016 ;7:341. Epub 2016 Aug 4. PMID: [27757083](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Ester Pagano, Raffaele Capasso, Fabiana Piscitelli, Barbara Romano, Olga A Parisi, Stefania Finizio, Anna Lauritano, Vincenzo Di Marzo, Angelo A Izzo, Francesca Borrelli

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Colitis : CK(255) : AC(111), Gastrointestinal Inflammation : CK(118) : AC(41), Inflammatory Bowel Diseases : CK(1052) : AC(197)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630)

**Additional Keywords** : Plant Extracts : CK(7645) : AC(2539)

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### Cannabinoids - via direct or indirect activation of CB(1) and/or CB(2) receptors exert protective effects in well-

## established models of intestinal inflammation and colon cancer.

**Pubmed Data** : Pharmacol Res. 2009 Aug ;60(2):117-25. Epub 2009 Mar 18. PMID: [19442536](#)

**Article Published Date** : Jul 31, 2009

**Authors** : Angelo A Izzo, Michael Camilleri

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Colon Cancer : CK(749) : AC(430), Endocannabinoid System : CK(22) : AC(12), Gastrointestinal Inflammation : CK(118) : AC(41), Inflammation : CK(3240) : AC(882), Inflammatory Bowel Diseases : CK(1052) : AC(197)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Anticarcinogenic Agents : CK(1099) : AC(519)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

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## Glaucoma (AC 2) (CK 11)

### Cannabis could be an effective ocular hypotensive agent.

**Pubmed Data** : Curr Opin Ophthalmol. 2016 Mar ;27(2):146-50. PMID: [26840343](#)

**Article Published Date** : Feb 29, 2016

**Authors** : Gary D Novack

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Glaucoma : CK(164) : AC(26)

**Pharmacological Actions** : Antihypertensive Agents : CK(1178) : AC(164)

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### Delta-9-THC, a compound found within cannabis, at the right dosage can lower intraocular pressure.

**Pubmed Data** : J Glaucoma. 2006 Oct;15(5):349-53. PMID: [16988594](#)

**Article Published Date** : Oct 01, 2006

**Authors** : Ileana Tomida, Augusto Azuara-Blanco, Heather House, Maggie Flint, Roger G Pertwee, Philip J Robson

**Study Type** : Human Study

### Additional Links

**Substances** : Cannabis : CK(1776) : AC(408)

## Glioblastoma (AC 6) (CK 12)

**CB1 receptor immunoreactivity was significantly lower while CB2 receptor immunoreactivity was significantly greater in the membranes of glioblastoma multiforme and astrocytoma.**

**Pubmed Data** : Neurochem Int. 2010 May-Jun;56(6-7):829-33. Epub 2010 Mar 20. PMID: [20307616](#)

**Article Published Date** : Apr 30, 2010

**Authors** : Maider López De Jesús, Cristina Hostalot, Jesús M Garibi, Joan Sallés, J Javier Meana, Luis F Callado

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Astrocytoma : CK(12) : AC(6), Glioblastoma : CK(200) : AC(88)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

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**CBD induced a robust increase in ROS, which led to the inhibition of cell survival, phosphorylated (p)-AKT, self-renewal and a significant increase in the survival of GSC bearing mice.**

**Pubmed Data** : Cell Death Dis. 2015 ;6:e1601. Epub 2015 Jan 15. PMID: [25590811](#)

**Article Published Date** : Dec 31, 2014

**Authors** : E Singer, J Judkins, N Salomonis, L Matlaf, P Soteropoulos, S McAllister, L Soroceanu

**Study Type** : Animal Study, In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Glioblastoma : CK(200) : AC(88)

**Pharmacological Actions** : Anticarcinogenic Agents : CK(1099) : AC(519), Apoptotic : CK(2958) : AC(2075), Redox Modulator : CK(5) : AC(3)

**Additional Keywords** : Cancer Stem Cells : CK(135) : AC(88), Significant Treatment Outcome : CK(3038) : AC(366)

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## Cannabidiol enhanced the ability of THC to inhibit cell proliferation, induce cell cycle arrest and apoptosis.

**Pubmed Data** : Mol Cancer Ther. 2010 Jan ;9(1):180-9. Epub 2010 Jan 6. PMID: [20053780](#)

**Article Published Date** : Dec 31, 2009

**Authors** : Jahan P Marcu, Rigel T Christian, Darryl Lau, Anne J Zielinski, Maxx P Horowitz, Jasmine Lee, Arash Pakdel, Juanita Allison, Chandani Limbad, Dan H Moore, Garret L Yount, Pierre-Yves Desprez, Sean D McAllister

**Study Type** : Animal Study, In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Cancer Metastasis : CK(442) : AC(206), Glioblastoma : CK(200) : AC(88)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Cell cycle arrest : CK(810) : AC(612)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37), Natural Substance Synergy : CK(540) : AC(249)

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## Cannabinoids were shown to be of potential use for therapeutic approaches of glioblastoma.

**Pubmed Data** : Cell Adh Migr. 2016 May 5:0. Epub 2016 May 5. PMID: [27149140](#)

**Article Published Date** : May 04, 2016

**Authors** : Tim Hohmann, Urszula Grabiec, Chalid Ghadban, Kerstin Feese, Faramarz Dehghani

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Glioblastoma : CK(200) : AC(88)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414)

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## Delta 9-tetrahydrocannabinol inhibits glioblastoma multiforme cells.

**Pubmed Data** : Acta Oncol. 2008;47(6):1062-70. PMID: [17934890](#)

**Article Published Date** : Jan 01, 2008

**Authors** : Gil Galanti, Tamar Fisher, Iris Kventsel, Jacob Shoham, Ruth Gallily, Raphael Mechoulam, Gad Lavie, Ninette Amariglio, Gideon Rechavi, Amos Toren

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Glioblastoma : CK(200) : AC(88), Glioblastoma Multiforme : CK(200) : AC(88)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Cell cycle arrest : CK(810) : AC(612)

## The proapoptotic effect of cannabinoids on tumor cells is mediated by a ceramide dependent upregulation of the stress protein p8.

**Pubmed Data** : Cancer Cell. 2006 Apr ;9(4):301-12. PMID: [16616335](#)

**Article Published Date** : Mar 31, 2006

**Authors** : Arkaitz Carracedo, Mar Lorente, Ainara Egia, Cristina Blázquez, Stephane García, Valentin Giroux, Cedric Malicet, Raquel Villuendas, Meritxell Gironella, Luis González-Feria, Miguel Angel Piris, Juan L Iovanna, Manuel Guzmán, Guillermo Velasco

**Study Type** : Animal Study, Human In Vitro

### Additional Links

**Substances** : [Cannabinoids](#) : CK(816) : AC(310)

**Diseases** : [Astrocytoma](#) : CK(12) : AC(6) , [Cancers: All](#) : CK(14773) : AC(4596) , [Glioblastoma](#) : CK(200) : AC(88)

**Pharmacological Actions** : [Antiproliferative](#) : CK(2546) : AC(1685), [Apoptotic](#) : CK(2958) : AC(2075)

**Additional Keywords** : [Altered Protein Expression](#) : CK(6) : AC(2) , [Gene Expression Regulation](#) : CK(431) : AC(214)

## Glioblastoma Multiforme (AC 9) (CK 23)

### Cannabidiol stimulates Aml-1a-dependent glial differentiation and inhibits glioma stem-like cells proliferation.

**Pubmed Data** : Int J Cancer. 2015 Oct 15 ;137(8):1855-69. Epub 2015 May 8. PMID: [25903924](#)

**Article Published Date** : Oct 14, 2015

**Authors** : Massimo Nabissi, Maria Beatrice Morelli, Consuelo Amantini, Sonia Liberati, Matteo Santoni, Lucia Ricci-Vitiani, Roberto Pallini, Giorgio Santoni

**Study Type** : In Vitro Study

### Additional Links

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Glioblastoma Multiforme](#) : CK(200) : AC(88)

**Pharmacological Actions** : [Antiproliferative](#) : CK(2546) : AC(1685)

**Additional Keywords** : [Cancer Stem Cells](#) : CK(135) : AC(88)

## Cannabinoids appear to be selective antitumoral agents as they kill glioma cells without affecting the viability of nontransformed counterparts.

**Pubmed Data** : Expert Rev Neurother. 2008 Jan ;8(1):37-49. PMID: [18088200](#)

**Article Published Date** : Dec 31, 2007

**Authors** : Daniela Parolaro, Paola Massi

**Study Type** : Review

**Additional Links**

**Substances** : [Cannabinoids](#) : CK(816) : AC(310)

**Diseases** : [Glioblastoma Multiforme](#) : CK(200) : AC(88), [Gliomas](#) : CK(5) : AC(3)

**Pharmacological Actions** : [Anticarcinogenic Agents](#) : CK(1099) : AC(519)

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## Cannabinoids could be used for the inhibition of tumor growth in a clinical setting.

**Pubmed Data** : Cancer Res. 2008 Jan 15 ;68(2):339-42. PMID: [18199524](#)

**Article Published Date** : Jan 14, 2008

**Authors** : Sami Sarfaraz, Vaqar M Adhami, Deeba N Syed, Farrukh Afaq, Hasan Mukhtar

**Study Type** : Review

**Additional Links**

**Substances** : [Cannabinoids](#) : CK(816) : AC(310)

**Diseases** : [Breast Cancer](#) : CK(3592) : AC(1064), [Cancers: All](#) : CK(14773) : AC(4596), [Glioblastoma Multiforme](#) : CK(200) : AC(88), [Lung Cancer](#) : CK(1043) : AC(393), [Lymphoma](#) : CK(253) : AC(83), [Pancreatic Cancer](#) : CK(890) : AC(260), [Prostate Cancer](#) : CK(1586) : AC(463), [Skin Cancer](#) : CK(736) : AC(293)

**Pharmacological Actions** : [Antiproliferative](#) : CK(2546) : AC(1685), [Apoptotic](#) : CK(2958) : AC(2075)

**Additional Keywords** : [Higher Dose Better Than Lower Dose](#) : CK(2) : AC(2)

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## Cannabinoids significantly inhibit proliferation and increases death of human glioblastoma multiforme cells without significant impact on human primary glial cultures.

**Pubmed Data** : J Neurooncol. 2005 Aug;74(1):31-40. PMID: [16078104](#)

**Article Published Date** : Aug 01, 2005

**Authors** : Sean D McAllister, Calvin Chan, Ryan J Taft, Tri Luu, Mary E Abood, Dan H Moore, Ken Aldape, Garret Yount

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : [Marijuana](#) : CK(1952) : AC(456)

**Diseases** : [Glioblastoma Multiforme](#) : CK(200) : AC(88)

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## Co-administration of cytotoxic agents together with CBD increases drug uptake and potentiates cytotoxic activity in human glioma cells.

**Pubmed Data** : Carcinogenesis. 2013 Jan ;34(1):48-57. Epub 2012 Oct 18. PMID: [23079154](#)

**Article Published Date** : Dec 31, 2012

**Authors** : Massimo Nabissi, Maria Beatrice Morelli, Matteo Santoni, Giorgio Santoni

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Glioblastoma Multiforme : CK(200) : AC(88)

**Pharmacological Actions** : Chemosensitizer : CK(394) : AC(286)

**Additional Keywords** : Natural Substance/Drug Synergy : CK(352) : AC(142)

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## Delta 9-tetrahydrocannabinol inhibits glioblastoma multiforme cells.

**Pubmed Data** : Acta Oncol. 2008;47(6):1062-70. PMID: [17934890](#)

**Article Published Date** : Jan 01, 2008

**Authors** : Gil Galanti, Tamar Fisher, Iris Kventsel, Jacob Shoham, Ruth Gallily, Raphael Mechoulam, Gad Lavie, Ninette Amariglio, Gideon Rechavi, Amos Toren

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Glioblastoma : CK(200) : AC(88), Glioblastoma Multiforme : CK(200) : AC(88)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Cell cycle arrest : CK(810) : AC(612)

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## Delta9-tetrahydrocannabinol administration led to the inhibition of the VEGF Pathway in Two Patients with Glioblastoma Multiforme.

**Pubmed Data** : Cancer Res. 2004 Aug 15 ;64(16):5617-23. PMID: [15313899](#)

**Article Published Date** : Aug 14, 2004

**Authors** : Cristina Blázquez, Luis González-Feria, Luis Alvarez, Amador Haro, M Llanos Casanova, Manuel Guzmán

**Study Type** : Animal Study, Human Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Glioblastoma Multiforme : CK(200) : AC(88)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Vascular Endothelial

Growth Factor Inhibitors : CK(123) : AC(61)

**Additional Keywords** : Gene Expression Regulation : CK(431) : AC(214)

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## The in vivo administration of microencapsulated cannabinoids efficiently reduces tumor growth.

**Pubmed Data** : PLoS One. 2013 ;8(1):e54795. Epub 2013 Jan 22. PMID: [23349970](#)

**Article Published Date** : Dec 31, 2012

**Authors** : Dolores Hernán Pérez de la Ossa, Mar Lorente, Maria Esther Gil-Alegre, Sofía Torres, Elena García-Taboada, María Del Rosario Aberturas, Jesús Molpeceres, Guillermo Velasco, Ana Isabel Torres-Suárez

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Glioblastoma Multiforme : CK(200) : AC(88)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

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## These findings describe a mechanism by which THC can promote the autophagic death of human and mouse cancer cells.

**Pubmed Data** : J Clin Invest. 2009 May ;119(5):1359-72. PMID: [19425170](#)

**Article Published Date** : Apr 30, 2009

**Authors** : María Salazar, Arkaitz Carracedo, Iñigo J Salanueva, Sonia Hernández-Tiedra, Mar Lorente, Ainara Egia, Patricia Vázquez, Cristina Blázquez, Sofía Torres, Stephane García, Jonathan Nowak, Gian María Fimia, Mauro Piacentini, Francesco Cecconi, Pier Paolo Pandolfi, Luis González-Feria, Juan L Iovanna, Manuel Guzmán, Patricia Boya, Guillermo Velasco

**Study Type** : Animal Study, Human In Vitro, In Vitro Study

### Additional Links

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Glioblastoma Multiforme : CK(200) : AC(88), Glioma : CK(177) : AC(86)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075), Autophagy Up-regulation : CK(108) : AC(65), Enzyme Inhibitors : CK(473) : AC(251)

---

**Glioma (AC 19) (CK 29)**

## A review of the antiproliferative effects of cannabinoids on cancer cells.

**Pubmed Data** : Mini Rev Med Chem. 2005 Oct ;5(10):941-52. PMID: [16250836](#)

**Article Published Date** : Sep 30, 2005

**Authors** : Natalya M Kogan

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Breast Cancer : CK(3592) : AC(1064), Glioma : CK(177) : AC(86), Lung Cancer : CK(1043) : AC(393)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685)

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## CBD caused concentration-related inhibition of glioma cell migration.

**Pubmed Data** : Br J Pharmacol. 2005 Apr ;144(8):1032-6. PMID: [15700028](#)

**Article Published Date** : Mar 31, 2005

**Authors** : Angelo Vaccani, Paola Massi, Arianna Colombo, Tiziana Rubino, Daniela Parolaro

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Glioma : CK(177) : AC(86)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414), Anti-Tumor : CK(146) : AC(73), Antiproliferative : CK(2546) : AC(1685)

**Additional Keywords** : Dose Response : CK(1056) : AC(408)

---

## Cannabidiol is cytotoxic to human glioma cells.

**Pubmed Data** : Cell Mol Life Sci. 2006 Sep;63(17):2057-66. PMID: [16909207](#)

**Article Published Date** : Sep 01, 2006

**Authors** : P Massi, A Vaccani, S Bianchessi, B Costa, P Macchi, D Parolaro

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Glioma : CK(177) : AC(86)

**Pharmacological Actions** : Anti-Proliferative : CK(59) : AC(52), Caspase-3 Activation : CK(91) : AC(66)

---

## Cannabinoids can prime glioma cells to respond better to

## ionizing radiation and suggest a potential clinical benefit for glioma patients by using these two treatment modalities.

**Pubmed Data** : Mol Cancer Ther. 2014 Dec ;13(12):2955-67. Epub 2014 Nov 14. PMID: [25398831](#)

**Article Published Date** : Nov 30, 2014

**Authors** : Katherine A Scott, Angus G Dalglish, Wai M Liu

**Study Type** : Animal Study, In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Glioma : CK(177) : AC(86)

**Pharmacological Actions** : Radiosensitizer : CK(99) : AC(62)

**Additional Keywords** : Dose Response : CK(1056) : AC(408), Plant Extracts : CK(7645) : AC(2539)

---

## Cannabinoids exert anti-inflammatory, anti-proliferative, anti-invasive, anti-metastatic and pro-apoptotic effects in different cancer types.

**Pubmed Data** : Histol Histopathol. 2015 Jun ;30(6):629-45. Epub 2014 Dec 4. PMID: [25472761](#)

**Article Published Date** : May 31, 2015

**Authors** : Panagiotis Zogopoulos, Penelope Korkolopoulou, Efstratios Patsouris, Stamatios Theocharis

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Glioma : CK(177) : AC(86)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Anti-metastatic : CK(634) : AC(414), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

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## Cannabinoids inhibit glioma (brain cancer) cell growth in vitro.

**Pubmed Data** : Cancer Res. 2008 Mar 15;68(6):1945-52. PMID: [18339876](#)

**Article Published Date** : Mar 15, 2008

**Authors** : Cristina Blázquez, María Salazar, Arkaitz Carracedo, Mar Lorente, Ainara Egia, Luis González-Feria, Amador Haro, Guillermo Velasco, Manuel Guzmán

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Marijuana : CK(1952) : AC(456)

**Diseases** : Brain Cancer : CK(450) : AC(179), Glioma : CK(177) : AC(86)

**Pharmacological Actions** : Anti-Tumor : CK(146) : AC(73)

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## Cannabinoids inhibit glioma (brain cancer) through the down-regulation of Tissue Inhibitors of Metalloproteinases (TIMPs).

**Pubmed Data** : Neuropharmacology. 2008 Jan;54(1):235-43. Epub 2007 Jul 1. PMID: [17675107](#)

**Article Published Date** : Jan 01, 2008

**Authors** : Cristina Blázquez, Arkaitz Carracedo, María Salazar, Mar Lorente, Ainara Egia, Luis González-Feria, Amador Haro, Guillermo Velasco, Manuel Guzmán

**Study Type** : Human: Case Report, In Vitro Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Marijuana : CK(1952) : AC(456)

**Diseases** : Astrocytoma : CK(12) : AC(6), Astrocytoma: Grade IV : CK(3) : AC(1), Brain Cancer : CK(450) : AC(179), Glioma : CK(177) : AC(86)

**Additional Keywords** : Tissue Inhibitors of Metalloproteinases (TIMPs) : CK(3) : AC(1)

---

## Cannabinoids may be ideal candidates for the treatment of gliomas.

**Pubmed Data** : Neuropharmacology. 2004 Sep;47(3):315-23. PMID: [15275820](#)

**Article Published Date** : Sep 01, 2004

**Authors** : Guillermo Velasco, Ismael Galve-Roperh, Cristina Sánchez, Cristina Blázquez, Manuel Guzmán

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Glioma : CK(177) : AC(86)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075)

**Additional Keywords** : Selective Cytotoxicity : CK(158) : AC(112)

---

## Cannabinoids seem to be selective antitumoral compounds, killing glioma cells but not non transformed cells.

**Pubmed Data** : Mol Neurobiol. 2007 Aug ;36(1):60-7. Epub 2007 Jun 28. PMID: [17952650](#)

**Article Published Date** : Jul 31, 2007

**Authors** : Guillermo Velasco, Arkaitz Carracedo, Cristina Blázquez, Mar Lorente, Tania Aguado, Amador Haro, Cristina Sánchez, Ismael Galve-Roperh, Manuel Guzmán

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Cancers: All : CK(14773) : AC(4596), Glioma : CK(177) : AC(86)

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## Cannabinoids target glioma stem-like cells, promote their differentiation, and inhibit gliomagenesis, thus giving further support to their potential use in the management of malignant gliomas.

**Pubmed Data** : J Biol Chem. 2007 Mar 2;282(9):6854-62. Epub 2007 Jan 2. PMID: [17202146](#)

**Article Published Date** : Mar 02, 2007

**Authors** : Tania Aguado, Arkaitz Carracedo, Boris Julien, Guillermo Velasco, Garry Milman, Raphael Mechoulam, Luis Alvarez, Manuel Guzmán, Ismael Galve-Roperh

**Study Type** : Commentary

### Additional Links

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Glioma : CK(177) : AC(86)

---

## Further research may be appropriate to elucidate the increasingly recognized effect of cannabis/cannabinoids on gliomas.

**Pubmed Data** : Childs Nerv Syst. 2011 Apr ;27(4):671-9. Epub 2011 Feb 20. PMID: [21336992](#)

**Article Published Date** : Mar 31, 2011

**Authors** : Mansoor Foroughi, Glenda Hendson, Michael A Sargent, Paul Steinbok

**Study Type** : Human: Case Report

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Glioma : CK(177) : AC(86)

**Additional Keywords** : Glioma : CK(177) : AC(86) , Glioma : CK(177) : AC(86) , Glioma : CK(177) : AC(86), Spontaneous Tumor Regression : CK(20) : AC(2)

---

## Heat shock protein inhibition potentiates the cytotoxic effects of Cannabidiol in glioma cell lines.

**Pubmed Data** : Anticancer Res. 2015 Nov ;35(11):5827-37. PMID: [26504004](#)

**Article Published Date** : Oct 31, 2015

**Authors** : Katherine A Scott, Jayne L Dennis, Angus G Dalglish, Wai M Liu

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Glioma : CK(177) : AC(86)

**Pharmacological Actions** : Cytotoxic : CK(76) : AC(60)

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## Preclinical and clinical assessment of cannabinoids as anti-cancer agents.

**Pubmed Data** : Front Pharmacol. 2016 ;7:361. Epub 2016 Oct 7. PMID: [27774065](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Daniel A Ladin, Eman Soliman, LaToya Griffin, Rukiyah Van Dross

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33) , Cannabis : CK(1776) : AC(408)

**Diseases** : Breast Cancer : CK(3592) : AC(1064) , Colorectal Cancer : CK(1646) : AC(619) , Glioma : CK(177) : AC(86), Liver Cancer : CK(1235) : AC(462) , Lung Cancer : CK(1043) : AC(393) , Melanoma : CK(285) : AC(149), Pancreatic Cancer : CK(890) : AC(260) , Prostate Cancer : CK(1586) : AC(463) , Skin Cancer : CK(736) : AC(293), Thyroid Cancer : CK(237) : AC(55)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Anticarcinogenic Agents : CK(1099) : AC(519), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

---

## Results thus show that THC-induced apoptosis in glioma C6.9 cells may rely on a CBI receptor-independent stimulation of sphingomyelin breakdown.

**Pubmed Data** : FEBS Lett. 1998 Sep 25 ;436(1):6-10. PMID: [9771884](#)

**Article Published Date** : Sep 24, 1998

**Authors** : C Sánchez, I Galve-Roperh, C Canova, P Brachet, M Guzmán

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Glioma : CK(177) : AC(86)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075)

**Additional Keywords** : Selective Cytotoxicity : CK(158) : AC(112)

---

## The present investigation confirms the antiproliferative and antiinvasive effects of CBD in U87-MG cells.

**Pubmed Data** : PLoS One. 2013 ;8(10):e76918. Epub 2013 Oct 21. PMID: [24204703](#)

**Article Published Date** : Dec 31, 2012

**Authors** : Marta Solinas, Paola Massi, Valentina Cinquina, Marta Valenti, Daniele Bolognini, Marzia Gariboldi, Elena Monti, Tiziana Rubino, Daniela Parolaro

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Cancer Metastasis : CK(442) : AC(206), Glioma : CK(177) : AC(86)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Anti-metastatic : CK(634) :

AC(414), Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Hypoxia inducible factor-1 alpha (HIF-1 $\alpha$ ) inhibitor : CK(22) : AC(15)

---

## These findings describe a mechanism by which THC can promote the autophagic death of human and mouse cancer cells.

**Pubmed Data** : J Clin Invest. 2009 May ;119(5):1359-72. PMID: [19425170](#)

**Article Published Date** : Apr 30, 2009

**Authors** : María Salazar, Arkaitz Carracedo, Iñigo J Salanueva, Sonia Hernández-Tiedra, Mar Lorente, Ainara Egia, Patricia Vázquez, Cristina Blázquez, Sofía Torres, Stephane García, Jonathan Nowak, Gian María Fimia, Mauro Piacentini, Francesco Cecconi, Pier Paolo Pandolfi, Luis González-Feria, Juan L Iovanna, Manuel Guzmán, Patricia Boya, Guillermo Velasco

**Study Type** : Animal Study, Human In Vitro, In Vitro Study

### Additional Links

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Glioblastoma Multiforme : CK(200) : AC(88), Glioma : CK(177) : AC(86)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075), Autophagy Up-regulation : CK(108) : AC(65), Enzyme Inhibitors : CK(473) : AC(251)

---

## These findings show that de novo synthesized ceramide is involved in cannabinoid induced apoptosis of glioma cells.

**Pubmed Data** : Biochem J. 2002 Apr 1 ;363(Pt 1):183-8. PMID: [11903061](#)

**Article Published Date** : Mar 31, 2002

**Authors** : Teresa Gómez del Pulgar, Guillermo Velasco, Cristina Sánchez, Amador Haro, Manuel Guzmán

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Glioma : CK(177) : AC(86)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075)

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## Up-regulation of Cox-2 is involved in cannabinoid-induced programmed cell death in human neuroglioma cells.

**Pubmed Data** : Mol Pharmacol. 2004 Dec;66(6):1643-51. Epub 2004 Sep 10. PMID: [15361550](#)

**Article Published Date** : Dec 01, 2004

**Authors** : Burkhard Hinz, Robert Ramer, Karin Eichele, Ulrike Weinzierl, Kay Brune

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Glioma : CK(177) : AC(86)

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## cannabidiol was able to produce a significant antitumor activity both in vitro and in vivo.

**Pubmed Data** : J Pharmacol Exp Ther. 2004 Mar ;308(3):838-45. Epub 2003 Nov 14. PMID: [14617682](#)

**Article Published Date** : Feb 29, 2004

**Authors** : Paola Massi, Angelo Vaccani, Stefania Ceruti, Arianna Colombo, Maria P Abbracchio, Daniela Parolaro

**Study Type** : Animal Study, In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310)

**Diseases** : Glioma : CK(177) : AC(86)

**Pharmacological Actions** : Anti-Tumor : CK(146) : AC(73), Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

---

## Gliomas (AC 3) (CK 5)

### Amphirregulin is a factor for resistance of glioma cells to THC-induced apoptosis.

**Pubmed Data** : Glia. 2009 Oct ;57(13):1374-85. PMID: [19229996](#)

**Article Published Date** : Sep 30, 2009

**Authors** : Mar Lorente, Arkaitz Carracedo, Sofía Torres, Francesco Natali, Ainara Egia, Sonia Hernández-Tiedra, María Salazar, Cristina Blázquez, Manuel Guzmán, Guillermo Velasco

**Study Type** : Animal Study, In Vitro Study

### Additional Links

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Gliomas : CK(5) : AC(3)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639), Apoptotic : CK(2958) : AC(2075)

---

### Cannabinoids appear to be selective antitumoral agents as they kill glioma cells without affecting the viability of nontransformed counterparts.

**Pubmed Data** : Expert Rev Neurother. 2008 Jan ;8(1):37-49. PMID: [18088200](#)

**Article Published Date** : Dec 31, 2007

**Authors** : Daniela Parolaro, Paola Massi

**Study Type** : Review

**Additional Links**

**Substances** : [Cannabinoids](#) : CK(816) : AC(310)

**Diseases** : [Glioblastoma Multiforme](#) : CK(200) : AC(88), [Gliomas](#) : CK(5) : AC(3)

**Pharmacological Actions** : [Anticarcinogenic Agents](#) : CK(1099) : AC(519)

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## **Cannabinoids inhibit the growth of gliomas in vivo by targeting both tumor cells and vascular endothelial cells.**

**Pubmed Data** : FASEB J. 2003 Mar ;17(3):529-31. Epub 2003 Jan 2. PMID: [12514108](#)

**Article Published Date** : Feb 28, 2003

**Authors** : Cristina Blázquez, M Llanos Casanova, Anna Planas, Teresa Gómez Del Pulgar, Concepción Villanueva, María J Fernández-Aceñero, Julián Aragonés, John W Huffman, José L Jorcano, Manuel Guzmán

**Study Type** : Animal Study

**Additional Links**

**Substances** : [Cannabinoids](#) : CK(816) : AC(310)

**Diseases** : [Cancers: All](#) : CK(14773) : AC(4596), [Gliomas](#) : CK(5) : AC(3)

**Pharmacological Actions** : [Angiogenesis Inhibitors](#) : CK(114) : AC(62), [Matrix metalloproteinase-2 \(MMP-2\) inhibitor](#) : CK(287) : AC(147), [Vascular Endothelial Growth Factor Regulator](#) : CK(31) : AC(14)

**Additional Keywords** : [Disease Regression](#) : CK(150) : AC(26)

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## **Gram-Negative Bacterial Infections (AC 1) (CK 1)**

### **These results showed that essential oils of industrial hemp can significantly inhibit the microbial growth.**

**Pubmed Data** : Fitoterapia. 2010 Jul ;81(5):413-9. Epub 2009 Dec 4. PMID: [19969046](#)

**Article Published Date** : Jun 30, 2010

**Authors** : Lorenzo Nissen, Alessandro Zatta, Ilaria Stefanini, Silvia Grandi, Barbara Sgorbati, Bruno Biavati, Andrea Monti

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : [Cannabis](#) : CK(1776) : AC(408)

**Diseases** : Gram-Negative Bacterial Infections : CK(46) : AC(33) , Gram-Positive Bacterial Infections : CK(35) : AC(29)

**Pharmacological Actions** : Anti-Bacterial Agents : CK(1367) : AC(475) , Antifungal Agents : CK(234) : AC(146)

**Additional Keywords** : Essential Oils : CK(181) : AC(69)

---

## Gram-Positive Bacterial Infections (AC 1) (CK 1)

**These results showed that essential oils of industrial hemp can significantly inhibit the microbial growth.**

**Pubmed Data** : Fitoterapia. 2010 Jul ;81(5):413-9. Epub 2009 Dec 4. PMID: [19969046](#)

**Article Published Date** : Jun 30, 2010

**Authors** : Lorenzo Nissen, Alessandro Zatta, Ilaria Stefanini, Silvia Grandi, Barbara Sgorbati, Bruno Biavati, Andrea Monti

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Gram-Negative Bacterial Infections : CK(46) : AC(33) , Gram-Positive Bacterial Infections : CK(35) : AC(29)

**Pharmacological Actions** : Anti-Bacterial Agents : CK(1367) : AC(475) , Antifungal Agents : CK(234) : AC(146)

**Additional Keywords** : Essential Oils : CK(181) : AC(69)

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## Gynecomastia (AC 1) (CK 1)

**A variety of drugs may contribute to gynecomastia.**

**Pubmed Data** : Can Fam Physician. 2010 Apr ;56(4):344-5. PMID: [20393092](#)

**Article Published Date** : Apr 01, 2010

**Authors** : Ran D Goldman

**Study Type** : Review

### Additional Links

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Gynecomastia : CK(56) : AC(12)

**Problem Substances** : Acid Blockers : CK(370) : AC(47) , Alcohol Consumption : CK(21) : AC(2) , Amphetamine : CK(12) : AC(3) , Antibiotics : CK(330) : AC(44) , Chemotherapy : CK(394) : AC(60) , Heroin : CK(1) : AC(1) , Recombinant Bovine Growth Hormone (rBGH) : CK(2) : AC(2)

---

## HIV Infections (AC 5) (CK 16)

### Cannabinoids may have immunomodulatory or antiviral effects among individuals living with HIV/AIDS.

**Pubmed Data** : Drug Alcohol Rev. 2015 Mar ;34(2):135-40. Epub 2014 Nov 11. PMID: [25389027](#)

**Article Published Date** : Feb 28, 2015

**Authors** : M-J Milloy, Brandon Marshall, Thomas Kerr, Lindsey Richardson, Robert Hogg, Silvia Guillemi, Julio S G Montaner, Evan Wood

**Study Type** : Animal Study

#### Additional Links

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : AIDS : CK(79) : AC(13) , HIV Infections : CK(680) : AC(219)

**Pharmacological Actions** : Antiviral Agents : CK(938) : AC(433) , Immunomodulatory : CK(1287) : AC(358)

---

### Cannabinoids that activate the CB2R inhibit the ECM adhesion process, thus has potential to serve as a therapeutic agent for ablating neuroinflammation associated with HIV.

**Pubmed Data** : Life Sci. 2014 May 28 ;104(1-2):15-23. Epub 2014 Apr 15. PMID: [24742657](#)

**Article Published Date** : May 27, 2014

**Authors** : Erinn S Raborn, Melissa Jamerson, Francine Marciano-Cabral, Guy A Cabral

**Study Type** : In Vitro Study

#### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310) , Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Brain Inflammation : CK(274) : AC(145) , HIV Infections : CK(680) : AC(219)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630)

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## Cannabis use is associated with a lower insulin resistance risk in HIV-HCV-coinfected patients.

**Pubmed Data** : Clin Infect Dis. 2015 Jul 1 ;61(1):40-8. Epub 2015 Mar 16. PMID: [25778750](#)

**Article Published Date** : Jun 30, 2015

**Authors** : Maria Patrizia Carrieri, Lawrence Serfaty, Antoine Vilotitch, Maria Winnock, Isabelle Poizot-Martin, Marc-Arthur Loko, Caroline Lions, Caroline Lascoux-Combe, Perrine Roux, Dominique Salmon-Ceron, Bruno Spire, Francois Dabis,

**Study Type** : Human Study

### Additional Links

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Hepatitis C : CK(474) : AC(87) , HIV Infections : CK(680) : AC(219) , Insulin Resistance : CK(1683) : AC(346)

**Additional Keywords** : Risk Reduction : CK(6417) : AC(686)

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## The present study reviews current insights into the role of cannabinoids and their receptors on viral infections.

**Pubmed Data** : J Med Virol. 2016 Jan ;88(1):1-12. Epub 2015 Jun 25. PMID: [26059175](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Alireza Tahamtan, Masoumeh Tavakoli-Yaraki, Tomasz P Rygiel, Talat Mokhtari-Azad, Vahid Salimi

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Hepatitis C : CK(474) : AC(87) , Herpes Simplex Virus Type 2 : CK(35) : AC(20) , HIV Infections : CK(680) : AC(219), Influenza : CK(789) : AC(123)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Immunomodulatory : CK(1287) : AC(358)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

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## Under certain conditions THC enhances HIV antigen-specific immune responses.

**Pubmed Data** : J Neuroimmune Pharmacol. 2015 Jun ;10(2):344-55. Epub 2015 Apr 22. PMID: [25900076](#)

**Article Published Date** : May 31, 2015

**Authors** : Weimin Chen, Robert B Crawford, Barbara L F Kaplan, Norbert E Kaminski

**Study Type** : Animal Study

### Additional Links

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : HIV Infections : CK(680) : AC(219)

**Pharmacological Actions** : Immunomodulatory : CK(1287) : AC(358)



## Head and Neck Cancer (AC 2) (CK 20)

### Moderate marijuana use is associated with reduced risk of head and neck squamous cell carcinoma.

**Pubmed Data** : Cancer Prev Res (Phila Pa). 2009 Aug;2(8):759-68. Epub 2009 Jul 28. PMID: [19638490](#)

**Article Published Date** : Aug 01, 2009

**Authors** : Caihua Liang, Michael D McClean, Carmen Marsit, Brock Christensen, Edward Peters, Heather H Nelson, Karl T Kelsey

**Study Type** : Human Study

**Additional Links**

**Substances** : [Cannabis](#) : CK(1776) : AC(408)

**Diseases** : [Head and Neck Cancer](#) : CK(165) : AC(44)

**Pharmacological Actions** : [Chemopreventive](#) : CK(2835) : AC(787)

### This population-based study did not find a statistically significant increase in the risk of head and neck cancer in young adults from cannabis use.

**Pubmed Data** : Otolaryngol Head Neck Surg. 2008 Mar ;138(3):374-80. PMID: [18312888](#)

**Article Published Date** : Feb 29, 2008

**Authors** : Sarah Aldington, Matire Harwood, Brian Cox, Mark Weatherall, Lutz Beckert, Anna Hansell, Alison Pritchard, Geoffrey Robinson, Richard Beasley,

**Study Type** : Human Study

**Additional Links**

**Substances** : [Cannabis](#) : CK(1776) : AC(408)

**Diseases** : [Head and Neck Cancer](#) : CK(165) : AC(44)

**Additional Keywords** : [Risk Factors](#) : CK(3057) : AC(392)

## Headache (AC 2) (CK 2)

## The literature suggests that the medicinal use of cannabis may have a therapeutic role for a multitude of diseases.

**Pubmed Data** : Headache. 2015 Jun ;55(6):885-916. Epub 2015 May 25. PMID: [26015168](#)

**Article Published Date** : May 31, 2015

**Authors** : Eric P Baron

**Study Type** : Review

**Additional Links**

**Substances** : [Cannabinoids](#) : CK(816) : AC(310), [Cannabis](#) : CK(1776) : AC(408)

**Diseases** : [Chronic Pain](#) : CK(206) : AC(33), [Headache](#) : CK(785) : AC(92)

**Pharmacological Actions** : [Analgesics](#) : CK(1327) : AC(217)

**Additional Keywords** : [Natural Substance/Drug Synergy](#) : CK(352) : AC(142)

---

## This reviews relevant literature regarding medical use of marijuana and cannabinoid pharmaceuticals with an emphasis on pain and headaches.

**Pubmed Data** : Curr Pain Headache Rep. 2017 Apr ;21(4):19. PMID: [28281107](#)

**Article Published Date** : Mar 31, 2017

**Authors** : Philip S Kim, Michael A Fishman

**Study Type** : Review

**Additional Links**

**Substances** : [Cannabinoids](#) : CK(816) : AC(310), [Cannabis](#) : CK(1776) : AC(408)

**Diseases** : [Headache](#) : CK(785) : AC(92)

**Pharmacological Actions** : [Analgesics](#) : CK(1327) : AC(217)

---

## Headache: Migraine (AC 1) (CK 10)

### In this study the frequency of migraine headaches was decreased with medical cannabis use.

**Pubmed Data** : Pharmacotherapy. 2016 Jan 9. Epub 2016 Jan 9. PMID: [26749285](#)

**Article Published Date** : Jan 08, 2016

**Authors** : Danielle N Rhyne, Sarah L Anderson, Margaret Gedde, Laura M Borgelt

**Study Type** : Human Study

**Additional Links**

**Substances** : [Cannabis](#) : CK(1776) : AC(408)

**Diseases** : Headache: Migraine : CK(661) : AC(77)

**Additional Keywords** : Significant Treatment Outcome : CK(3038) : AC(366)

---

## Heart Attack (AC 1) (CK 2)

**Cannabidiol therapy reduced acute myocardial infarction size and facilitated restoration of left ventricular function.**

**Pubmed Data** : J Cardiovasc Pharmacol. 2015 Oct ;66(4):354-63. PMID: [26065843](#)

**Article Published Date** : Sep 30, 2015

**Authors** : Yuanbo Feng, Feng Chen, Ting Yin, Qian Xia, Yewei Liu, Gang Huang, Jian Zhang, Raymond Oyen, Yicheng Ni

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Heart Attack : CK(1071) : AC(155) , Myocardial Infarction : CK(1101) : AC(162)

**Pharmacological Actions** : Cardioprotective : CK(1596) : AC(409)

---

## Hepatic Encephalopathy (AC 1) (CK 2)

**Cannabidiol improves brain and liver function in a fulminant hepatic failure-induced model of hepatic encephalopathy in mice.**

**Pubmed Data** : Br J Pharmacol. 2010 Dec 23. Epub 2010 Dec 23. PMID: [21182490](#)

**Article Published Date** : Dec 23, 2010

**Authors** : Y Avraham, Nc Grigoriadis, T Poutahidis, L Vorobiev, I Magen, Y Ilan, R Mechoulam, Em Berry

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408)

**Diseases** : Fulminant Hepatic Failure : CK(4) : AC(2) , Hepatic Encephalopathy : CK(46) : AC(10) , Liver

Failure: Acute : CK(8) : AC(4)

**Pharmacological Actions** : Liver Failure: Acute : CK(8) : AC(4) , Neuroprotective Agents : CK(2360) : AC(1099)

---

## Hepatitis (AC 1) (CK 1)

### Cannabinoids may have a therapeutic role in the treatment of autoimmune hepatitis.

**Pubmed Data** : Vitam Horm. 2009;81:487-504. PMID: [19647124](#)

**Article Published Date** : Jan 01, 2009

**Authors** : Rupal Pandey, Venkatesh L Hegde, Narendra P Singh, Lorne Hofseth, Uday Singh, Swapan Ray, Mitzi Nagarkatti, Prakash S Nagarkatti

**Study Type** : Commentary

#### Additional Links

**Substances** : Marijuana : CK(1952) : AC(456)

**Diseases** : Hepatitis : CK(66) : AC(25), Hepatitis: Autoimmune : CK(43) : AC(9)

---

## Hepatitis C (AC 3) (CK 12)

### Cannabis use is associated with a lower insulin resistance risk in HIV-HCV-coinfected patients.

**Pubmed Data** : Clin Infect Dis. 2015 Jul 1 ;61(1):40-8. Epub 2015 Mar 16. PMID: [25778750](#)

**Article Published Date** : Jun 30, 2015

**Authors** : Maria Patrizia Carrieri, Lawrence Serfaty, Antoine Vilotitch, Maria Winnock, Isabelle Poizot-Martin, Marc-Arthur Loko, Caroline Lions, Caroline Lascoux-Combe, Perrine Roux, Dominique Salmon-Ceron, Bruno Spire, Francois Dabis,

**Study Type** : Human Study

#### Additional Links

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Hepatitis C : CK(474) : AC(87), HIV Infections : CK(680) : AC(219), Insulin Resistance : CK(1683) : AC(346)

**Additional Keywords** : Risk Reduction : CK(6417) : AC(686)

---

## In vitro studies to demonstrate the antiviral activity of cannabidiol against hepatitis C.

**Pubmed Data** : Pharmacognosy Res. 2017 Jan-Mar;9(1):116-118. PMID: [28250664](#)

**Article Published Date** : Dec 31, 2016

**Authors** : Henry I C Lowe, Ngeh J Toyang, Wayne McLaughlin

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Hepatitis C : CK(474) : AC(87)

**Pharmacological Actions** : Antiviral Agents : CK(938) : AC(433)

---

## The present study reviews current insights into the role of cannabinoids and their receptors on viral infections.

**Pubmed Data** : J Med Virol. 2016 Jan ;88(1):1-12. Epub 2015 Jun 25. PMID: [26059175](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Alireza Tahamtan, Masoumeh Tavakoli-Yaraki, Tomasz P Rygiel, Talat Mokhtari-Azad, Vahid Salimi

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Hepatitis C : CK(474) : AC(87), Herpes Simplex Virus Type 2 : CK(35) : AC(20), HIV Infections : CK(680) : AC(219), Influenza : CK(789) : AC(123)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Immunomodulatory : CK(1287) : AC(358)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

---

## Hepatitis: Autoimmune (AC 1) (CK 1)

### Cannabinoids may have a therapeutic role in the treatment of autoimmune hepatitis.

**Pubmed Data** : Vitam Horm. 2009;81:487-504. PMID: [19647124](#)

**Article Published Date** : Jan 01, 2009

**Authors** : Rupal Pandey, Venkatesh L Hegde, Narendra P Singh, Lorne Hofseth, Uday Singh, Swapan Ray, Mitzi Nagarkatti, Prakash S Nagarkatti

**Study Type** : Commentary

**Additional Links**

**Substances** : Marijuana : CK(1952) : AC(456)

**Diseases** : Hepatitis : CK(66) : AC(25), Hepatitis: Autoimmune : CK(43) : AC(9)

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## Heroin Addication/Withdrawal (AC 1) (CK 10)

**Intermittent marihuana use is associated with improved retention in naltrexone treatment for opiate-dependence.**

**Pubmed Data** : Am J Addict. 2009 Jul-Aug;18(4):301-8. PMID: [19444734](#)

**Article Published Date** : Jul 01, 2009

**Authors** : Wilfrid Noel Raby, Kenneth M Carpenter, Jami Rothenberg, Adam C Brooks, Huiping Jiang, Maria Sullivan, Adam Bisaga, Sandra Comer, Edward V Nunes

**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Heroin Addication/Withdrawal : CK(20) : AC(2), Opiate Addiction/Withdrawal : CK(65) : AC(15)

---

## Herpes Simplex Virus Type 2 (AC 1) (CK 1)

**The present study reviews current insights into the role of cannabinoids and their receptors on viral infections.**

**Pubmed Data** : J Med Virol. 2016 Jan ;88(1):1-12. Epub 2015 Jun 25. PMID: [26059175](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Alireza Tahamtan, Masoumeh Tavakoli-Yaraki, Tomasz P Rygiel, Talat Mokhtari-Azad, Vahid Salimi

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Hepatitis C : CK(474) : AC(87) , Herpes Simplex Virus Type 2 : CK(35) : AC(20) , HIV Infections : CK(680) : AC(219), Influenza : CK(789) : AC(123)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Immunomodulatory : CK(1287) : AC(358)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

---

## Herpes family viruses (AC 1) (CK 1)

**THC, the compound in cannabis, inhibits replication of Epstein-Barr and Kaposi's Sarcoma Associated Herpesvirus in vitro.**

**Pubmed Data** : BMC Med. 2004 Sep 15;2:34. Epub 2004 Sep 15. PMID: [15369590](#)

**Article Published Date** : Sep 15, 2004

**Authors** : Maria M Medveczky, Tracy A Sherwood, Thomas W Klein, Herman Friedman, Peter G Medveczky

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Epstein-Barr Virus Infections : CK(132) : AC(47) , Herpes family viruses : CK(1152) : AC(219), Kaposi's Sarcoma : CK(2) : AC(2), Oncovirus : CK(4) : AC(4)

**Pharmacological Actions** : Antiviral Agents : CK(938) : AC(433)

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## Herpes: Kaposi-Associated (AC 1) (CK 1)

**CBD could preferentially induce apoptosis and attenuate the proliferation of KSHV-infected HMVECs.**

**Pubmed Data** : Genes Cancer. 2012 Jul ;3(7-8):512-20. PMID: [23264851](#)

**Article Published Date** : Jun 30, 2012

**Authors** : Yehoshua Maor, Jinlong Yu, Paula M Kuzontkoski, Bruce J Dezube, Xuefeng Zhang, Jerome E Groopman

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Herpes: Kaposi-Associated : CK(1) : AC(1) , Kaposi Disease : CK(2) : AC(4)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

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## High Cholesterol (AC 1) (CK 2)

**Hempseed prevents cholesterol-induced stimulation of platelet aggregation.**

**Pubmed Data** : Can J Physiol Pharmacol. 2008 Apr;86(4):153-9. PMID: [18418423](#)

**Article Published Date** : Apr 01, 2008

**Authors** : M A Prociuk, A L Edel, M N Richard, N T Gavel, B P Ander, C M C Dupasquier, G N Pierce

**Study Type** : Animal Study

**Additional Links**

**Substances** : Hemp Seed : CK(446) : AC(5)

**Diseases** : High Cholesterol : CK(1774) : AC(271)

**Pharmacological Actions** : Anti-Platelet : CK(125) : AC(38), Platelet Aggregation Inhibitors : CK(186) : AC(40)

---

## High Fat Diet (AC 1) (CK 2)

**THC prevents weight gain in obesity and suggests these actions may be mediated in part by modifications of the gut microbiota.**

**Pubmed Data** : PLoS One. 2015 ;10(12):e0144270. Epub 2015 Dec 3. PMID: [26633823](#)

**Article Published Date** : Dec 31, 2014

**Authors** : Nina L Cluny, Catherine M Keenan, Raylene A Reimer, Bernard Le Foll, Keith A Sharkey



**Study Type** : Animal Study

**Additional Links**

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : High Fat Diet : CK(212) : AC(103) , Obesity : CK(2443) : AC(521)

**Additional Keywords** : Anti-Obesity Agents : CK(487) : AC(108) , Microbiota : CK(396) : AC(101) , Risk Reduction : CK(6417) : AC(686)

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## Huntington Disease (AC 5) (CK 17)

### Cannabigerol could be used for the treatment of neurodegenerative diseases such as Huntington's disease.

**Pubmed Data** : Neurotherapeutics. 2015 Jan ;12(1):185-99. PMID: [25252936](#)

**Article Published Date** : Dec 31, 2014

**Authors** : Sara Valdeolivas, Carmen Navarrete, Irene Cantarero, María L Bellido, Eduardo Muñoz, Onintza Sagredo

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Huntington Disease : CK(91) : AC(36) , Neurodegenerative Diseases : CK(3582) : AC(932)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

---

### Cannabis based medicine could be used as a neuroprotective agent capable of delaying disease progression in Huntington's disease.

**Pubmed Data** : J Neurosci Res. 2011 Sep ;89(9):1509-18. Epub 2011 Jun 14. PMID: [21674569](#)

**Article Published Date** : Aug 31, 2011

**Authors** : Onintza Sagredo, M Ruth Pazos, Valentina Satta, José A Ramos, Roger G Pertwee, Javier Fernández-Ruiz

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338) , Cannabis : CK(1776) : AC(408) , Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Huntington Disease : CK(91) : AC(36)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

**Additional Keywords** : Plant Extracts : CK(7645) : AC(2539)

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## Cannabis extracts could be neuroprotective agents, delaying disease progression in a proinflammatory model of Huntington's disease.

**Pubmed Data** : ACS Chem Neurosci. 2012 May 16 ;3(5):400-6. Epub 2012 Feb 9. PMID: [22860209](#)

**Article Published Date** : May 15, 2012

**Authors** : Sara Valdeolivas, Valentina Satta, Roger G Pertwee, Javier Fernández-Ruiz, Onintza Sagredo

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Huntington Disease : CK(91) : AC(36) , Inflammation : CK(3240) : AC(882)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630) , Neuroprotective Agents : CK(2360) : AC(1099)

**Additional Keywords** : Phytotherapy : CK(1216) : AC(221) , Plant Extracts : CK(7645) : AC(2539)

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## Sativex is safe and well tolerated in patients with HD, with no severe adverse events or clinical worsening.

**Pubmed Data** : J Neurol. 2016 May 9. Epub 2016 May 9. PMID: [27159993](#)

**Article Published Date** : May 08, 2016

**Authors** : Jose Luis López-Sendón Moreno, Juan García Caldentey, Patricia Trigo Cubillo, Carolina Ruiz Romero, Guillermo García Ribas, M A Alonso Alonso Arias, María Jesús García de Yébenes, Rosa María Tolón, Ismael Galve-Roperh, Onintza Sagredo, Sara Valdeolivas, Eva Resel, Silvia Ortega-Gutierrez, María Laura García-Bermejo, Javier Fernández Ruiz, Manuel Guzmán, Justo García de Yébenes Prous

**Study Type** : Human Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408) , Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Huntington Disease : CK(91) : AC(36)

**Additional Keywords** : Plant Extracts : CK(7645) : AC(2539) , Safety of Natural Substances : CK(58) : AC(9)

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## This review details the mechanisms of neurodegeneration and highlights the beneficial effects of cannabinoid treatment.

**Pubmed Data** : Br J Pharmacol. 2014 Mar ;171(6):1347-60. PMID: [24172185](#)

**Article Published Date** : Feb 28, 2014

**Authors** : S G Fagan, V A Campbell

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Alzheimer's Disease : CK(1292) : AC(382), Brain Inflammation : CK(274) : AC(145), Huntington Disease : CK(91) : AC(36), Neurodegenerative Diseases : CK(3582) : AC(932), Parkinson's Disease : CK(1021) : AC(167)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Neurogenesis : CK(59) : AC(30), Neuroprotective Agents : CK(2360) : AC(1099)

## Hydrogen Peroxide Induced Toxicity (AC 1) (CK 1)

**Cannabidiol has a protective effect on hydrogen peroxide induced apoptosis, inflammation and oxidative stress in nucleus pulposus cells.**

**Pubmed Data** : Mol Med Rep. 2016 Sep ;14(3):2321-7. Epub 2016 Jul 13. PMID: [27430346](#)

**Article Published Date** : Aug 31, 2016

**Authors** : Jie Chen, Chen Hou, Xin Chen, Dong Wang, Pinglin Yang, Xijing He, Jinsong Zhou, Haopeng Li

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Hydrogen Peroxide Induced Toxicity : CK(26) : AC(18)

**Pharmacological Actions** : Anti-Apoptotic : CK(384) : AC(212), Anti-Inflammatory Agents : CK(4861) : AC(1630), Antioxidants : CK(8430) : AC(3132)

## Hyperalgesia (AC 1) (CK 2)

**Synthetic cannabinoids attenuate allodynia and hyperalgesia in a rat model of trigeminal neuropathic pain.**

**Pubmed Data** : Neuropharmacology. 2007 Jul;53(1):169-77. Epub 2007 May 13. PMID: [17572451](#)

**Article Published Date** : Jul 01, 2007

**Authors** : Ying-Ching Liang, Chiung-Chun Huang, Kuei-Sen Hsu

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Allodynia : CK(26) : AC(9), Hyperalgesia : CK(63) : AC(24), Trigeminal Neuralgia : CK(140) : AC(18)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217)

## Hypersensitivity (AC 2) (CK 4)

### Cannabidiol attenuates delayed-type hypersensitivity reactions.

**Pubmed Data** : Acta Pharmacol Sin. 2010 Dec;31(12):1611-7. Epub 2010 Nov 1. PMID: [21042286](#)

**Article Published Date** : Dec 01, 2010

**Authors** : Der-zen LIU, Chieh-min HU, Chung-hsiung HUANG, Shiao-pyng WEY, Tong-rong JAN

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Hypersensitivity : CK(74) : AC(22), Hypersensitivity: Type IV : CK(2) : AC(1)

### THC treatment during Delayed-type hypersensitivity response can simultaneously inhibit Th1/Th17 activation via regulation of microRNA expression.

**Pubmed Data** : J Mol Med (Berl). 2016 Apr 1. Epub 2016 Apr 1. PMID: [27038180](#)

**Article Published Date** : Mar 31, 2016

**Authors** : Jessica M Sido, Austin R Jackson, Prakash S Nagarkatti, Mitzi Nagarkatti

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Hypersensitivity : CK(74) : AC(22)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Immunomodulatory : CK(1287) : AC(358), Immunomodulatory: Th17 downregulation : CK(30) : AC(17), MicroRNA modulator : CK(264) : AC(145)

## Hypersensitivity: Type IV (AC 1) (CK 2)

### Cannabidiol attenuates delayed-type hypersensitivity reactions.

**Pubmed Data** : Acta Pharmacol Sin. 2010 Dec;31(12):1611-7. Epub 2010 Nov 1. PMID: [21042286](#)

**Article Published Date** : Dec 01, 2010

**Authors** : Der-zen LIU, Chieh-min HU, Chung-hsiung HUANG, Shiao-pyng WEY, Tong-rong JAN

**Study Type** : Animal Study

#### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Hypersensitivity : CK(74) : AC(22), Hypersensitivity: Type IV : CK(2) : AC(1)

## Hypertension (AC 2) (CK 4)

### A hemp seed meal protein hydrolysate contained antioxidant peptides that reduced the rate of lipid peroxidation in spontaneously hypertensive rats.

**Pubmed Data** : Nutrients. 2014 Dec ;6(12):5652-66. PMID: [25493943](#)

**Article Published Date** : Nov 30, 2014

**Authors** : Abraham T Girgih, Adeola M Alashi, Rong He, Sunday A Malomo, Pema Raj, Thomas Netticadan, Rotimi E Aluko

**Study Type** : Animal Study

#### Additional Links

**Substances** : Cannabis : CK(1776) : AC(408), Hemp Seed : CK(446) : AC(5)

**Diseases** : Hypertension : CK(2984) : AC(406), Lipid Peroxidation : CK(695) : AC(255), Oxidative Stress : CK(3871) : AC(1382)

**Pharmacological Actions** : Antioxidants : CK(8430) : AC(3132), Catalase Up-Regulation : CK(118) : AC(42), Superoxide Dismutase Up-regulation : CK(530) : AC(174)

### A hemp seed meal protein hydrolysate had strong

## hypotensive effects in spontaneously hypertensive rats.

**Pubmed Data** : Eur J Nutr. 2014 Aug ;53(5):1237-46. Epub 2013 Nov 29. PMID: [24292743](#)

**Article Published Date** : Jul 31, 2014

**Authors** : Abraham T Girgih, Adeola Alashi, Rong He, Sunday Malomo, Rotimi E Aluko

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabis : CK(1776) : AC(408), Hemp Seed : CK(446) : AC(5)

**Diseases** : Hypertension : CK(2984) : AC(406)

**Pharmacological Actions** : Antihypertensive Agents : CK(1178) : AC(164)

## Hypoglycemia (AC 1) (CK 10)

### Tetrahydrocannabivarin could represent a new therapeutic agent in glycemic control in subjects with type 2 diabetes.

**Pubmed Data** : Diabetes Care. 2016 Aug 29. Epub 2016 Aug 29. PMID: [27573936](#)

**Article Published Date** : Aug 28, 2016

**Authors** : Khalid A Jadoon, Stuart H Ratcliffe, David A Barrett, E Louise Thomas, Colin Stott, Jimmy D Bell, Saoirse E O'Sullivan, Garry D Tan

**Study Type** : Human Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310)

**Diseases** : Diabetes Mellitus: Type 2 : CK(3572) : AC(624), Hypoglycemia : CK(189) : AC(30)

**Pharmacological Actions** : Hypoglycemic Agents : CK(1446) : AC(342)

## Hypothermia (AC 1) (CK 2)

### Repeated administration of phytocannabinoid Delta-tetrahydrocannabinol or synthetic cannabinoids induces tolerance to hypothermia in mice.

**Pubmed Data** : Pharmacol Res. 2015 Dec ;102:22-32. Epub 2015 Sep 8. PMID: [26361728](#)

**Article Published Date** : Nov 30, 2015

**Authors** : S Tai, W S Hyatt, C Gu, L N Franks, T Vasiljevik, L K Brents, P L Prather, W E Fantegrossi

**Study Type** : Animal Study

**Additional Links**

**Substances** : [Cannabinoids: Synthetic : CK\(78\) : AC\(33\)](#), [Delta-tetrahydrocannabinol \(THC\) : CK\(1135\) : AC\(342\)](#)

**Diseases** : [Hypothermia : CK\(4\) : AC\(2\)](#)

**Additional Keywords** : [Desensitization : CK\(2\) : AC\(1\)](#)

## Immune Disorders (AC 2) (CK 3)

**The current study clearly demonstrates that exposure to THC leads to suppression of the immune response.**

**Pubmed Data** : J Pharmacol Exp Ther. 2002 Aug ;302(2):451-65. PMID: [12130702](#)

**Article Published Date** : Jul 31, 2002

**Authors** : Robert J McKallip, Catherine Lombard, Billy R Martin, Mitzi Nagarkatti, Prakash S Nagarkatti

**Study Type** : Animal Study, In Vitro Study

**Additional Links**

**Substances** : [Delta-tetrahydrocannabinol \(THC\) : CK\(1135\) : AC\(342\)](#)

**Diseases** : [Autoimmune Diseases : CK\(6629\) : AC\(1128\)](#), [Immune Disorders : CK\(28\) : AC\(8\)](#)

**Pharmacological Actions** : [Apoptotic : CK\(2958\) : AC\(2075\)](#), [Immunomodulatory : CK\(1287\) : AC\(358\)](#), [Immunosuppressive Agents : CK\(37\) : AC\(24\)](#)

**Additional Keywords** : [Dose Response : CK\(1056\) : AC\(408\)](#)

**The experimental evidence reviewed in this article argues in favor of the therapeutic potential of these compounds in immune disorders and cancer.**

**Pubmed Data** : Prostaglandins Leukot Essent Fatty Acids. 2002 Feb-Mar;66(2-3):319-32. PMID: [12052046](#)

**Article Published Date** : Jan 31, 2002

**Authors** : Daniela Parolaro, P Massi, T Rubino, E Monti

**Study Type** : Review

**Additional Links**

**Substances** : [Cannabinoids : CK\(816\) : AC\(310\)](#), [Endocannabinoids : CK\(9\) : AC\(1\)](#)

**Diseases** : Cancers: All : CK(14773) : AC(4596) , Endocannabinoid System : CK(22) : AC(12) , Immune Disorders : CK(28) : AC(8)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Immunosuppressive Agents : CK(37) : AC(24)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

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## Immune Disorders: Low Immune Function (AC 1) (CK 2)

**Hemp seed protein has an immunomodulatory and antifatigue effect in mice.**

**Pubmed Data** : Wei Sheng Yan Jiu. 2008 Mar;37(2):175-8. PMID: [18589601](#)

**Article Published Date** : Mar 01, 2008

**Authors** : Yongjin Li, Ruiyue Yang, Xuefeng Hu, Zhu Long, et al

**Study Type** : Animal Study

**Additional Links**

**Substances** : Hemp Protein : CK(3) : AC(2), Hemp Seed : CK(446) : AC(5)

**Diseases** : Fatigue : CK(312) : AC(49) , Immune Disorders: Low Immune Function : CK(489) : AC(118) , Low Immune Function: Splenic Dysfunction : CK(11) : AC(6)

---

## Immune Dysregulation: TH1/TH2 imbalance (AC 1) (CK 1)

**Cannabinoids have the potential to regulate the activation and balance of human Th1/Th2 cells by a CB2 receptor-dependent pathway.**

**Pubmed Data** : J Neuroimmunol. 2002 Dec ;133(1-2):124-31. PMID: [12446015](#)

**Article Published Date** : Nov 30, 2002

**Authors** : Michael Yuan, Sylvia M Kiertscher, Qingwen Cheng, Richard Zoumalan, Donald P



Tashkin, Michael D Roth

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Immune Dysregulation: TH1/TH2 imbalance : CK(171) : AC(45)

**Pharmacological Actions** : Immunomodulatory : CK(1287) : AC(358)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

---

## Impairment: Driving Related (AC 1) (CK 10)

**Drivers under the influence of synthetic cannabinoids were more frequently impaired with confusion, disorientation, and incoherent, slurred speech than drivers under the influence of marijuana in this population evaluated by drug recognition experts.**

**Pubmed Data** : Clin Toxicol (Phila). 2016 ;54(1):14-9. PMID: [26653952](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Peter B Chase, Jeff Hawkins, Jarrod Mosier, Ernest Jimenez, Keith Boesen, Barry K Logan, Frank G Walter

**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Impairment: Driving Related : CK(10) : AC(1)

**Additional Keywords** : Natural Versus Synthetics : CK(1) : AC(1), Plant Extracts : CK(7645) : AC(2539)

**Problem Substances** : Synthetic Cannabinoids : CK(10) : AC(1)

---

## Infant Neurological Development (AC

## 1) (CK 2)

### Cannabidiol has a neuroprotective property in newborn rodent hypoxic ischemic insult.

**Pubmed Data** : CNS Neurol Disord Drug Targets. 2016 Sep 27. Epub 2016 Sep 27. PMID: [27686886](#)

**Article Published Date** : Sep 26, 2016

**Authors** : Nagat Mohammed, Maria Ceprián, Laura Jimenez, M Ruth Pazos, Jose Martínez-Orgado

**Study Type** : Animal Study

**Additional Links**

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Brain Ischemia](#) : CK(136) : AC(52) , [Infant Neurological Development](#) : CK(58) : AC(9)

**Pharmacological Actions** : [Neuroprotective Agents](#) : CK(2360) : AC(1099)

## Inflammation (AC 26) (CK 65)

### A combination of Cannabichromene and Delta-tetrahydrocannabinol leads to enhanced tetrad and anti-inflammatory actions.

**Pubmed Data** : Drug Alcohol Depend. 2010 Nov 1 ;112(1-2):126-33. PMID: [20619971](#)

**Article Published Date** : Oct 31, 2010

**Authors** : Gerald T DeLong, Carl E Wolf, Alphonse Poklis, Aron H Lichtman

**Study Type** : Animal Study

**Additional Links**

**Substances** : [Cannabinoids](#) : CK(816) : AC(310), [Cannabis](#) : CK(1776) : AC(408), [Delta-tetrahydrocannabinol \(THC\)](#) : CK(1135) : AC(342)

**Diseases** : [Inflammation](#) : CK(3240) : AC(882)

**Pharmacological Actions** : [Anti-Inflammatory Agents](#) : CK(4861) : AC(1630)

### A review of Cannabidiol and its analogs and their effects on inflammation.

**Pubmed Data** : Bioorg Med Chem. 2015 Apr 1 ;23(7):1377-85. Epub 2015 Feb 7. PMID: [25703248](#)

**Article Published Date** : Mar 31, 2015

**Authors** : Sumner Burstein

**Study Type** : Review

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Inflammation : CK(3240) : AC(882)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630)

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## A review of the many benefits of cannabinoids in health and disease.

**Pubmed Data** : Dialogues Clin Neurosci. 2007 ;9(4):413-30. PMID: [18286801](#)

**Article Published Date** : Dec 31, 2006

**Authors** : Natalya M Kogan, Raphael Mechoulam

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33)

**Diseases** : Anorexia : CK(73) : AC(9), Cancers: All : CK(14773) : AC(4596), Epilepsy : CK(255) : AC(66), Inflammation : CK(3240) : AC(882), Multiple Sclerosis : CK(964) : AC(184), Neurodegenerative Diseases : CK(3582) : AC(932), Obesity : CK(2443) : AC(521), Schizophrenia : CK(445) : AC(70)

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## Agents modulating cannabinoid receptors or endocannabinoid tone provide promising therapeutic opportunities in the treatment of inflammatory neurodegenerative disorders of the CNS.

**Pubmed Data** : Exp Neurol. 2010 Jul ;224(1):92-102. Epub 2010 Mar 29. PMID: [20353778](#)

**Article Published Date** : Jun 30, 2010

**Authors** : Silvia Rossi, Giorgio Bernardi, Diego Centonze

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Amyotrophic Lateral Sclerosis : CK(567) : AC(140), Inflammation : CK(3240) : AC(882), Multiple Sclerosis : CK(964) : AC(184), Neurodegenerative Diseases : CK(3582) : AC(932)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

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## Cannabichromene exerts anti-inflammatory actions in activated macrophages.

**Pubmed Data** : Br J Pharmacol. 2013 May ;169(1):213-29. PMID: [23373571](#)

**Article Published Date** : Apr 30, 2013

**Authors** : B Romano, F Borrelli, I Fasolino, R Capasso, F Piscitelli, Mg Cascio, Rg Pertwee, D Coppola, L Vassallo, P Orlando, V Di Marzo, Aa Izzo

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Colitis : CK(255) : AC(111), Inflammation : CK(3240) : AC(882), Inflammatory Bowel Diseases : CK(1052) : AC(197), Lipopolysaccharide-Induced Toxicity : CK(380) : AC(218)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630)

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## Cannabichromene selectively reduces inflammation-induced hypermotility in vivo.

**Pubmed Data** : Br J Pharmacol. 2012 Jun ;166(4):1444-60. PMID: [22300105](#)

**Article Published Date** : May 31, 2012

**Authors** : Angelo A Izzo, Raffaele Capasso, Gabriella Aviello, Francesca Borrelli, Barbara Romano, Fabiana Piscitelli, Laura Gallo, Francesco Capasso, Pierangelo Orlando, Vincenzo Di Marzo

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Inflammation : CK(3240) : AC(882)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630)

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## Cannabidiol may represent a promising new protective strategy against cisplatin-induced nephrotoxicity.

**Pubmed Data** : J Pharmacol Exp Ther. 2009 Mar ;328(3):708-14. Epub 2008 Dec 12. PMID: [19074681](#)

**Article Published Date** : Feb 28, 2009

**Authors** : Hao Pan, Partha Mukhopadhyay, Mohanraj Rajesh, Vivek Patel, Bani Mukhopadhyay, Bin Gao, György Haskó, Pál Pacher

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Chemotherapy-Induced Toxicity: Cisplatin : CK(319) : AC(133), Inflammation : CK(3240) : AC(882), Oxidative Stress : CK(3871) : AC(1382)

**Pharmacological Actions** : Chemoprotective Agents : CK(356) : AC(146)

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## Cannabidiol reduces intestinal inflammation through the control of neuroimmune axis.

**Pubmed Data** : PLoS One. 2011 ;6(12):e28159. Epub 2011 Dec 6. PMID: [22163000](#)

**Article Published Date** : Dec 31, 2010

**Authors** : Daniele De Filippis, Giuseppe Esposito, Carla Cirillo, Mariateresa Cipriano, Benedicte Y De Winter, Caterina Scuderi, Giovanni Sarnelli, Rosario Cuomo, Luca Steardo, Joris G De Man, Teresa Iuvone

**Study Type** : Animal Study, Human In Vitro

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Inflammation : CK(3240) : AC(882), Inflammatory Bowel Diseases : CK(1052) : AC(197), Ulcerative Colitis : CK(347) : AC(69)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

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## Cannabinoids has novel anti-inflammatory activity.

**Pubmed Data** : Future Med Chem. 2009 Oct;1(7):1333-1349. PMID: [20191092](#)

**Article Published Date** : Oct 01, 2009

**Authors** : Prakash Nagarkatti, Rupal Pandey, Sadiye Amcaoglu Rieder, Venkatesh L Hegde, Mitzi Nagarkatti

**Study Type** : Review

**Additional Links**

**Substances** : Marijuana : CK(1952) : AC(456)

**Diseases** : Inflammation : CK(3240) : AC(882)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630)

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## Cannabinoids - via direct or indirect activation of CB(1) and/or CB(2) receptors exert protective effects in well-established models of intestinal inflammation and colon cancer.

**Pubmed Data** : Pharmacol Res. 2009 Aug ;60(2):117-25. Epub 2009 Mar 18. PMID: [19442536](#)

**Article Published Date** : Jul 31, 2009

**Authors** : Angelo A Izzo, Michael Camilleri

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Colon Cancer : CK(749) : AC(430), Endocannabinoid System : CK(22) : AC(12), Gastrointestinal Inflammation : CK(118) : AC(41), Inflammation : CK(3240) : AC(882), Inflammatory Bowel Diseases : CK(1052) : AC(197)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Anticarcinogenic Agents : CK(1099) : AC(519)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

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## Cannabinoids have cyclooxygenase inhibitory properties.

**Pubmed Data** : Biol Pharm Bull. 2011;34(5):774-8. PMID: [21532172](#)

**Article Published Date** : Jan 01, 2011

**Authors** : Lucia Renee Ruhaak, Jenny Felth, Pernilla Christina Karlsson, Joseph James Rafter, Robert Verpoorte, Lars Bohlin

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310)

**Diseases** : Inflammation : CK(3240) : AC(882)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Cyclooxygenase Inhibitors : CK(71) : AC(39)

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## Cannabis extracts could be neuroprotective agents, delaying disease progression in a proinflammatory model of Huntington's disease.

**Pubmed Data** : ACS Chem Neurosci. 2012 May 16 ;3(5):400-6. Epub 2012 Feb 9. PMID: [22860209](#)

**Article Published Date** : May 15, 2012

**Authors** : Sara Valdeolivas, Valentina Satta, Roger G Pertwee, Javier Fernández-Ruiz, Onintza Sagredo

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Huntington Disease : CK(91) : AC(36), Inflammation : CK(3240) : AC(882)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Neuroprotective Agents : CK(2360) : AC(1099)

**Additional Keywords** : Phytotherapy : CK(1216) : AC(221), Plant Extracts : CK(7645) : AC(2539)

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## Cannabis-derived substances may have anti-cancer activity through reducing inflammation.

**Pubmed Data** : Curr Clin Pharmacol. 2010 Sep 6. Epub 2010 Sep 6. PMID: [20925645](#)

**Article Published Date** : Sep 06, 2010

**Authors** : Wai M Liu, Daniel W Fowler, Angus G Dalgleish

**Study Type** : Commentary

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Cancers: All : CK(14773) : AC(4596), Inflammation : CK(3240) : AC(882)

**Additional Keywords** : Diseases that are Linked : CK(2335) : AC(304)

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## Hemp seed and evening primrose oils with hot-nature diet have beneficial effects in improving the clinical score in multiple sclerosis patients.

**Pubmed Data** : Complement Ther Med. 2013 Oct ;21(5):473-80. Epub 2013 Jul 25. PMID: [24050582](#)

**Article Published Date** : Sep 30, 2013

**Authors** : Soheila Rezapour-Firouzi, Seyed Rafie Arefhosseini, Farhoudi Mehdi, Ebrahimi-

Mamaghani Mehrangiz, Behzad Baradaran, Elyar Sadeghihokmabad, Somaiyeh Mostafaei, Seyed Mohammad Bagher Fazljou, Mohammad-ali Torbati, Sarvin Sanaie, Fatemeh Zamani

**Study Type** : Human Study

**Additional Links**

**Substances** : Evening Primrose Oil : CK(66) : AC(8) , Hemp Seed : CK(446) : AC(5)

**Diseases** : Inflammation : CK(3240) : AC(882) , Multiple Sclerosis: Relapsing-Remitting : CK(124) : AC(14)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630) , Immunomodulatory : CK(1287) : AC(358)

**Additional Keywords** : Dietary Modification : CK(315) : AC(47) , Phytotherapy : CK(1216) : AC(221) , Plant Extracts : CK(7645) : AC(2539)

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## Low doses of CBD exert oligoprotective effects in oligodendrocyte progenitor cells under conditions of inflammation, oxidative and ER stress.

**Pubmed Data** : Cell Death Dis. 2012 ;3:e331. Epub 2012 Jun 28. PMID: [22739983](#)

**Article Published Date** : Dec 31, 2011

**Authors** : M Mecha, A S Torrao, L Mestre, F J Carrillo-Salinas, R Mechoulam, C Guaza

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Inflammation : CK(3240) : AC(882) , Multiple Sclerosis : CK(964) : AC(184) , Oxidative Stress : CK(3871) : AC(1382)

**Pharmacological Actions** : Anti-Apoptotic : CK(384) : AC(212) , Anti-Inflammatory Agents : CK(4861) : AC(1630) , Antioxidants : CK(8430) : AC(3132) , Neuroprotective Agents : CK(2360) : AC(1099)

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## Oral treatment with a low dose of THC inhibits atherosclerosis progression in this mouse model.

**Pubmed Data** : Nature. 2005 Apr 7 ;434(7034):782-6. PMID: [15815632](#)

**Article Published Date** : Apr 06, 2005

**Authors** : Sabine Steffens, Niels R Veillard, Claire Arnaud, Graziano Pelli, Fabienne Burger, Christian Staub, Meliha Karsak, Andreas Zimmer, Jean-Louis Frossard, François Mach

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310) , Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Arteriosclerosis : CK(452) : AC(126) , Inflammation : CK(3240) : AC(882)

**Pharmacological Actions** : Anti-atherogenic : CK(156) : AC(39) , Anti-Inflammatory Agents : CK(4861) : AC(1630) , Interferon Gamma Reducer : CK(58) : AC(24) , Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

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## Several cannabinoids may be considered candidates for development as anti-inflammatory and antifibrotic agents.

**Pubmed Data** : FASEB J. 2016 Jul 19. Epub 2016 Jul 19. PMID: [27435265](#)

**Article Published Date** : Jul 18, 2016

**Authors** : Robert B Zurier, Sumner H Burstein

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Fibrosis : CK(16) : AC(10), Inflammation : CK(3240) : AC(882)

**Pharmacological Actions** : Anti-Fibrotic : CK(46) : AC(29), Anti-Inflammatory Agents : CK(4861) : AC(1630)

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## The in vivo assessment of the role of CB receptors in inflammation and cancer might be instrumental in broadening the understanding about bladder cancer biology.

**Pubmed Data** : Life Sci. 2015 Oct 1 ;138:41-51. Epub 2014 Oct 15. PMID: [25445433](#)

**Article Published Date** : Sep 30, 2015

**Authors** : Valeria Gasperi, Daniela Evangelista, Sergio Oddi, Fulvio Florenzano, Valerio Chiurchiù, Luciana Avigliano, M Valeria Catani, Mauro Maccarrone

**Study Type** : Animal Study, In Vitro Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Endocannabinoids : CK(9) : AC(1)

**Diseases** : Bladder Cancer : CK(349) : AC(100), Inflammation : CK(3240) : AC(882)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

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## The possible role of cannabimimetic fatty acid derivatives in the pathological consequences of cancer and inflammation are examined.

**Pubmed Data** : Chem Phys Lipids. 2000 Nov ;108(1-2):191-209. PMID: [11106791](#)

**Article Published Date** : Oct 31, 2000

**Authors** : L De Petrocellis, D Melck, T Bisogno, V Di Marzo

**Study Type** : Review

**Additional Links**

**Substances** : Anandamide : CK(2) : AC(2), Cannabinoids : CK(816) : AC(310), Endocannabinoids :



CK(9) : AC(1)

**Diseases** : Asthma : CK(1157) : AC(190), Cachexia : CK(77) : AC(25), Cancers: All : CK(14773) : AC(4596), Chronic Pain : CK(206) : AC(33), Inflammation : CK(3240) : AC(882)

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## These findings highlight the anti-inflammatory effects of cannabidiol in this viral model of multiple sclerosis.

**Pubmed Data** : Neurobiol Dis. 2013 Nov ;59:141-50. Epub 2013 Jul 11. PMID: [23851307](#)

**Article Published Date** : Oct 31, 2013

**Authors** : M Mecha, A Feliú, P M Iñigo, L Mestre, F J Carrillo-Salinas, C Guaza

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Inflammation : CK(3240) : AC(882), Multiple Sclerosis : CK(964) : AC(184)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Interleukin-1 beta downregulation : CK(478) : AC(205), Vascular Cell Adhesion Molecule-1 Inhibitor : CK(117) : AC(30)

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## These in vitro results testify the anti-inflammatory, antioxidative, and anti-apoptotic effects of the combination of cannabidiol and moringin.

**Pubmed Data** : Fitoterapia. 2016 May 20. Epub 2016 May 20. PMID: [27215129](#)

**Article Published Date** : May 19, 2016

**Authors** : Thangavelu Soundara Rajan, Sabrina Giacoppo, Renato Iori, Gina Rosalinda De Nicola, Gianpaolo Grassi, Federica Pollastro, Placido Bramanti, Emanuela Mazzon

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Moringa oleifera : CK(150) : AC(73)

**Diseases** : Inflammation : CK(3240) : AC(882)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Antioxidants : CK(8430) : AC(3132)

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## These results reveal an immunosuppressive effect of cannabinoid preparations.

**Pubmed Data** : Front Mol Neurosci. 2017 ;10:14. Epub 2017 Jan 24. PMID: [28174520](#)

**Article Published Date** : Dec 31, 2016

**Authors** : Wesley K Utomo, Marjan de Vries, Henri Braat, Marco J Bruno, Kaushal Parikh, Mònica Comalada, Maikel P Peppelenbosch, Harry van Goor, Gwenny M Fuhler

**Study Type** : Human Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Inflammation : CK(3240) : AC(882), Pancreatitis: Chronic : CK(4) : AC(4)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Immunosuppressive Agents : CK(37) : AC(24)

**Additional Keywords** : Immunosuppressive Agents : CK(37) : AC(24), Immunosuppressive Agents : CK(37) : AC(24), Immunosuppressive Agents : CK(37) : AC(24), Inflammation : CK(2) : AC(2), Inflammation : CK(2) : AC(2)

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## This study revealed the crucial role of THC in promoting the immunomodulatory effects of MSCs and proposed a new strategy to alleviate pain.

**Pubmed Data** : Oncotarget. 2016 Jan 27. Epub 2016 Jan 27. PMID: [26824325](#)

**Article Published Date** : Jan 26, 2016

**Authors** : Junran Xie, Dongju Xiao, Yun Xu, Jinning Zhao, Li Jiang, Xuming Hu, Yaping Zhang, Lina Yu

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Inflammation : CK(3240) : AC(882), Neuropathic Pain : CK(284) : AC(69)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Antinoceptive : CK(193) : AC(51), Immunomodulatory : CK(1287) : AC(358)

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## This study's CRP evidence points toward possible anti-inflammatory effects of cannabis smoking.

**Pubmed Data** : Drug Alcohol Depend. 2015 Feb 1 ;147:203-7. Epub 2014 Nov 28. PMID: [25529540](#)

**Article Published Date** : Jan 31, 2015

**Authors** : Omayma Alshaarawy, James C Anthony

**Study Type** : Human Study

### Additional Links

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : C-Reactive Protein (CRP) : CK(20) : AC(2), Inflammation : CK(3240) : AC(882)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630)

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## Topical Cannabidiol application has therapeutic potential for relief of arthritis pain-related behaviours and inflammation without evident side-effects.

**Pubmed Data** : Eur J Pain. 2015 Oct 30. Epub 2015 Oct 30. PMID: [26517407](#)

**Article Published Date** : Oct 29, 2015

**Authors** : D C Hammell, L P Zhang, F Ma, S M Abshire, S L McIlwrath, A L Stinchcomb, K N Westlund

**Study Type** : Animal Study

### Additional Links

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Inflammation](#) : CK(3240) : AC(882)

**Pharmacological Actions** : [Anti-Inflammatory Agents](#) : CK(4861) : AC(1630)

**Additional Keywords** : [Dose Response](#) : CK(1056) : AC(408)

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## Topically applied THC can effectively attenuate contact allergic inflammation.

**Pubmed Data** : Allergy. 2013 Aug ;68(8):994-1000. Epub 2013 Jul 29. PMID: [23889474](#)

**Article Published Date** : Jul 31, 2013

**Authors** : E Gaffal, M Cron, N Glodde, T Tüting

**Study Type** : Animal Study

### Additional Links

**Substances** : [Cannabinoids](#) : CK(816) : AC(310), [Delta-tetrahydrocannabinol \(THC\)](#) : CK(1135) : AC(342)

**Diseases** : [Dermatitis](#) : CK(1392) : AC(137), [Inflammation](#) : CK(3240) : AC(882)

**Pharmacological Actions** : [Anti-Inflammatory Agents](#) : CK(4861) : AC(1630)

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## Inflammation: Neutrophil-Mediated (AC 1) (CK 2)

### O-1602 is protective against experimentally induced colitis and inhibits neutrophil recruitment independently of CB1, CB2 and GPR55 receptors.

**Pubmed Data** : Inflamm Bowel Dis. 2011 Aug ;17(8):1651-64. Epub 2010 Nov 15. PMID: [21744421](#)

**Article Published Date** : Jul 31, 2011

**Authors** : Rudolf Schicho, Mohammad Bashashati, Misha Bawa, Douglas McHugh, Dieter Saur, Huang-Ming Hu, Andreas Zimmer, Beat Lutz, Ken Mackie, Heather B Bradshaw, Donna-Marie McCafferty, Keith A Sharkey, Martin Storr

**Study Type** : Animal Study

### Additional Links

**Substances** : [Cannabinoids](#) : CK(816) : AC(310)

**Diseases** : [Colitis](#) : CK(255) : AC(111), [Inflammation: Neutrophil-Mediated](#) : CK(12) : AC(7)

**Additional Keywords** : [Dose Response](#) : CK(1056) : AC(408)

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# Inflammatory Bowel Diseases (AC 10) (CK 35)

## A cannabis extract with high content in cannabidiol attenuated chemically-induced intestinal inflammation.

**Pubmed Data** : Front Pharmacol. 2016 ;7:341. Epub 2016 Aug 4. PMID: [27757083](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Ester Pagano, Raffaele Capasso, Fabiana Piscitelli, Barbara Romano, Olga A Parisi, Stefania Finizio, Anna Lauritano, Vincenzo Di Marzo, Angelo A Izzo, Francesca Borrelli

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Colitis : CK(255) : AC(111), Gastrointestinal Inflammation : CK(118) : AC(41), Inflammatory Bowel Diseases : CK(1052) : AC(197)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630)

**Additional Keywords** : Plant Extracts : CK(7645) : AC(2539)

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## Cannabichromene could be considered for clinical experimentation in inflammatory bowel disease patients.

**Pubmed Data** : Biochem Pharmacol. 2013 May 1 ;85(9):1306-16. Epub 2013 Feb 12. PMID: [23415610](#)

**Article Published Date** : Apr 30, 2013

**Authors** : Francesca Borrelli, Ines Fasolino, Barbara Romano, Raffaele Capasso, Francesco Maiello, Diana Coppola, Pierangelo Orlando, Giovanni Battista, Ester Pagano, Vincenzo Di Marzo, Angelo A Izzo

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Colitis : CK(255) : AC(111), Inflammatory Bowel Diseases : CK(1052) : AC(197)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Interleukin-10 downregulation : CK(128) : AC(45), Interleukin-1 beta downregulation : CK(478) : AC(205), Nitric Oxide Inhibitor : CK(223) : AC(108), Superoxide Dismutase Up-regulation : CK(530) : AC(174)

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## Cannabichromene exerts anti-inflammatory actions in activated macrophages.

**Pubmed Data** : Br J Pharmacol. 2013 May ;169(1):213-29. PMID: [23373571](#)

**Article Published Date** : Apr 30, 2013

**Authors** : B Romano, F Borrelli, I Fasolino, R Capasso, F Piscitelli, Mg Cascio, Rg Pertwee, D Coppola, L Vassallo, P Orlando, V Di Marzo, Aa Izzo

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : [Cannabinoids](#) : CK(816) : AC(310)

**Diseases** : [Colitis](#) : CK(255) : AC(111), [Inflammation](#) : CK(3240) : AC(882), [Inflammatory Bowel Diseases](#) : CK(1052) : AC(197), [Lipopolysaccharide-Induced Toxicity](#) : CK(380) : AC(218)

**Pharmacological Actions** : [Anti-Inflammatory Agents](#) : CK(4861) : AC(1630)

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## **Cannabidiol reduces intestinal inflammation through the control of neuroimmune axis.**

**Pubmed Data** : PLoS One. 2011 ;6(12):e28159. Epub 2011 Dec 6. PMID: [22163000](#)

**Article Published Date** : Dec 31, 2010

**Authors** : Daniele De Filippis, Giuseppe Esposito, Carla Cirillo, Mariateresa Cipriano, Benedicte Y De Winter, Caterina Scuderi, Giovanni Sarnelli, Rosario Cuomo, Luca Steardo, Joris G De Man, Teresa Iuvone

**Study Type** : Animal Study, Human In Vitro

**Additional Links**

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Inflammation](#) : CK(3240) : AC(882), [Inflammatory Bowel Diseases](#) : CK(1052) : AC(197), [Ulcerative Colitis](#) : CK(347) : AC(69)

**Pharmacological Actions** : [Anti-Inflammatory Agents](#) : CK(4861) : AC(1630), [Tumor Necrosis Factor \(TNF\) Alpha Inhibitor](#) : CK(1823) : AC(669)

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## **Cannabinoids - via direct or indirect activation of CB(1) and/or CB(2) receptors exert protective effects in well-established models of intestinal inflammation and colon cancer.**

**Pubmed Data** : Pharmacol Res. 2009 Aug ;60(2):117-25. Epub 2009 Mar 18. PMID: [19442536](#)

**Article Published Date** : Jul 31, 2009

**Authors** : Angelo A Izzo, Michael Camilleri

**Study Type** : Review

**Additional Links**

**Substances** : [Cannabinoids](#) : CK(816) : AC(310)

**Diseases** : [Colon Cancer](#) : CK(749) : AC(430), [Endocannabinoid System](#) : CK(22) : AC(12), [Gastrointestinal Inflammation](#) : CK(118) : AC(41), [Inflammation](#) : CK(3240) : AC(882), [Inflammatory Bowel Diseases](#) : CK(1052) : AC(197)

**Pharmacological Actions** : [Anti-Inflammatory Agents](#) : CK(4861) : AC(1630), [Anticarcinogenic Agents](#) : CK(1099) : AC(519)

**Additional Keywords** : [Cannabinoid Receptors](#) : CK(67) : AC(37)

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## Cannabinoids could be helpful for certain symptoms of inflammatory bowel diseases.

**Pubmed Data** : Expert Rev Gastroenterol Hepatol. 2017 Apr ;11(4):329-337. Epub 2017 Feb 16. PMID: [28276820](#)

**Article Published Date** : Mar 31, 2017

**Authors** : Carina Hasenoehrl, Martin Storr, Rudolf Schicho

**Study Type** : Review

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Inflammatory Bowel Diseases : CK(1052) : AC(197)

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## Cannabis appears to have some therapeutic value (based on self-reporting) amongst patients with inflammatory bowel disease.

**Pubmed Data** : Eur J Gastroenterol Hepatol. 2011 Jul 26. Epub 2011 Jul 26. PMID: [21795981](#)

**Article Published Date** : Jul 26, 2011

**Authors** : Simon Lal, Neeraj Prasad, Manijeh Ryan, Sabrena Tangri, Mark S Silverberg, Allan Gordon, Hillary Steinhart

**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Inflammatory Bowel Diseases : CK(1052) : AC(197)

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## Evidence is gathering that manipulating the endocannabinoid system can have beneficial effects in inflammatory bowel disease.

**Pubmed Data** : Dig Dis. 2014 ;32(4):468-74. Epub 2014 Jun 23. PMID: [24969296](#)

**Article Published Date** : Dec 31, 2013

**Authors** : Timna Naftali, Raphael Mechulam, Lihi Bar Lev, Fred M Konikoff

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Inflammatory Bowel Diseases : CK(1052) : AC(197)

**Additional Keywords** : Endocannabinoid System : CK(60) : AC(23)

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## In this trial cannabis induced a clinical remission in 50%

## of patients with long standing Crohn's disease with 80% nonresponse or intolerance to anti-TNF- $\alpha$ treatment.

**Pubmed Data** : Clin Gastroenterol Hepatol. 2013 Oct ;11(10):1276-1280.e1. Epub 2013 May 4. PMID: [23648372](#)

**Article Published Date** : Sep 30, 2013

**Authors** : Timna Naftali, Lihi Bar-Lev Schleider, Iris Dotan, Ephraim Philip Lansky, Fabiana Sklerovsky Benjaminov, Fred Meir Konikoff

**Study Type** : Human Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Inflammatory Bowel Diseases : CK(1052) : AC(197)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630)

**Additional Keywords** : Natural Substances Versus Drugs : CK(1698) : AC(302) , Significant Treatment Outcome : CK(3038) : AC(366)

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## THC and cannabidiol may have therapeutic value in reducing damage and inflammation associated with colitis.

**Pubmed Data** : Br J Pharmacol. 2010 Jun;160(3):712-23. PMID: [20590574](#)

**Article Published Date** : Jun 01, 2010

**Authors** : J M Jamontt, A Molleman, R G Pertwee, M E Parsons

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Colitis : CK(255) : AC(111), Inflammatory Bowel Diseases : CK(1052) : AC(197)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630)

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## Influenza (AC 1) (CK 1)

### The present study reviews current insights into the role of cannabinoids and their receptors on viral infections.

**Pubmed Data** : J Med Virol. 2016 Jan ;88(1):1-12. Epub 2015 Jun 25. PMID: [26059175](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Alireza Tahamtan, Masoumeh Tavakoli-Yaraki, Tomasz P Rygiel, Talat Mokhtari-Azad, Vahid Salimi

**Study Type** : Review

**Additional Links**

**Substances** : [Cannabinoids](#) : CK(816) : AC(310)

**Diseases** : [Hepatitis C](#) : CK(474) : AC(87), [Herpes Simplex Virus Type 2](#) : CK(35) : AC(20), [HIV Infections](#) : CK(680) : AC(219), [Influenza](#) : CK(789) : AC(123)

**Pharmacological Actions** : [Anti-Inflammatory Agents](#) : CK(4861) : AC(1630), [Immunomodulatory](#) : CK(1287) : AC(358)

**Additional Keywords** : [Cannabinoid Receptors](#) : CK(67) : AC(37)

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## Insomnia (AC 4) (CK 33)

**Cannabidiol oil could be used as a safe treatment for reducing anxiety and improving sleep in posttraumatic stress disorders.**

**Pubmed Data** : Perm J. 2016 Oct 12 ;20(4). Epub 2016 Aug 12. PMID: [27768570](#)

**Article Published Date** : Oct 11, 2016

**Authors** : Scott Shannon, Janet Opila-Lehman

**Study Type** : Human: Case Report

**Additional Links**

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Anxiety Disorders](#) : CK(1225) : AC(180), [Insomnia](#) : CK(523) : AC(66), [Post-Traumatic Stress Disorders \(PTSD\)](#) : CK(243) : AC(35)

**Pharmacological Actions** : [Anti-Anxiety Agents](#) : CK(356) : AC(59)

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**Cannabis may improve pain, mood and sleep in some patients with chronic pain.**

**Pubmed Data** : Pain Res Manag. 2002 Summer;7(2):95-9. PMID: [12185373](#)

**Article Published Date** : Jun 01, 2002

**Authors** : Mark A Ware, Ann Gamsa, Jan Persson, Mary-Ann Fitzcharles

**Study Type** : Human Study

**Additional Links**

**Substances** : [Marijuana](#) : CK(1952) : AC(456)

**Diseases** : [Insomnia](#) : CK(523) : AC(66), [Pain](#) : CK(880) : AC(142)

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## Cannabis-based medicine is effective in reducing pain and sleep disturbance in patients with multiple sclerosis related central neuropathic pain and is mostly well tolerated.

**Pubmed Data** : Neurology. 2005 Sep 27;65(6):812-9. PMID: [16186518](#)

**Article Published Date** : Sep 27, 2005

**Authors** : David J Rog, Turo J Nurmikko, Tim Friede, Carolyn A Young

**Study Type** : Human Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Insomnia : CK(523) : AC(66) , Multiple Sclerosis : CK(964) : AC(184) , Pain : CK(880) : AC(142), Sleep Disorders : CK(361) : AC(44)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217)

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## Smoked cannabis reduces the intensity of pain and improves sleep in those with chronic neuropathic pain.

**Pubmed Data** : CMAJ. 2010 Oct 5;182(14):E694-701. Epub 2010 Aug 30. PMID: [20805210](#)

**Article Published Date** : Oct 05, 2010

**Authors** : Mark A Ware, Tongtong Wang, Stan Shapiro, Ann Robinson, Thierry Ducruet, Thao Huynh, Ann Gamsa, Gary J Bennett, Jean-Paul Collet

**Study Type** : Human Study

### Additional Links

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Insomnia : CK(523) : AC(66) , Neuropathic Pain : CK(284) : AC(69) , Pain : CK(880) : AC(142)

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## Insulin Resistance (AC 2) (CK 12)

### Cannabis use is associated with a lower insulin resistance risk in HIV-HCV-coinfected patients.

**Pubmed Data** : Clin Infect Dis. 2015 Jul 1 ;61(1):40-8. Epub 2015 Mar 16. PMID: [25778750](#)

**Article Published Date** : Jun 30, 2015

**Authors** : Maria Patrizia Carrieri, Lawrence Serfaty, Antoine Vilotitch, Maria Winnock, Isabelle Poizot-Martin, Marc-Arthur Loko, Caroline Lions, Caroline Lascoux-Combe, Perrine Roux, Dominique Salmon-Ceron, Bruno Spire, Francois Dabis,

**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Hepatitis C : CK(474) : AC(87) , HIV Infections : CK(680) : AC(219) , Insulin Resistance : CK(1683) : AC(346)

**Additional Keywords** : Risk Reduction : CK(6417) : AC(686)

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## Tetrahydrocannabivarin is a new potential treatment against obesity-associated glucose intolerance.

**Pubmed Data** : Nutr Diabetes. 2013 ;3:e68. Epub 2013 May 27. PMID: [23712280](#)

**Article Published Date** : Dec 31, 2012

**Authors** : E T Wargent, M S Zaibi, C Silvestri, D C Hislop, C J Stocker, C G Stott, G W Guy, M Duncan, V Di Marzo, M A Cawthorne

**Study Type** : Animal Study, In Vitro Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Insulin Resistance : CK(1683) : AC(346) , Metabolic Diseases : CK(411) : AC(75) , Obesity : CK(2443) : AC(521)

**Pharmacological Actions** : Hypoglycemic Agents : CK(1446) : AC(342)

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## Interstitial Lung Diseases (AC 1) (CK 2)

### Cannabidiol might become a useful therapeutic tool for the attenuation and treatment of inflammatory lung diseases.

**Pubmed Data** : Immunopharmacol Immunotoxicol. 2015 Feb ;37(1):35-41. Epub 2014 Oct 30. PMID: [25356537](#)

**Article Published Date** : Jan 31, 2015

**Authors** : A Ribeiro, V I Almeida, C Costola-de-Souza, V Ferraz-de-Paula, M L Pinheiro, L B Vitoretti, J A Gimenes-Junior, A T Akamine, J A Crippa, W Tavares-de-Lima, J Palermo-Neto

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Interstitial Lung Diseases : CK(63) : AC(11) , Lipopolysaccharide-Induced Toxicity : CK(380) : AC(218)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630) , Interleukin-6 Downregulation : CK(1137) : AC(354) , Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) :

## Intestinal Permeability (AC 1) (CK 1)

### Cannabinoids may have therapeutic potential in the treatment of intestinal permeability.

**Pubmed Data** : J Pharmacol Exp Ther. 2010 Jun 30. Epub 2010 Jun 30. PMID: [20592049](#)

**Article Published Date** : Jun 30, 2010

**Authors** : A Alhamoruni, A C Lee, K L Wright, M Larvin, S E O'Sullivan

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Marijuana : CK(1952) : AC(456)

**Diseases** : Intestinal Permeability : CK(245) : AC(60)

## Iron Overload (AC 1) (CK 2)

### Cannabidiol normalizes caspase 3, synaptophysin, and mitochondrial fission protein DNM1L expression levels in rats with brain iron overload.

**Pubmed Data** : Mol Neurobiol. 2014 Feb ;49(1):222-33. Epub 2013 Jul 28. PMID: [23893294](#)

**Article Published Date** : Jan 31, 2014

**Authors** : Vanessa Kappel da Silva, Betânia Souza de Freitas, Arethuza da Silva Dornelles, Laura Roesler Nery, Lucio Falavigna, Rafael Dal Ponte Ferreira, Maurício Reis Bogo, Jaime Eduardo Cecílio Hallak, Antônio Waldo Zuardi, José Alexandre S Crippa, Nadja Schröder

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Iron Overload : CK(32) : AC(18) , Neurodegenerative Diseases : CK(3582) : AC(932)

**Pharmacological Actions** : Anti-Apoptotic : CK(384) : AC(212) , Neuroprotective Agents : CK(2360) : AC(1099)

## Ischemia (AC 1) (CK 2)

### Cannabidiol treatment had a protective effect against inflammation and oxidative damage in the kidney ischemia/reperfusion model.

**Pubmed Data** : Rev Bras Ter Intensiva. 2015 Dec ;27(4):383-389. PMID: [26761477](#)

**Article Published Date** : Nov 30, 2015

**Authors** : Rodrigo Zon Soares, Francieli Vuolo, Dhébora Mozena Dall'Igna, Monique Michels, José Alexandre de Souza Crippa, Jaime Eduardo Cecílio Hallak, Antonio Waldo Zuardi, Felipe Dal-Pizzol

**Study Type** : Animal Study

#### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Ischemia : CK(76) : AC(38)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Antioxidants : CK(8430) : AC(3132), Renoprotective : CK(572) : AC(254)

## Kaposi Disease (AC 1) (CK 1)

### CBD could preferentially induce apoptosis and attenuate the proliferation of KSHV-infected HMVECs.

**Pubmed Data** : Genes Cancer. 2012 Jul ;3(7-8):512-20. PMID: [23264851](#)

**Article Published Date** : Jun 30, 2012

**Authors** : Yehoshua Maor, Jinlong Yu, Paula M Kuzontkoski, Bruce J Dezube, Xuefeng Zhang, Jerome E Groopman

**Study Type** : In Vitro Study

#### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Herpes: Kaposi-Associated : CK(1) : AC(1), Kaposi Disease : CK(2) : AC(4)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

# Kaposi's Sarcoma (AC 1) (CK 1)

## THC, the compound in cannabis, inhibits replication of Epstein-Barr and Kaposi's Sarcoma Associated Herpesvirus in vitro.

**Pubmed Data** : BMC Med. 2004 Sep 15;2:34. Epub 2004 Sep 15. PMID: [15369590](#)

**Article Published Date** : Sep 15, 2004

**Authors** : Maria M Medveczky, Tracy A Sherwood, Thomas W Klein, Herman Friedman, Peter G Medveczky

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Epstein-Barr Virus Infections : CK(132) : AC(47) , Herpes family viruses : CK(1152) : AC(219), Kaposi's Sarcoma : CK(2) : AC(2) , Oncovirus : CK(4) : AC(4)

**Pharmacological Actions** : Antiviral Agents : CK(938) : AC(433)

# Leishmaniasis (AC 1) (CK 1)

## Biologically active cannabinoids from high-potency Cannabis sativa displayed significant antibacterial and antifungal activities.

**Pubmed Data** : J Nat Prod. 2009 May 22 ;72(5):906-11. PMID: [19344127](#)

**Article Published Date** : May 21, 2009

**Authors** : Mohamed M Radwan, Mahmoud A Elsohly, Desmond Slade, Safwat A Ahmed, Ikhlas A Khan, Samir A Ross

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Candida Infection : CK(241) : AC(112), Leishmaniasis : CK(53) : AC(36), Pseudomonas aeruginosa : CK(115) : AC(73), Staphylococcus aureus: Methicillin-resistant (MRSA) : CK(257) : AC(103)

**Pharmacological Actions** : Anti-Bacterial Agents : CK(1367) : AC(475) , Antifungal Agents : CK(234) : AC(146)

## Leukemia (AC 4) (CK 4)

**In the current study we demonstrated that cannabidiol can induce apoptosis in murine as well as human leukemia cells.**

**Pubmed Data** : Mol Pharmacol. 2006 Sep ;70(3):897-908. Epub 2006 Jun 5. PMID: [16754784](#)

**Article Published Date** : Aug 31, 2006

**Authors** : Robert J McKallip, Wentao Jia, Jerome Schlomer, James W Warren, Prakash S Nagarkatti, Mitzi Nagarkatti

**Study Type** : In Vitro Study

### **Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Leukemia : CK(1005) : AC(398)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075), Caspase-3 Activation : CK(91) : AC(66), Caspase-8 activation : CK(27) : AC(6), Caspase-9 Activation : CK(30) : AC(19), NADPH Oxidase Inhibitors : CK(1) : AC(1)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

**Results show that stimulation of the CB2 receptor leads to p38 MAPK activation and that inhibition of this kinase attenuates CB2 receptor induced caspase activation and apoptosis.**

**Pubmed Data** : FEBS Lett. 2005 Sep 12 ;579(22):5084-8. PMID: [16139274](#)

**Article Published Date** : Sep 11, 2005

**Authors** : Blanca Herrera, Arkaitz Carracedo, María Diez-Zaera, Manuel Guzmán, Guillermo Velasco

**Study Type** : In Vitro Study

### **Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Leukemia : CK(1005) : AC(398)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075), P38 Mitogen-Activated Protein Kinase Modulator : CK(6) : AC(5)

**THC, the active metabolite of cannabis potently induces**

## programmed cell death in leukemic cell lines.

**Pubmed Data** : BMC Immunol. 2009;10:12. Epub 2009 Feb 20. PMID: [15454482](#)

**Article Published Date** : Jan 01, 2009

**Authors** : Thomas Powles, Robert te Poele, Jonathan Shamash, Tracy Chaplin, David Propper, Simon Joel, Tim Oliver, Wai Man Liu

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Marijuana : CK(1952) : AC(456)

**Diseases** : Leukemia : CK(1005) : AC(398)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075)

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## data suggest that the intrinsic pathway plays a more critical role in THC-induced apoptosis while the extrinsic pathway may facilitate apoptosis via cross-talk with the intrinsic pathway.

**Pubmed Data** : Leuk Res. 2005 Aug ;29(8):915-22. Epub 2005 Mar 2. PMID: [15978942](#)

**Article Published Date** : Jul 31, 2005

**Authors** : Catherine Lombard, Mitzi Nagarkatti, Prakash S Nagarkatti

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Leukemia : CK(1005) : AC(398)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639) , Apoptotic : CK(2958) : AC(2075)

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## Leukemia: T-cell acute Lymphoblastic (AC 1) (CK 1)

## Cannabinoids reduce multidrug resistance in a human T lymphoblastoid leukaemia cell line.

**Pubmed Data** : Biochem Pharmacol. 2006 Apr 14;71(8):1146-54. Epub 2006 Feb 2. PMID: [16458258](#)

**Article Published Date** : Apr 14, 2006

**Authors** : M L Holland, J A Panetta, J M Hoskins, M Bebawy, B D Roufogalis, J D Allen, J C Arnold

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Cancers: Drug Resistant : CK(352) : AC(223) , Cancers: Multi-Drug Resistant : CK(121) : AC(94), Leukemia: T-cell acute Lymphoblastic : CK(21) : AC(11)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639)

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## Lipid Peroxidation (AC 1) (CK 2)

**A hemp seed meal protein hydrolysate contained antioxidant peptides that reduced the rate of lipid peroxidation in spontaneously hypertensive rats.**

**Pubmed Data** : Nutrients. 2014 Dec ;6(12):5652-66. PMID: [25493943](#)

**Article Published Date** : Nov 30, 2014

**Authors** : Abraham T Girgih, Adeola M Alashi, Rong He, Sunday A Malomo, Pema Raj, Thomas Netticadan, Rotimi E Aluko

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408), Hemp Seed : CK(446) : AC(5)

**Diseases** : Hypertension : CK(2984) : AC(406), Lipid Peroxidation : CK(695) : AC(255), Oxidative Stress : CK(3871) : AC(1382)

**Pharmacological Actions** : Antioxidants : CK(8430) : AC(3132), Catalase Up-Regulation : CK(118) : AC(42), Superoxide Dismutase Up-regulation : CK(530) : AC(174)

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## Lipopolysaccharide-Induced Toxicity (AC 5) (CK 8)

**Cannabichromene exerts anti-inflammatory actions in activated macrophages.**

**Pubmed Data** : Br J Pharmacol. 2013 May ;169(1):213-29. PMID: [23373571](#)



**Article Published Date** : Apr 30, 2013

**Authors** : B Romano, F Borrelli, I Fasolino, R Capasso, F Piscitelli, Mg Cascio, Rg Pertwee, D Coppola, L Vassallo, P Orlando, V Di Marzo, Aa Izzo

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Colitis : CK(255) : AC(111), Inflammation : CK(3240) : AC(882), Inflammatory Bowel Diseases : CK(1052) : AC(197), Lipopolysaccharide-Induced Toxicity : CK(380) : AC(218)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630)

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## Cannabidiol has a neuroprotective effect in endotoxin-induced uveitis.

**Pubmed Data** : Mol Vis. 2008;14:2190-203. Epub 2008 Dec 3. PMID: [19052649](#)

**Article Published Date** : Jan 01, 2008

**Authors** : A B El-Remessy, Y Tang, G Zhu, S Matragoon, Y Khalifa, E K Liu, J-Y Liu, E Hanson, S Mian, N Fatteh, G I Liou

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408)

**Diseases** : Brain: Microglial Activation : CK(82) : AC(53), Endotoxemia : CK(83) : AC(43), Lipopolysaccharide-Induced Toxicity : CK(380) : AC(218), Oxidative Stress : CK(3871) : AC(1382), Uveitis : CK(91) : AC(17)

**Pharmacological Actions** : Enzyme Inhibitors : CK(473) : AC(251), Neuroprotective Agents : CK(2360) : AC(1099), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

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## Cannabidiol might become a useful therapeutic tool for the attenuation and treatment of inflammatory lung diseases.

**Pubmed Data** : Immunopharmacol Immunotoxicol. 2015 Feb ;37(1):35-41. Epub 2014 Oct 30. PMID: [25356537](#)

**Article Published Date** : Jan 31, 2015

**Authors** : A Ribeiro, V I Almeida, C Costola-de-Souza, V Ferraz-de-Paula, M L Pinheiro, L B Vitoretti, J A Gimenes-Junior, A T Akamine, J A Crippa, W Tavares-de-Lima, J Palermo-Neto

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Interstitial Lung Diseases : CK(63) : AC(11), Lipopolysaccharide-Induced Toxicity : CK(380) : AC(218)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Interleukin-6 Downregulation : CK(1137) : AC(354), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

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## Cannabinoids may have therapeutic value in neurodegenerative conditions by preventing and/or reducing neuroinflammation.

**Pubmed Data** : Neuroscience. 2007 Feb 23 ;144(4):1516-22. Epub 2006 Dec 18. PMID: [17178196](#)

**Article Published Date** : Feb 22, 2007

**Authors** : Y Marchalant, S Rosi, G L Wenk

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Brain: Microglial Activation : CK(82) : AC(53), Brain Inflammation : CK(274) : AC(145), Lipopolysaccharide-Induced Toxicity : CK(380) : AC(218), Memory Disorders : CK(344) : AC(104)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217), Anti-Inflammatory Agents : CK(4861) : AC(1630), Neuroprotective Agents : CK(2360) : AC(1099)

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## JWH-015, THC, CBD, Abn-CBD and O-1602 all protected SH-SY5Y cells from BV-2 conditioned media activated via LPS.

**Pubmed Data** : Cell Mol Neurobiol. 2014 Jan ;34(1):31-42. Epub 2013 Sep 13. PMID: [24030360](#)

**Article Published Date** : Dec 31, 2013

**Authors** : Emelie Janefjord, Jesper L V Mååg, Benjamin S Harvey, Scott D Smid

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342), Lignans : CK(169) : AC(46)

**Diseases** : Brain: Microglial Activation : CK(82) : AC(53), Lipopolysaccharide-Induced Toxicity : CK(380) : AC(218)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

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## Liver Cancer (AC 3) (CK 4)

### Cannabinoids have anti-tumoral action against liver cancer.

**Pubmed Data** : Iran J Allergy Asthma Immunol. 2010 Sep;9(3):157-62. PMID: [21475304](#)

**Article Published Date** : Sep 01, 2010

**Authors** : D Vara, M Salazar, N Olea-Herrero, M Guzmán, G Velasco, I Díaz-Laviada

**Study Type** : Transgenic Animal Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Liver Cancer : CK(1235) : AC(462)

**Pharmacological Actions** : Anti-Tumor : CK(146) : AC(73), Autophagy Up-regulation : CK(108) : AC(65)

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## **Cannabisin B, a bioactive compound from hempseed hull, possesses antiproliferative activity in human hepatocarcinoma HepG2 cells.**

**Pubmed Data** : Food Chem. 2013 Jun 1 ;138(2-3):1034-41. Epub 2012 Dec 5. PMID: [23411211](#)

**Article Published Date** : May 31, 2013

**Authors** : Tianpeng Chen, Jianxiong Hao, Jinfeng He, Jianchun Zhang, Yingcong Li, Rui Liu, Lite Li

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408), Hemp Seed : CK(446) : AC(5)

**Diseases** : Liver Cancer : CK(1235) : AC(462)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Cell cycle arrest : CK(810) : AC(612), Chemopreventive : CK(2835) : AC(787)

**Additional Keywords** : Dose Response : CK(1056) : AC(408), Plant Extracts : CK(7645) : AC(2539)

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## **Preclinical and clinical assessment of cannabinoids as anti-cancer agents.**

**Pubmed Data** : Front Pharmacol. 2016 ;7:361. Epub 2016 Oct 7. PMID: [27774065](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Daniel A Ladin, Eman Soliman, LaToya Griffin, Rukiyah Van Dross

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33), Cannabis : CK(1776) : AC(408)

**Diseases** : Breast Cancer : CK(3592) : AC(1064), Colorectal Cancer : CK(1646) : AC(619), Glioma : CK(177) : AC(86), Liver Cancer : CK(1235) : AC(462), Lung Cancer : CK(1043) : AC(393), Melanoma : CK(285) : AC(149), Pancreatic Cancer : CK(890) : AC(260), Prostate Cancer : CK(1586) : AC(463), Skin Cancer : CK(736) : AC(293), Thyroid Cancer : CK(237) : AC(55)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Anticarcinogenic Agents : CK(1099) : AC(519), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

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**Liver Damage (AC 1) (CK 2)**

## Liver Damage (AC 1) (CK 2)

### Cannabidiol exhibits therapeutic potential against ischemia/reperfusion liver injury in rats.

**Pubmed Data** : Eur J Pharmacol. 2011 Nov 16 ;670(1):216-23. Epub 2011 Sep 14. PMID: [21930120](#)

**Article Published Date** : Nov 16, 2011

**Authors** : Amr A Fouad, Iyad Jresat

**Study Type** : Animal Study

**Additional Links**

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Liver Damage](#) : CK(877) : AC(329), [Liver Injury: Ischemia/reperfusion](#) : CK(19) : AC(10)

**Pharmacological Actions** : [Liver Injury: Ischemia/reperfusion](#) : CK(19) : AC(10)

---

## Liver Disease (AC 1) (CK 2)

### Cannabidiol, a non-psychoactive component from Cannabis sativa, may have a therapeutic role in ameliorating cognitive and motor impairments associated with chronic liver disease.

**Pubmed Data** : J Hepatol. 2009 Sep;51(3):528-34. Epub 2009 May 27. PMID: [19596476](#)

**Article Published Date** : Sep 01, 2009

**Authors** : Iddo Magen, Yosefa Avraham, Zvi Ackerman, Lia Vorobiev, Raphael Mechoulam, Elliot M Berry

**Study Type** : Animal Study

**Additional Links**

**Substances** : [Marijuana](#) : CK(1952) : AC(456)

**Diseases** : [Liver Disease](#) : CK(145) : AC(41)

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## Liver Failure: Acute (AC 1) (CK 2)

## Cannabidiol improves brain and liver function in a fulminant hepatic failure-induced model of hepatic encephalopathy in mice.

**Pubmed Data** : Br J Pharmacol. 2010 Dec 23. Epub 2010 Dec 23. PMID: [21182490](#)

**Article Published Date** : Dec 23, 2010

**Authors** : Y Avraham, Nc Grigoriadis, T Poutahidis, L Vorobiev, I Magen, Y Ilan, R Mechoulam, Em Berry

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408)

**Diseases** : Fulminant Hepatic Failure : CK(4) : AC(2) , Hepatic Encephalopathy : CK(46) : AC(10) , Liver Failure: Acute : CK(8) : AC(4)

**Pharmacological Actions** : Liver Failure: Acute : CK(8) : AC(4) , Neuroprotective Agents : CK(2360) : AC(1099)

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## Liver Fibrosis (AC 1) (CK 1)

### Cannabidiol has a potential therapeutic agent for the treatment of liver fibrosis.

**Pubmed Data** : Cell Death Dis. 2011 ;2:e170. Epub 2011 Jun 9. PMID: [21654828](#)

**Article Published Date** : Jan 01, 2011

**Authors** : M P Lim, L A Devi, R Rozenfeld

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Liver Fibrosis : CK(246) : AC(104)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075)

---

## Liver Injury: Ischemia/reperfusion (AC 1) (CK 2)

## Cannabidiol exhibits therapeutic potential against ischemia/reperfusion liver injury in rats.

**Pubmed Data** : Eur J Pharmacol. 2011 Nov 16 ;670(1):216-23. Epub 2011 Sep 14. PMID: [21930120](#)

**Article Published Date** : Nov 16, 2011

**Authors** : Amr A Fouad, Iyad Jresat

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Liver Damage : CK(877) : AC(329), Liver Injury: Ischemia/reperfusion : CK(19) : AC(10)

**Pharmacological Actions** : Liver Injury: Ischemia/reperfusion : CK(19) : AC(10)

## Low Immune Function: Splenic Dysfunction (AC 1) (CK 2)

### Hemp seed protein has an immunomodulatory and antifatigue effect in mice.

**Pubmed Data** : Wei Sheng Yan Jiu. 2008 Mar;37(2):175-8. PMID: [18589601](#)

**Article Published Date** : Mar 01, 2008

**Authors** : Yongjin Li, Ruiyue Yang, Xuefeng Hu, Zhu Long, et al

**Study Type** : Animal Study

**Additional Links**

**Substances** : Hemp Protein : CK(3) : AC(2), Hemp Seed : CK(446) : AC(5)

**Diseases** : Fatigue : CK(312) : AC(49), Immune Disorders: Low Immune Function : CK(489) : AC(118), Low Immune Function: Splenic Dysfunction : CK(11) : AC(6)

## Lung Cancer (AC 11) (CK 14)

### A nanoformulation of THC revealed a statistically

## significant selective cytotoxic effect towards lung cancer cell lines.

**Pubmed Data** : Int J Pharm. 2015 Jun 20 ;487(1-2):205-12. Epub 2015 Apr 18. PMID: [25899283](#)

**Article Published Date** : Jun 19, 2015

**Authors** : L Martín-Banderas, I Muñoz-Rubio, J Prados, J Álvarez-Fuentes, J M Calderón-Montaño, M López-Lázaro, J L Arias, M C Leiva, M A Holgado, M Fernández-Arévalo

**Study Type** : Animal Study, In Vitro Study

### Additional Links

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Lung Cancer : CK(1043) : AC(393)

**Pharmacological Actions** : Cytotoxic : CK(76) : AC(60)

**Additional Keywords** : Nanoparticles : CK(2) : AC(1) , Selective Cytotoxicity : CK(158) : AC(112)

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## A review of the antiproliferative effects of cannabinoids on cancer cells.

**Pubmed Data** : Mini Rev Med Chem. 2005 Oct ;5(10):941-52. PMID: [16250836](#)

**Article Published Date** : Sep 30, 2005

**Authors** : Natalya M Kogan

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Breast Cancer : CK(3592) : AC(1064) , Glioma : CK(177) : AC(86) , Lung Cancer : CK(1043) : AC(393)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639) , Antiproliferative : CK(2546) : AC(1685)

---

## Anti-migratory effects were confirmed for cannabinoid-treated lung cancer cell lines (H460 and H358).

**Pubmed Data** : Biochem Pharmacol. 2014 Sep 15 ;91(2):202-16. Epub 2014 Jun 26. PMID: [24976505](#)

**Article Published Date** : Sep 14, 2014

**Authors** : Robert Ramer, Sascha Fischer, Maria Haustein, Katrin Manda, Burkhard Hinz

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Lung Cancer : CK(1043) : AC(393)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62) , Anti-metastatic : CK(634) : AC(414) , Matrix metalloproteinase-1 (MMP-1) inhibitor : CK(32) : AC(16)

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## Cannabidiol exhibits anti-invasive action on human lung cancer cells.

**Pubmed Data** : Pharm Res. 2010 Oct;27(10):2162-74. Epub 2010 Jul 29. PMID: [20668920](#)

**Article Published Date** : Oct 01, 2010

**Authors** : Robert Ramer, Anja Rohde, Jutta Merkord, Helga Rohde, Burkhard Hinz

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408)

**Diseases** : Cancer Metastasis : CK(442) : AC(206), Lung Cancer : CK(1043) : AC(393)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414)

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## Cannabidiol inhibits cancer cell invasion via upregulation of tissue inhibitor of matrix metalloproteinases-1.

**Pubmed Data** : Biochem Pharmacol. 2010 Apr 1;79(7):955-66. Epub 2009 Nov 13. PMID: [19914218](#)

**Article Published Date** : Apr 01, 2010

**Authors** : Robert Ramer, Jutta Merkord, Helga Rohde, Burkhard Hinz

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408)

**Diseases** : Cancer Metastasis : CK(442) : AC(206), Lung Cancer : CK(1043) : AC(393)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639), Matrix metalloproteinase-1 (MMP-1) inhibitor : CK(32) : AC(16)

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## Cannabidiol inhibits lung cancer cell invasion and metastasis via intercellular adhesion molecule-1.

**Pubmed Data** : FASEB J. 2012 Apr ;26(4):1535-48. Epub 2011 Dec 23. PMID: [22198381](#)

**Article Published Date** : Apr 01, 2012

**Authors** : Robert Ramer, Katharina Bublitz, Nadine Freimuth, Jutta Merkord, Helga Rohde, Maria Haustein, Philipp Borchert, Ellen Schmuhl, Michael Linnebacher, Burkhard Hinz

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Cancer Metastasis : CK(442) : AC(206), Lung Cancer : CK(1043) : AC(393)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414), Intracellular adhesion molecule-1 (ICAM-1) : CK(4) : AC(3)

---

## Cannabinoids could be used for the inhibition of tumor growth in a clinical setting.



**Pubmed Data** : Cancer Res. 2008 Jan 15 ;68(2):339-42. PMID: [18199524](#)

**Article Published Date** : Jan 14, 2008

**Authors** : Sami Sarfaraz, Vaqar M Adhami, Deeba N Syed, Farrukh Afaq, Hasan Mukhtar

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Breast Cancer : CK(3592) : AC(1064), Cancers: All : CK(14773) : AC(4596), Glioblastoma Multiforme : CK(200) : AC(88), Lung Cancer : CK(1043) : AC(393), Lymphoma : CK(253) : AC(83), Pancreatic Cancer : CK(890) : AC(260), Prostate Cancer : CK(1586) : AC(463), Skin Cancer : CK(736) : AC(293)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

**Additional Keywords** : Higher Dose Better Than Lower Dose : CK(2) : AC(2)

---

## Preclinical and clinical assessment of cannabinoids as anti-cancer agents.

**Pubmed Data** : Front Pharmacol. 2016 ;7:361. Epub 2016 Oct 7. PMID: [27774065](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Daniel A Ladin, Eman Soliman, LaToya Griffin, Rukiyah Van Dross

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33), Cannabis : CK(1776) : AC(408)

**Diseases** : Breast Cancer : CK(3592) : AC(1064), Colorectal Cancer : CK(1646) : AC(619), Glioma : CK(177) : AC(86), Liver Cancer : CK(1235) : AC(462), Lung Cancer : CK(1043) : AC(393), Melanoma : CK(285) : AC(149), Pancreatic Cancer : CK(890) : AC(260), Prostate Cancer : CK(1586) : AC(463), Skin Cancer : CK(736) : AC(293), Thyroid Cancer : CK(237) : AC(55)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Anticarcinogenic Agents : CK(1099) : AC(519), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

---

## This is the first report to provide an inhibitor-proven tumor-regressive mechanism of Cannabidiol.

**Pubmed Data** : Mol Cancer Ther. 2013 Jan ;12(1):69-82. Epub 2012 Dec 7. PMID: [23220503](#)

**Article Published Date** : Dec 31, 2012

**Authors** : Robert Ramer, Katharina Heinemann, Jutta Merkord, Helga Rohde, Achim Salamon, Michael Linnebacher, Burkhard Hinz

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Lung Cancer : CK(1043) : AC(393)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639), Apoptotic : CK(2958) : AC(2075)

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## This study demonstrated cannabinoid induced upregulation of ICAM-1 on lung cancer cells to be responsible for increased cancer cell lysis by LAK cells.

**Pubmed Data** : Biochem Pharmacol. 2014 Nov 15 ;92(2):312-25. Epub 2014 Jul 25. PMID: [25069049](#)

**Article Published Date** : Nov 14, 2014

**Authors** : Maria Haustein, Robert Ramer, Michael Linnebacher, Katrin Manda, Burkhard Hinz

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Lung Cancer : CK(1043) : AC(393)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414), Anti-Tumor : CK(146) : AC(73), Apoptotic : CK(2958) : AC(2075)

**Additional Keywords** : Lymphokine-activated Killer Cells : CK(1) : AC(1)

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## This study demonstrates that AEA, THC, and HU 210 are all able to cause changes in integrated mitochondrial function, directly, in the absence of cannabinoid receptors.

**Pubmed Data** : Biochem Biophys Res Commun. 2007 Dec 7 ;364(1):131-7. Epub 2007 Oct 2. PMID: [17931597](#)

**Article Published Date** : Dec 06, 2007

**Authors** : Andriani Athanasiou, Anna B Clarke, Amy E Turner, Nethia M Kumaran, Sara Vakilpour, Paul A Smith, Dimitra Bagiokou, Tracey D Bradshaw, Andrew D Westwell, Lin Fang, Dileep N Lobo, Cris S Constantinescu, Vittorio Calabrese, Andrzej Loesch, Stephen P H Alexander, Richard H Clothier, David A Kendall, Timothy E Bates

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Anandamide : CK(2) : AC(2), Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Carcinoma: Non-Small-Cell Lung : CK(134) : AC(71), Lung Cancer : CK(1043) : AC(393)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075)

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**Lung Inflammation (AC 1) (CK 2)**

## THC treatment led to 100% survival of mice due to its potent anti-inflammatory action that suppressed SEB-induced pulmonary inflammation.

**Pubmed Data** : Br J Pharmacol. 2015 Apr ;172(7):1792-806. Epub 2015 Feb 10. PMID: [25425209](#)

**Article Published Date** : Mar 31, 2015

**Authors** : R Rao, P S Nagarkatti, M Nagarkatti

**Study Type** : Animal Study

### Additional Links

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Lung Inflammation : CK(11) : AC(6) , Staphylococcus aureus infection : CK(188) : AC(125)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630) , MicroRNA modulator : CK(264) : AC(145)

**Additional Keywords** : Significant Treatment Outcome : CK(3038) : AC(366)

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## Lymphoma (AC 4) (CK 17)

### Cannabinoid receptor ligands induce decreased viability, growth suppression and cell death by apoptosis in MCL cells.

**Pubmed Data** : FEBS Lett. 2005 Dec 19 ;579(30):6885-9. PMID: [16337199](#)

**Article Published Date** : Dec 18, 2005

**Authors** : Jenny Flygare, Kristin Gustafsson, Eva Kimby, Birger Christensson, Birgitta Sander

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Anandamide : CK(2) : AC(2) , Cannabinoids : CK(816) : AC(310) , Cannabinoids: Synthetic : CK(78) : AC(33)

**Diseases** : Breast Cancer : CK(3592) : AC(1064) , Lymphoma : CK(253) : AC(83)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685) , Apoptotic : CK(2958) : AC(2075)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

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### Cannabinoids could be used for the inhibition of tumor growth in a clinical setting.

**Pubmed Data** : Cancer Res. 2008 Jan 15 ;68(2):339-42. PMID: [18199524](#)

**Article Published Date** : Jan 14, 2008

**Authors** : Sami Sarfaraz, Vaqar M Adhami, Deeba N Syed, Farrukh Afaq, Hasan Mukhtar

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Breast Cancer : CK(3592) : AC(1064), Cancers: All : CK(14773) : AC(4596), Glioblastoma Multiforme : CK(200) : AC(88), Lung Cancer : CK(1043) : AC(393), Lymphoma : CK(253) : AC(83), Pancreatic Cancer : CK(890) : AC(260), Prostate Cancer : CK(1586) : AC(463), Skin Cancer : CK(736) : AC(293)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

**Additional Keywords** : Higher Dose Better Than Lower Dose : CK(2) : AC(2)

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## Cannabinoids may have a therapeutic role to play in treating mantle cell lymphoma.

**Pubmed Data** : Mol Cancer Res. 2009 Jul;7(7):1086-98. PMID: [19609004](#)

**Article Published Date** : Jul 01, 2009

**Authors** : Kristin Gustafsson, Birgitta Sander, Jacek Bielawski, Yusuf A Hannun, Jenny Flygare

**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Lymphoma : CK(253) : AC(83), Lymphoma: Mantle Cell : CK(35) : AC(8)

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## The present data suggest that targeting CB(1)/CB(2) may have therapeutic potential for the treatment of mantle cell lymphoma.

**Pubmed Data** : Mol Pharmacol. 2006 Nov ;70(5):1612-20. Epub 2006 Aug 25. PMID: [16936228](#)

**Article Published Date** : Oct 31, 2006

**Authors** : Kristin Gustafsson, Birger Christensson, Birgitta Sander, Jenny Flygare

**Study Type** : Human In Vitro

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33)

**Diseases** : Lymphoma : CK(253) : AC(83)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075), P38 Mitogen-Activated Protein Kinase Modulator : CK(6) : AC(5)

**Additional Keywords** : Selective Cytotoxicity : CK(158) : AC(112)

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**Lymphoma: Mantle Cell (AC 1) (CK 10)**

## Cannabinoids may have a therapeutic role to play in treating mantle cell lymphoma.

**Pubmed Data** : Mol Cancer Res. 2009 Jul;7(7):1086-98. PMID: [19609004](#)

**Article Published Date** : Jul 01, 2009

**Authors** : Kristin Gustafsson, Birgitta Sander, Jacek Bielawski, Yusuf A Hannun, Jenny Flygare

**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Lymphoma : CK(253) : AC(83) , Lymphoma: Mantle Cell : CK(35) : AC(8)

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## Malaria (AC 1) (CK 2)

**Our results indicate that CBD exhibits neuroprotective effects in a cerebral malaria model and might be useful as an adjunctive therapy to prevent neurological symptoms.**

**Pubmed Data** : Neuroscience. 2015 Mar 19 ;289:166-80. Epub 2015 Jan 13. PMID: [25595981](#)

**Article Published Date** : Mar 18, 2015

**Authors** : A C Campos, F Brant, A S Miranda, F S Machado, A L Teixeira

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Malaria : CK(145) : AC(58)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630) , Interleukin-6 Downregulation : CK(1137) : AC(354) , Neuroprotective Agents : CK(2360) : AC(1099) , Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

**Additional Keywords** : Malaria Complications : CK(2) : AC(1)

---

## Marijuana Addiction/Withdrawal (AC 3) (CK 21)

## Cannabidiol has antipsychotic properties which balance out the psychotomimetic effects of THC in cannabis.

**Pubmed Data** : Br J Psychiatry. 2008 Apr;192(4):306-7. PMID: [18378995](#)

**Article Published Date** : Apr 01, 2008

**Authors** : Celia J A Morgan, H Valerie Curran

**Study Type** : Human Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Delirium: Drug-Induced : CK(26) : AC(6) , Marijuana Addiction/Withdrawal : CK(44) : AC(7)

**Additional Keywords** : The Whole is Superior to the Monochemical Part : CK(16) : AC(5) , Whole Food Balance : CK(10) : AC(1)

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## Cannabidiol levels in different strains of cannabis may determine the degree to which THC interferes with memory in users.

**Pubmed Data** : Br J Psychiatry. 2010 Oct;197(4):285-90. PMID: [20884951](#)

**Article Published Date** : Oct 01, 2010

**Authors** : Celia J A Morgan, Gráinne Schafer, Tom P Freeman, H Valerie Curran

**Study Type** : Human Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408)

**Diseases** : Marijuana Addiction/Withdrawal : CK(44) : AC(7), Memory Disorders : CK(344) : AC(104)

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## The ratio of cannabidiol and THC in cannabis varieties may largely determine its addictive potential or properties.

**Pubmed Data** : Neuropsychopharmacology. 2010 Aug;35(9):1879-85. Epub 2010 Apr 28. PMID: [20428110](#)

**Article Published Date** : Aug 01, 2010

**Authors** : Celia J A Morgan, Tom P Freeman, Gráinne L Schafer, H Valerie Curran

**Study Type** : Review

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Marijuana Addiction/Withdrawal : CK(44) : AC(7)

---

# Melanoma (AC 3) (CK 4)

## Cannabinoid-induced cytotoxic autophagy as an effective strategy to drive melanoma cell death.

**Pubmed Data** : J Invest Dermatol. 2015 Jun ;135(6):1629-37. Epub 2015 Feb 10. PMID: [25674907](#)

**Article Published Date** : May 31, 2015

**Authors** : Jane L Armstrong, David S Hill, Christopher S McKee, Sonia Hernandez-Tiedra, Mar Lorente, Israel Lopez-Valero, Maria Eleni Anagnostou, Fiyinfoluwa Babatunde, Marco Corazzari, Christopher P F Redfern, Guillermo Velasco, Penny E Lovat

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Melanoma : CK(285) : AC(149), Skin Cancer : CK(736) : AC(293)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

**Additional Keywords** : Plant Extracts : CK(7645) : AC(2539)

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## Cannabinoids inhibit the growth of melanoma cells but not of normal melanocytes.

**Pubmed Data** : FASEB J. 2006 Dec ;20(14):2633-5. Epub 2006 Oct 25. PMID: [17065222](#)

**Article Published Date** : Nov 30, 2006

**Authors** : Cristina Blázquez, Arkaitz Carracedo, Lucía Barrado, Pedro José Real, José Luis Fernández-Luna, Guillermo Velasco, Marcos Malumbres, Manuel Guzmán

**Study Type** : Animal Study, In Vitro Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33)

**Diseases** : Melanoma : CK(285) : AC(149)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Anti-metastatic : CK(634) : AC(414), Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Cell cycle arrest : CK(810) : AC(612), Chemotherapeutic : CK(397) : AC(152)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37), Selective Cytotoxicity : CK(158) : AC(112)

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## Preclinical and clinical assessment of cannabinoids as anti-cancer agents.

**Pubmed Data** : Front Pharmacol. 2016 ;7:361. Epub 2016 Oct 7. PMID: [27774065](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Daniel A Ladin, Eman Soliman, LaToya Griffin, Rukiyah Van Dross

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33) , Cannabis : CK(1776) : AC(408)

**Diseases** : Breast Cancer : CK(3592) : AC(1064) , Colorectal Cancer : CK(1646) : AC(619) , Glioma : CK(177) : AC(86) , Liver Cancer : CK(1235) : AC(462) , Lung Cancer : CK(1043) : AC(393) , Melanoma : CK(285) : AC(149) , Pancreatic Cancer : CK(890) : AC(260) , Prostate Cancer : CK(1586) : AC(463) , Skin Cancer : CK(736) : AC(293) , Thyroid Cancer : CK(237) : AC(55)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62) , Anticarcinogenic Agents : CK(1099) : AC(519) , Antiproliferative : CK(2546) : AC(1685) , Apoptotic : CK(2958) : AC(2075)

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## Memory Disorders (AC 4) (CK 16)

**Cannabidiol levels in different strains of cannabis may determine the degree to which THC interferes with memory in users.**

**Pubmed Data** : Br J Psychiatry. 2010 Oct;197(4):285-90. PMID: [20884951](#)

**Article Published Date** : Oct 01, 2010

**Authors** : Celia J A Morgan, Gráinne Schafer, Tom P Freeman, H Valerie Curran

**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338) , Cannabis : CK(1776) : AC(408)

**Diseases** : Marijuana Addiction/Withdrawal : CK(44) : AC(7) , Memory Disorders : CK(344) : AC(104)

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**Cannabidiol may have potential as a preventative treatment for Alzheimer's disease.**

**Pubmed Data** : J Alzheimers Dis. 2014 ;42(4):1383-96. PMID: [25024347](#)

**Article Published Date** : Dec 31, 2013

**Authors** : David Cheng, Adena S Spiro, Andrew M Jenner, Brett Garner, Tim Karl

**Study Type** : Transgenic Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Brain: Oxidative Stress : CK(79) : AC(46) , Brain Inflammation : CK(274) : AC(145) , Memory Disorders : CK(344) : AC(104)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630) , Antioxidants : CK(8430) : AC(3132) , Neuroprotective Agents : CK(2360) : AC(1099)

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## Cannabinoids may have therapeutic value in neurodegenerative conditions by preventing and/or reducing neuroinflammation.

**Pubmed Data** : Neuroscience. 2007 Feb 23 ;144(4):1516-22. Epub 2006 Dec 18. PMID: [17178196](#)

**Article Published Date** : Feb 22, 2007

**Authors** : Y Marchalant, S Rosi, G L Wenk

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Brain: Microglial Activation : CK(82) : AC(53), Brain Inflammation : CK(274) : AC(145), Lipopolysaccharide-Induced Toxicity : CK(380) : AC(218), Memory Disorders : CK(344) : AC(104)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217), Anti-Inflammatory Agents : CK(4861) : AC(1630), Neuroprotective Agents : CK(2360) : AC(1099)

## THC and CBD could be therapeutic in mitigating a dysfunctional aversive memory through reconsolidation disruption in PTSD patients.

**Pubmed Data** : Eur Neuropsychopharmacol. 2015 Jun ;25(6):958-65. Epub 2015 Feb 16. PMID: [25799920](#)

**Article Published Date** : May 31, 2015

**Authors** : Cristina A J Stern, Lucas Gazarini, Ana C Vanvossen, Antonio W Zuardi, Ismael Galve-Roperh, Francisco S Guimaraes, Reinaldo N Takahashi, Leandro J Bertoglio

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Memory Disorders : CK(344) : AC(104), Post-Traumatic Stress Disorders (PTSD) : CK(243) : AC(35)

**Additional Keywords** : Extinction Of Fear Conditioning : CK(4) : AC(2)

## Memory Disorders: Drug-Induced (AC 1) (CK 2)

**Cannabidiol is able to attenuate motor and cognitive**

## impairments induced by reserpine.

**Pubmed Data** : Front Pharmacol. 2016 ;7:343. Epub 2016 Aug 28. PMID: [27733830](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Fernanda F Peres, Raquel Levin, Mayra A Suiama, Mariana C Diana, Douglas A Gouvêa, Valéria Almeida, Camila M Santos, Lisandro Lungato, Antônio W Zuardi, Jaime E C Hallak, José A Crippa, D'Almeida Vânia, Regina H Silva, Vanessa C Abílio

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Memory Disorders: Drug-Induced : CK(101) : AC(26) , Parkinson's Disease : CK(1021) : AC(167), Tardive Dyskinesia : CK(78) : AC(12)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

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## Menopausal Syndrome (AC 1) (CK 2)

### Hempseed may improve post-ovariectomy complications in rats.

**Pubmed Data** : Methods Find Exp Clin Pharmacol. 2010 Sep;32(7):467-73. PMID: [21069097](#)

**Article Published Date** : Sep 01, 2010

**Authors** : A Saberivand, I Karimi, L A Becker, A Moghaddam, S Azizi-Mahmoodjigh, M Yousefi, S Zavareh

**Study Type** : Animal Study

**Additional Links**

**Substances** : Hemp Seed : CK(446) : AC(5)

**Diseases** : Menopausal Syndrome : CK(295) : AC(45)

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## Metabolic Diseases (AC 2) (CK 12)

### Current cannabis use is associated with lower odds of metabolic syndrome across emerging and middle-aged US adults.

**Pubmed Data** : Am J Med. 2015 Nov 5. Epub 2015 Nov 5. PMID: [26548604](#)

**Article Published Date** : Nov 04, 2015

**Authors** : Denise C Vidot, Guillermo Prado, WayWay M Hlaing, Hermes J Florez, Kristopher L Arheart, Sarah E Messiah

**Study Type** : Human Study

**Additional Links**

**Substances** : [Cannabis](#) : CK(1776) : AC(408)

**Diseases** : [Metabolic Diseases](#) : CK(411) : AC(75), [Metabolic Syndrome X](#) : CK(916) : AC(158)

**Additional Keywords** : [Risk Reduction](#) : CK(6417) : AC(686)

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## Tetrahydrocannabivarin is a new potential treatment against obesity-associated glucose intolerance.

**Pubmed Data** : Nutr Diabetes. 2013 ;3:e68. Epub 2013 May 27. PMID: [23712280](#)

**Article Published Date** : Dec 31, 2012

**Authors** : E T Wargent, M S Zaibi, C Silvestri, D C Hislop, C J Stocker, C G Stott, G W Guy, M Duncan, V Di Marzo, M A Cawthorne

**Study Type** : Animal Study, In Vitro Study

**Additional Links**

**Substances** : [Cannabinoids](#) : CK(816) : AC(310)

**Diseases** : [Insulin Resistance](#) : CK(1683) : AC(346), [Metabolic Diseases](#) : CK(411) : AC(75), [Obesity](#) : CK(2443) : AC(521)

**Pharmacological Actions** : [Hypoglycemic Agents](#) : CK(1446) : AC(342)

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## Metabolic Syndrome X (AC 2) (CK 12)

### Current cannabis use is associated with lower odds of metabolic syndrome across emerging and middle-aged US adults.

**Pubmed Data** : Am J Med. 2015 Nov 5. Epub 2015 Nov 5. PMID: [26548604](#)

**Article Published Date** : Nov 04, 2015

**Authors** : Denise C Vidot, Guillermo Prado, WayWay M Hlaing, Hermes J Florez, Kristopher L Arheart, Sarah E Messiah

**Study Type** : Human Study

**Additional Links**

**Substances** : [Cannabis](#) : CK(1776) : AC(408)

**Diseases** : [Metabolic Diseases](#) : CK(411) : AC(75), [Metabolic Syndrome X](#) : CK(916) : AC(158)

**Additional Keywords** : Risk Reduction : CK(6417) : AC(686)

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## THCV and CBD might be used as new therapeutic agents for the treatment of obesity- and metabolic syndrome-related NAFLD/hepatosteatosi.

**Pubmed Data** : J Hepatol. 2015 Jun ;62(6):1382-90. Epub 2015 Jan 13. PMID: [25595882](#)

**Article Published Date** : May 31, 2015

**Authors** : Cristoforo Silvestri, Debora Paris, Andrea Martella, Dominique Melck, Irene Guadagnino, Mike Cawthorne, Andrea Motta, Vincenzo Di Marzo

**Study Type** : Animal Study, In Vitro Study

### **Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310)

**Diseases** : Metabolic Syndrome X : CK(916) : AC(158) , Nonalcoholic fatty liver disease (NAFLD) : CK(392) : AC(88), Obesity : CK(2443) : AC(521)

**Pharmacological Actions** : Obesity : CK(2443) : AC(521)

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## Migraine Disorders (AC 1) (CK 1)

### Cannabis may contain compounds with therapeutic value in the treatment of migraine disorders.

**Pubmed Data** : J Pharmacol Exp Ther. 2007 Jan;320(1):64-71. Epub 2006 Oct 3. PMID: [17018694](#)

**Article Published Date** : Jan 01, 2007

**Authors** : Simon Akerman, Philip R Holland, Peter J Goadsby

**Study Type** : Review

### **Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Migraine Disorders : CK(662) : AC(78)

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## Morphine Tolerance/Dependence (AC 5) (CK 28)

## Adolescent exposure to chronic delta-9-tetrahydrocannabinol blocks opiate dependence in maternally deprived rats.

**Pubmed Data** : Neuropsychopharmacology. 2009 Oct ;34(11):2469-76. Epub 2009 Jun 24. PMID: [19553915](#)

**Article Published Date** : Sep 30, 2009

**Authors** : Lydie J Morel, Bruno Giros, Valérie Daugé

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Morphine Tolerance/Dependence : CK(89) : AC(34) , Prenatal Chemical Exposures : CK(538) : AC(129)

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## Cannabidiol may be clinically useful in attenuating the rewarding effects of opioids.

**Pubmed Data** : Addict Biol. 2013 Mar ;18(2):286-96. Epub 2012 Aug 2. PMID: [22862835](#)

**Article Published Date** : Feb 28, 2013

**Authors** : Vicky Katsidoni, Ilektra Anagnostou, George Panagis

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Morphine Tolerance/Dependence : CK(89) : AC(34)

**Problem Substances** : Analgesic: Non-opioid : CK(20) : AC(2)

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## O-1602 decreased acquisition and expression of morphine CPP and inhibited development of morphine-induced physical dependence.

**Pubmed Data** : Pharmacol Rep. 2016 Jun ;68(3):592-7. Epub 2016 Jan 11. PMID: [26971034](#)

**Article Published Date** : May 31, 2016

**Authors** : Mohaddeseh Sadat Alavi, Hossein Hosseinzadeh, Ali Shamsizadeh, Ali Roohbakhsh

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Morphine Tolerance/Dependence : CK(89) : AC(34)

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## THC can enhance the antinociception and tolerance and some of the dependence effects of morphine.

**Pubmed Data** : J Pharmacol Exp Ther. 2016 May ;357(2):357-66. Epub 2016 Mar 2. PMID: [26937020](#)

**Article Published Date** : Apr 30, 2016

**Authors** : L R Gerak, C P France

**Study Type** : Animal Study

**Additional Links**

**Substances** : [Delta-tetrahydrocannabinol \(THC\)](#) : CK(1135) : AC(342)

**Diseases** : [Morphine Tolerance/Dependence](#) : CK(89) : AC(34)

**Pharmacological Actions** : [Antinoceptive](#) : CK(193) : AC(51)

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## The median effective dose of morphine administered in combination with THC is 3.6 times lower than of morphine alone.

**Pubmed Data** : Neuropsychopharmacology. 2017 Mar 22. Epub 2017 Mar 22. PMID: [28327548](#)

**Article Published Date** : Mar 21, 2017

**Authors** : Suzanne Nielsen, Pamela Sabioni, Jose M Trigo, Mark A Ware, Brigid D Betz-Stablein, Bridin Murnion, Nicholas Lintzeris, Kok Eng Khor, Michael Farrell, Andrew Smith, Bernard Le Foll

**Study Type** : Meta Analysis, Review

**Additional Links**

**Substances** : [Cannabinoids](#) : CK(816) : AC(310), [Delta-tetrahydrocannabinol \(THC\)](#) : CK(1135) : AC(342)

**Diseases** : [Morphine Tolerance/Dependence](#) : CK(89) : AC(34), [Opioid Tolerance/Dependence](#) : CK(1) : AC(1)

**Additional Keywords** : [Medication Reduction](#) : CK(52) : AC(6)

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## Movement Disorders (AC 1) (CK 1)

### Cannabinoids may have therapeutic value in the treatment of movement disorders.

**Pubmed Data** : Forsch Komplementarmed. 1999 Oct;6 Suppl 3:23-7. PMID: [10627163](#)

**Article Published Date** : Oct 01, 1999

**Authors** : K R Müller-Vahl, H Kolbe, U Schneider, H M Emrich

**Study Type** : Commentary

**Additional Links**

**Substances** : [Marijuana](#) : CK(1952) : AC(456)

**Diseases** : [Dystonia](#) : CK(1) : AC(1), [Movement Disorders](#) : CK(7) : AC(4), [Tremor](#) : CK(44) : AC(10)

## Multiple Myeloma (AC 2) (CK 2)

**Cannabidiol by itself or in synergy with bortezomib strongly inhibited growth, arrested cell cycle progression and induced multiple myeloma cell death.**

**Pubmed Data** : Int J Cancer. 2014 Jun 1 ;134(11):2534-46. Epub 2013 Dec 2. PMID: [24293211](#)

**Article Published Date** : May 31, 2014

**Authors** : Maria Beatrice Morelli, Massimo Offidani, Francesco Alesiani, Giancarlo Discepoli, Sonia Liberati, Attilio Olivieri, Matteo Santoni, Giorgio Santoni, Pietro Leoni, Massimo Nabissi

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Multiple Myeloma : CK(227) : AC(75)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Cell cycle arrest : CK(810) : AC(612), NF-kappaB Inhibitor : CK(1114) : AC(694)

**Additional Keywords** : Natural Substance/Drug Synergy : CK(352) : AC(142)

**Cannabinoids synergize with carfilzomib, reducing multiple myeloma cells viability and migration.**

**Pubmed Data** : Oncotarget. 2016 Oct 18. Epub 2016 Aug 18. PMID: [27769052](#)

**Article Published Date** : Oct 17, 2016

**Authors** : Massimo Nabissi, Maria Beatrice Morelli, Massimo Offidani, Consuelo Amantini, Silvia Gentili, Alessandra Soriani, Claudio Cardinali, Pietro Leoni, Giorgio Santoni

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Multiple Myeloma : CK(227) : AC(75)

**Pharmacological Actions** : Chemosensitizer : CK(394) : AC(286)

**Additional Keywords** : Dose Response : CK(1056) : AC(408), Natural Substance/Drug Synergy : CK(352) : AC(142)

# Multiple Sclerosis (AC 32) (CK 176)

## A review of the many benefits of cannabinoids in health and disease.

**Pubmed Data** : Dialogues Clin Neurosci. 2007 ;9(4):413-30. PMID: [18286801](#)

**Article Published Date** : Dec 31, 2006

**Authors** : Natalya M Kogan, Raphael Mechoulam

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33)

**Diseases** : Anorexia : CK(73) : AC(9), Cancers: All : CK(14773) : AC(4596), Epilepsy : CK(255) : AC(66), Inflammation : CK(3240) : AC(882), Multiple Sclerosis : CK(964) : AC(184), Neurodegenerative Diseases : CK(3582) : AC(932), Obesity : CK(2443) : AC(521), Schizophrenia : CK(445) : AC(70)

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## Agents modulating cannabinoid receptors or endocannabinoid tone provide promising therapeutic opportunities in the treatment of inflammatory neurodegenerative disorders of the CNS.

**Pubmed Data** : Exp Neurol. 2010 Jul ;224(1):92-102. Epub 2010 Mar 29. PMID: [20353778](#)

**Article Published Date** : Jun 30, 2010

**Authors** : Silvia Rossi, Giorgio Bernardi, Diego Centonze

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Amyotrophic Lateral Sclerosis : CK(567) : AC(140), Inflammation : CK(3240) : AC(882), Multiple Sclerosis : CK(964) : AC(184), Neurodegenerative Diseases : CK(3582) : AC(932)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

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## Cannabidiol inhibits symptoms of multiple sclerosis-like disease in mice.

**Pubmed Data** : Br J Pharmacol. 2011 Mar 30. Epub 2011 Mar 30. PMID: [21449980](#)

**Article Published Date** : Mar 30, 2011

**Authors** : Ewa Kozela, Nirit Lev, Nathali Kaushansky, Raya Eilam, Neta Rimmerman, Rivka Levy, Avraham Ben-Nun, Ana Juknat, Zvi Vogel

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Brain: Microglial Activation : CK(82) : AC(53), Multiple Sclerosis : CK(964) : AC(184)



**Pharmacological Actions** : Immunomodulatory : CK(1287) : AC(358) , Immunomodulatory: T-Cell down-regulation : CK(12) : AC(2)

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## **Cannabidiol possesses an anti-apoptotic power against the neurodegenerative processes underlying MS development.**

**Pubmed Data** : Eur Rev Med Pharmacol Sci. 2015 Dec ;19(24):4906-19. PMID: [26744883](#)

**Article Published Date** : Nov 30, 2015

**Authors** : S Giacoppo, T Soundara Rajan, M Galuppo, F Pollastro, G Grassi, P Bramanti, E Mazzon

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Multiple Sclerosis : CK(964) : AC(184)

**Pharmacological Actions** : Anti-Apoptotic : CK(384) : AC(212) , Neuroprotective Agents : CK(2360) : AC(1099)

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## **Cannabidiol was found to promote neuronal survival by inhibiting JNK and p38 MAP kinases.**

**Pubmed Data** : Fitoterapia. 2016 Nov 25 ;116:77-84. Epub 2016 Nov 25. PMID: [27890794](#)

**Article Published Date** : Nov 24, 2016

**Authors** : Sabrina Giacoppo, Federica Pollastro, Gianpaolo Grassi, Placido Bramanti, Emanuela Mazzon

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Multiple Sclerosis : CK(964) : AC(184)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630) , Interferon Gamma Reducer : CK(58) : AC(24) , Interleukin-17 downregulation : CK(39) : AC(13) , Neuroprotective Agents : CK(2360) : AC(1099)

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## **Cannabigerol quinone (VCE-003) has high potential for use against MS and perhaps other neuroinflammatory diseases.**

**Pubmed Data** : J Neuroimmune Pharmacol. 2012 Dec ;7(4):1002-16. Epub 2012 Sep 14. PMID: [22971837](#)

**Article Published Date** : Nov 30, 2012

**Authors** : Aitor G Granja, Francisco Carrillo-Salinas, Alberto Pagani, María Gómez-Cañas, Roberto Negri, Carmen Navarrete, Miriam Mecha, Leyre Mestre, Bend L Fiebich, Irene Cantarero, Marco A Calzado, Maria L Bellido, Javier Fernandez-Ruiz, Giovanni Appendino, Carmen Guaza, Eduardo

Muñoz

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33)

**Diseases** : Brain Inflammation : CK(274) : AC(145), Encephalomyelitis : CK(24) : AC(15), Multiple Sclerosis : CK(964) : AC(184)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Neuroprotective Agents : CK(2360) : AC(1099)

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## Cannabinoids ameliorate disease progression in a model of multiple sclerosis in mice.

**Pubmed Data** : Neuropharmacology. 2012 Jun ;62(7):2299-308. Epub 2012 Feb 8. PMID: [22342378](#)

**Article Published Date** : May 31, 2012

**Authors** : Eva de Lago, Miguel Moreno-Martet, Ana Cabranes, José A Ramos, Javier Fernández-Ruiz

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33)

**Diseases** : Multiple Sclerosis : CK(964) : AC(184)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

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## Cannabinoids control spasticity and tremor in a multiple sclerosis model.

**Pubmed Data** : Nature. 2000 Mar 2;404(6773):84-7. PMID: [10716447](#)

**Article Published Date** : Mar 02, 2000

**Authors** : D Baker, G Pryce, J L Croxford, P Brown, R G Pertwee, J W Huffman, L Layward

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Multiple Sclerosis : CK(964) : AC(184), Muscle Spasticity : CK(34) : AC(5), Tremor : CK(44) : AC(10)

**Pharmacological Actions** : Antispasmodic : CK(132) : AC(32)

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## Cannabinoids may have possible therapeutic properties for the management of the multiple sclerosis.

**Pubmed Data** : J Ethnopharmacol. 2010 Nov 19. Epub 2010 Nov 19. PMID: [21094240](#)

**Article Published Date** : Nov 19, 2010

**Authors** : Elena Buccellato, Donatella Carretta, Aneli Utan, Chiara Cavina, Ester Speroni, Giampaolo Grassi, Sanzio Candeletti, Patrizia Romualdi

**Study Type** : Meta Analysis

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Multiple Sclerosis : CK(964) : AC(184)

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## Cannabis extracts can be a useful and safe option for patients with MS with moderate to severe spasticity resistant to common antispastic drugs.

**Pubmed Data** : J Neurol Neurosurg Psychiatry. 2016 May 9. Epub 2016 May 9. PMID: [27160523](#)

**Article Published Date** : May 08, 2016

**Authors** : F Patti, S Messina, C Solaro, M P Amato, R Bergamaschi, S Bonavita, R Bruno Bossio, V Brescia Morra, G F Costantino, P Cavalla, D Centonze, G Comi, S Cottone, M Danni, A Francia, A Gajofatto, C Gasperini, A Ghezzi, A Iudice, G Lus, G T Maniscalco, M G Marrosu, M Matta, M Mirabella, E Montanari, C Pozzilli, M Rovaris, E Sessa, D Spitaleri, M Trojano, P Valentino, M Zappia,

**Study Type** : Human Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Multiple Sclerosis : CK(964) : AC(184)

**Additional Keywords** : Plant Extracts : CK(7645) : AC(2539)

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## Cannabis extracts have therapeutic potential to slow multiple sclerosis progression and repair the central nervous system.

**Pubmed Data** : Br J Pharmacol. 2015 Jul ;172(14):3579-95. Epub 2015 May 20. PMID: [25857324](#)

**Article Published Date** : Jun 30, 2015

**Authors** : A Feliú, M Moreno-Martet, M Mecha, F J Carrillo-Salinas, E de Lago, J Fernández-Ruiz, C Guaza

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Multiple Sclerosis : CK(964) : AC(184)

**Pharmacological Actions** : Immunomodulatory : CK(1287) : AC(358)

**Additional Keywords** : Plant Extracts : CK(7645) : AC(2539)

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## Cannabis-based extracts have therapeutic value for bladder dysfunction in advanced multiple sclerosis.

**Pubmed Data** : Mult Scler. 2004 Aug;10(4):425-33. PMID: [15327041](#)

**Article Published Date** : Aug 01, 2004

**Authors** : C M Brady, R DasGupta, C Dalton, O J Wiseman, K J Berkley, C J Fowler

**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Bladder Dysfunction : CK(51) : AC(9), Multiple Sclerosis : CK(964) : AC(184)

**Additional Keywords** : Plant Extracts : CK(7645) : AC(2539)

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## **Cannabis-based medicine is effective in reducing pain and sleep disturbance in patients with multiple sclerosis related central neuropathic pain and is mostly well tolerated.**

**Pubmed Data** : Neurology. 2005 Sep 27;65(6):812-9. PMID: [16186518](#)

**Article Published Date** : Sep 27, 2005

**Authors** : David J Rog, Turo J Nurmikko, Tim Friede, Carolyn A Young

**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Insomnia : CK(523) : AC(66) , Multiple Sclerosis : CK(964) : AC(184) , Pain : CK(880) : AC(142), Sleep Disorders : CK(361) : AC(44)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217)

---

## **Daily treatment with topical 1 % CBD-cream may exert neuroprotective effects against autoimmune encephalomyelitis.**

**Pubmed Data** : Daru. 2015 ;23(1):48. Epub 2015 Oct 21. PMID: [26489494](#)

**Article Published Date** : Dec 31, 2014

**Authors** : Sabrina Giacoppo, Maria Galuppo, Federica Pollastro, Gianpaolo Grassi, Placido Bramanti, Emanuela Mazzon

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Multiple Sclerosis : CK(964) : AC(184)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

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## **Delta-tetrahydrocannabinol (THC) and cannabidiol have therapeutic value in the management of spasticity associated with multiple sclerosis.**

**Pubmed Data** : J Nutr Sci Vitaminol (Tokyo). 1996 Aug;42(4):325-37. PMID: [21456949](#)

**Article Published Date** : Aug 01, 1996

**Authors** : Jaume Sastre-Garriga, Carlos Vila, Stephen Clissold, Xavier Montalban

**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Multiple Sclerosis : CK(964) : AC(184), Muscle Spasticity : CK(34) : AC(5)

**Pharmacological Actions** : Antispasmodic : CK(132) : AC(32)

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## Low doses of CBD exert oligoprotective effects in oligodendrocyte progenitor cells under conditions of inflammation, oxidative and ER stress.

**Pubmed Data** : Cell Death Dis. 2012 ;3:e331. Epub 2012 Jun 28. PMID: [22739983](#)

**Article Published Date** : Dec 31, 2011

**Authors** : M Mecha, A S Torrao, L Mestre, F J Carrillo-Salinas, R Mechoulam, C Guaza

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Inflammation : CK(3240) : AC(882), Multiple Sclerosis : CK(964) : AC(184), Oxidative Stress : CK(3871) : AC(1382)

**Pharmacological Actions** : Anti-Apoptotic : CK(384) : AC(212), Anti-Inflammatory Agents : CK(4861) : AC(1630), Antioxidants : CK(8430) : AC(3132), Neuroprotective Agents : CK(2360) : AC(1099)

---

## Orally administered cannabis extract may provide a therapeutic option to other drugs in the treatment of spasticity in patients with multiple sclerosis

**Pubmed Data** : Mult Scler. 2004 Aug;10(4):417-24. PMID: [15327040](#)

**Article Published Date** : Aug 01, 2004

**Authors** : C Vaney, M Heinzl-Gutenbrunner, P Jobin, F Tschopp, B Gattlen, U Hagen, M Schnelle, M Reif

**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Multiple Sclerosis : CK(964) : AC(184), Muscle Spasticity : CK(34) : AC(5)

---

## Pre-clinical evidence largely shows that CBD can produce beneficial effects in AD, PD and MS patients

**Pubmed Data** : CNS Neurol Disord Drug Targets. 2017 Apr 13. Epub 2017 Apr 13. PMID: [28412918](#)

**Article Published Date** : Apr 12, 2017

**Authors** : Carmen Mannucci, Michele Navarra, Fabrizio Calapai, Elvira Ventura Spagnolo, Francesco Paolo Busardò, Roberto Da Cas, Francesca Menniti Ippolito, Gioacchino Calapai

**Study Type** : Review

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Alzheimer's Disease : CK(1292) : AC(382) , Multiple Sclerosis : CK(964) : AC(184) , Parkinson's Disease : CK(1021) : AC(167)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

**Additional Keywords** : Neuroprotective Agents : CK(2360) : AC(1099) , Neuroprotective Agents : CK(2360) : AC(1099), Multiple Sclerosis : CK(10) : AC(1) , Multiple Sclerosis : CK(10) : AC(1) , Multiple Sclerosis : CK(10) : AC(1)

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## THC/CBD oromucosal spray is a useful option for the treatment of multiple sclerosis related spasticity.

**Pubmed Data** : Drugs. 2017 Mar 14. Epub 2017 Mar 14. PMID: [28293911](#)

**Article Published Date** : Mar 13, 2017

**Authors** : Gillian M Keating

**Study Type** : Review

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Multiple Sclerosis : CK(964) : AC(184)

---

## THC:CBD oromucosal spray provided symptomatic relief of MS spasticity with good tolerability in a relevant number of previously resistant patients.

**Pubmed Data** : Eur Neurol. 2015 ;74(3-4):178-85. Epub 2015 Nov 17. PMID: [26571097](#)

**Article Published Date** : Dec 31, 2014

**Authors** : Maria Trojano, Carlos Vila

**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Multiple Sclerosis : CK(964) : AC(184)

**Additional Keywords** : Plant Extracts : CK(7645) : AC(2539)

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## THC:CBD oromucosal spray provided symptomatic relief of MSS and related troublesome symptoms.

**Pubmed Data** : Eur Neurol. 2016 Oct 13 ;76(5-6):216-226. Epub 2016 Aug 13. PMID: [27732980](#)

**Article Published Date** : Oct 12, 2016

**Authors** : Patrick Vermersch, Maria Trojano

**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Multiple Sclerosis : CK(964) : AC(184)

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## The cannabinoid system along with other neuroimmune systems has a subtle but significant role in the regulation of immunity.

**Pubmed Data** : Pain Res Manag. 2001 ;6(2):95-101. PMID: [11854771](#)

**Article Published Date** : Dec 31, 2000

**Authors** : T W Klein, C A Newton, H Friedman

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Acquired Immunodeficiency Syndrome : CK(16) : AC(12), Cancers: All : CK(14773) : AC(4596), Multiple Sclerosis : CK(964) : AC(184)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Apoptotic : CK(2958) : AC(2075), Immunomodulatory : CK(1287) : AC(358), Neuroimmunomodulation : CK(1) : AC(1)

**Additional Keywords** : Immunocannabinoid System : CK(1) : AC(1)

---

## The present study confirms the efficacy of cannabinoids in reducing spasticity in patients with multiple sclerosis.

**Pubmed Data** : Int Clin Psychopharmacol. 2016 Mar 21. Epub 2016 Mar 21. PMID: [27003093](#)

**Article Published Date** : Mar 20, 2016

**Authors** : Lucio Marinelli, Laura Mori, Stefania Canneva, Federica Colombano, Antonio Currà, Francesco Fattapposta, Fabio Bandini, Elisabetta Capello, Giovanni Abbruzzese, Carlo Trompetto

**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Multiple Sclerosis : CK(964) : AC(184)

---

## These findings highlight the anti-inflammatory effects of cannabidiol in this viral model of multiple sclerosis.

**Pubmed Data** : Neurobiol Dis. 2013 Nov ;59:141-50. Epub 2013 Jul 11. PMID: [23851307](#)

**Article Published Date** : Oct 31, 2013

**Authors** : M Mecha, A Feliú, P M Iñigo, L Mestre, F J Carrillo-Salinas, C Guaza

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Inflammation : CK(3240) : AC(882), Multiple Sclerosis : CK(964) : AC(184)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Interleukin-1 beta downregulation : CK(478) : AC(205), Vascular Cell Adhesion Molecule-1 Inhibitor : CK(117) : AC(30)

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## These results confirm the clinical benefit of cannabis extracts on spastic hypertonia.

**Pubmed Data** : J Neurol Sci. 2016 Nov 15 ;370:263-268. Epub 2016 Aug 28. PMID: [27772772](#)

**Article Published Date** : Nov 14, 2016

**Authors** : Giovanna Squintani, Francesco Donato, Mara Turri, Luciano Deotto, Francesco Teatini, Giuseppe Moretto, Roberto Erro

**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Multiple Sclerosis : CK(964) : AC(184)

**Additional Keywords** : Plant Extracts : CK(7645) : AC(2539), Significant Treatment Outcome : CK(24) : AC(4)

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## This data suggests that CBD exerts its immunoregulatory effects via induction of CD4(+)CD25(-)CD69(+)LAG3(+) cells.

**Pubmed Data** : J Neuroinflammation. 2015 ;12:52. Epub 2015 Mar 15. PMID: [25880134](#)

**Article Published Date** : Dec 31, 2014

**Authors** : Ewa Kozela, Ana Juknat, Nathali Kaushansky, Avraham Ben-Nun, Giovanni Coppola, Zvi Vogel

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Multiple Sclerosis : CK(964) : AC(184)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Immunomodulatory : CK(1287) : AC(358), Immunomodulatory: Th17 downregulation : CK(30) : AC(17)

---

## This review discusses the potential of cannabinoid therapeutics as disease-modifying or symptom control agents for slowing disease progression in MS and ALS.

**Pubmed Data** : Handb Exp Pharmacol. 2015 ;231:213-31. PMID: [26408162](#)

**Article Published Date** : Dec 31, 2014

**Authors** : Gareth Pryce, David Baker



**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408), Endocannabinoids : CK(9) : AC(1)

**Diseases** : Amyotrophic lateral sclerosis (ALS) : CK(566) : AC(140) , Multiple Sclerosis : CK(964) : AC(184)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

---

## **This reviews the evidence, efficacy and effectiveness of THC-CBD oromucosal spray in symptom management for patients with spasticity due to MS.**

**Pubmed Data** : Ther Adv Neurol Disord. 2016 Jan ;9(1):9-30. PMID: [26788128](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Uwe K Zettl, Paulus Rommer, Petra Hipp, Robert Patejdl

**Study Type** : Review

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Multiple Sclerosis : CK(964) : AC(184)

**Additional Keywords** : Endocannabinoid System : CK(60) : AC(23)

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## **This study may support the experimental and biological evidence for a neuroprotective effect by the endocannabinoid system in MS.**

**Pubmed Data** : J Neuroimmune Pharmacol. 2014 Dec 24. Epub 2014 Dec 24. PMID: [25537576](#)

**Article Published Date** : Dec 23, 2014

**Authors** : Gareth Pryce, Dieter R Riddall, David L Selwood, Gavin Giovannoni, David Baker

**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabinoids: Synthetic : CK(78) : AC(33) , Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Multiple Sclerosis : CK(964) : AC(184)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

**Additional Keywords** : Dose Response : CK(1056) : AC(408)

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## **Treatment with THC/CBD spray appears to be a valid answer to some of the unmet needs in patients with multiple sclerosis.**

**Pubmed Data** : J Clin Pharmacol. 2015 Nov 26. Epub 2015 Nov 26. PMID: [26608223](#)

**Article Published Date** : Nov 25, 2015

**Authors** : Damiano Paolicelli, Vita Direnzo, Alessia Manni, Mariangela D'Onghia, Carla Tortorella, Stefano Zoccolella, Valentina Di Lecce, Antonio Iaffaldano, Maria Trojano

**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Bladder Dysfunction : CK(51) : AC(9), Multiple Sclerosis : CK(964) : AC(184)

**Additional Keywords** : Plant Extracts : CK(7645) : AC(2539)

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## Whole plant cannabis provides subjective symptom relief in multiple sclerosis.

**Pubmed Data** : BMC Neurol. 2009;9:59. Epub 2009 Dec 4. PMID: [19961570](#)

**Article Published Date** : Jan 01, 2009

**Authors** : Shaheen E Lakhan, Marie Rowland

**Study Type** : Meta Analysis

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Multiple Sclerosis : CK(964) : AC(184)

**Additional Keywords** : Plant Extracts : CK(7645) : AC(2539)

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## Whole-plant cannabis extract can improve intractable neurogenic symptoms.

**Pubmed Data** : Clin Rehabil. 2003 Feb;17(1):21-9. PMID: [12617376](#)

**Article Published Date** : Feb 01, 2003

**Authors** : Derick T Wade, Philip Robson, Heather House, Petra Makela, Julia Aram

**Study Type** : Human Study

**Additional Links**

**Substances** : Marijuana : CK(1952) : AC(456)

**Diseases** : Brachial Plexus Neuropathies : CK(20) : AC(2), Multiple Sclerosis : CK(964) : AC(184),

Neurogenic Bladder : CK(91) : AC(10), Phantom Limb : CK(26) : AC(4), Spinal Cord Injuries : CK(155) : AC(55)

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**Multiple Sclerosis: Relapsing-Remitting (AC 1) (CK 10)**

## Hemp seed and evening primrose oils with hot-nature diet have beneficial effects in improving the clinical score in multiple sclerosis patients.

**Pubmed Data** : Complement Ther Med. 2013 Oct ;21(5):473-80. Epub 2013 Jul 25. PMID: [24050582](#)

**Article Published Date** : Sep 30, 2013

**Authors** : Soheila Rezapour-Firouzi, Seyed Rafie Arefhosseini, Farhoudi Mehdi, Ebrahimi-Mamaghani Mehrangiz, Behzad Baradaran, Elyar Sadeghihokmabad, Somaiyeh Mostafaei, Seyed Mohammad Bagher Fazljou, Mohammad-ali Torbati, Sarvin Sanaie, Fatemeh Zamani

**Study Type** : Human Study

### Additional Links

**Substances** : Evening Primrose Oil : CK(66) : AC(8) , Hemp Seed : CK(446) : AC(5)

**Diseases** : Inflammation : CK(3240) : AC(882) , Multiple Sclerosis: Relapsing-Remitting : CK(124) : AC(14)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630) , Immunomodulatory : CK(1287) : AC(358)

**Additional Keywords** : Dietary Modification : CK(315) : AC(47) , Phytotherapy : CK(1216) : AC(221) , Plant Extracts : CK(7645) : AC(2539)

## Muscle Spasticity (AC 3) (CK 22)

### Cannabinoids control spasticity and tremor in a multiple sclerosis model.

**Pubmed Data** : Nature. 2000 Mar 2;404(6773):84-7. PMID: [10716447](#)

**Article Published Date** : Mar 02, 2000

**Authors** : D Baker, G Pryce, J L Croxford, P Brown, R G Pertwee, J W Huffman, L Layward

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310) , Cannabis : CK(1776) : AC(408)

**Diseases** : Multiple Sclerosis : CK(964) : AC(184) , Muscle Spasticity : CK(34) : AC(5) , Tremor : CK(44) : AC(10)

**Pharmacological Actions** : Antispasmodic : CK(132) : AC(32)

### Delta-tetrahydrocannabinol (THC) and cannabidiol have therapeutic value in the management of spasticity associated with multiple sclerosis.

**Pubmed Data** : J Nutr Sci Vitaminol (Tokyo). 1996 Aug;42(4):325-37. PMID: [21456949](#)

**Article Published Date** : Aug 01, 1996

**Authors** : Jaume Sastre-Garriga, Carlos Vila, Stephen Clissold, Xavier Montalban

**Study Type** : Human Study

**Additional Links**

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338), [Delta-tetrahydrocannabinol \(THC\)](#) : CK(1135) : AC(342)

**Diseases** : [Multiple Sclerosis](#) : CK(964) : AC(184), [Muscle Spasticity](#) : CK(34) : AC(5)

**Pharmacological Actions** : [Antispasmodic](#) : CK(132) : AC(32)

---

## Orally administered cannabis extract may provide a therapeutic option to other drugs in the treatment of spasticity in patients with multiple sclerosis

**Pubmed Data** : Mult Scler. 2004 Aug;10(4):417-24. PMID: [15327040](#)

**Article Published Date** : Aug 01, 2004

**Authors** : C Vaney, M Heinzl-Gutenbrunner, P Jobin, F Tschopp, B Gattlen, U Hagen, M Schnelle, M Reif

**Study Type** : Human Study

**Additional Links**

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Multiple Sclerosis](#) : CK(964) : AC(184), [Muscle Spasticity](#) : CK(34) : AC(5)

---

## Myocardial Infarction (AC 3) (CK 6)

### A single ultra-low dose of THC before ischemia is a safe and effective treatment that reduces myocardial ischemic damage.

**Pubmed Data** : Biochem Pharmacol. 2013 Jun 1 ;85(11):1626-33. Epub 2013 Mar 26. PMID: [23537701](#)

**Article Published Date** : May 31, 2013

**Authors** : M Waldman, E Hochhauser, M Fishbein, D Aravot, A Shainberg, Y Sarne

**Study Type** : Animal Study

**Additional Links**

**Substances** : [Cannabinoids](#) : CK(816) : AC(310), [Delta-tetrahydrocannabinol \(THC\)](#) : CK(1135) : AC(342)

**Diseases** : [Myocardial Infarction](#) : CK(1101) : AC(162), [Myocardial Ischemia](#) : CK(137) : AC(61)

**Pharmacological Actions** : Cardioprotective : CK(1596) : AC(409), Neuroprotective Agents : CK(2360) : AC(1099)

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## Acute administration of cannabidiol in vivo suppresses ischaemia-induced cardiac arrhythmias and reduces infarct size when given at reperfusion.

**Pubmed Data** : Br J Pharmacol. 2010 Jul;160(5):1234-42. PMID: [20590615](#)

**Article Published Date** : Jul 01, 2010

**Authors** : Sarah K Walsh, Claire Y Hepburn, Kathleen A Kane, Cherry L Wainwright

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408)

**Diseases** : Cardiac Arrhythmias : CK(573) : AC(75), Myocardial Infarction : CK(1101) : AC(162), Myocardial Ischemia : CK(137) : AC(61)

**Pharmacological Actions** : Cardioprotective : CK(1596) : AC(409)

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## Cannabidiol therapy reduced acute myocardial infarction size and facilitated restoration of left ventricular function.

**Pubmed Data** : J Cardiovasc Pharmacol. 2015 Oct ;66(4):354-63. PMID: [26065843](#)

**Article Published Date** : Sep 30, 2015

**Authors** : Yuanbo Feng, Feng Chen, Ting Yin, Qian Xia, Yewei Liu, Gang Huang, Jian Zhang, Raymond Oyen, Yicheng Ni

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Heart Attack : CK(1071) : AC(155), Myocardial Infarction : CK(1101) : AC(162)

**Pharmacological Actions** : Cardioprotective : CK(1596) : AC(409)

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## Myocardial Ischemia (AC 3) (CK 6)

**A single ultra-low dose of THC before ischemia is a safe and effective treatment that reduces myocardial ischemic damage.**

**Pubmed Data** : Biochem Pharmacol. 2013 Jun 1 ;85(11):1626-33. Epub 2013 Mar 26. PMID: [23537701](#)

**Article Published Date** : May 31, 2013

**Authors** : M Waldman, E Hochhauser, M Fishbein, D Aravot, A Shainberg, Y Sarne

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Myocardial Infarction : CK(1101) : AC(162), Myocardial Ischemia : CK(137) : AC(61)

**Pharmacological Actions** : Cardioprotective : CK(1596) : AC(409), Neuroprotective Agents : CK(2360) : AC(1099)

---

## Acute administration of cannabidiol in vivo suppresses ischaemia-induced cardiac arrhythmias and reduces infarct size when given at reperfusion.

**Pubmed Data** : Br J Pharmacol. 2010 Jul;160(5):1234-42. PMID: [20590615](#)

**Article Published Date** : Jul 01, 2010

**Authors** : Sarah K Walsh, Claire Y Hepburn, Kathleen A Kane, Cherry L Wainwright

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408)

**Diseases** : Cardiac Arrhythmias : CK(573) : AC(75), Myocardial Infarction : CK(1101) : AC(162), Myocardial Ischemia : CK(137) : AC(61)

**Pharmacological Actions** : Cardioprotective : CK(1596) : AC(409)

---

## Cannabidiol, a nonpsychoactive compound found within Cannabis protects against myocardial ischemic injury.

**Pubmed Data** : Am J Physiol Heart Circ Physiol. 2007 Dec;293(6):H3602-7. Epub 2007 Sep 21. PMID: [17890433](#)

**Article Published Date** : Dec 01, 2007

**Authors** : [No authors listed]

**Study Type** : Animal Study

**Additional Links**

**Substances** : Marijuana : CK(1952) : AC(456)

**Diseases** : Myocardial Ischemia : CK(137) : AC(61)

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# Myocarditis: Autoimmune (AC 1) (CK 2)

## CBD may represent a promising novel treatment for management of autoimmune myocarditis and possibly other autoimmune disorders

**Pubmed Data** : Mol Med. 2016 Jan 8. Epub 2016 Jan 8. PMID: [26772776](#)

**Article Published Date** : Jan 07, 2016

**Authors** : Wen-Shin Lee, Katalin Erdelyi, Csaba Matyas, Partha Mukhopadhyay, Zoltan V Varga, Lucas Liaudet, György Haskó, Daniela Čiháková, Raphael Mechoulam, Pal Pacher

**Study Type** : Animal Study

### Additional Links

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Autoimmune Diseases](#) : CK(6629) : AC(1128), [Myocarditis: Autoimmune](#) : CK(20) : AC(6)

**Pharmacological Actions** : [Anti-Inflammatory Agents](#) : CK(4861) : AC(1630), [Immunomodulatory](#) : CK(1287) : AC(358)

# Nausea: Chemotherapy-Induced (AC 1) (CK 10)

## Cannabis extract is safe and efficacious in reducing chemotherapy-induced nausea and vomiting.

**Pubmed Data** : Br J Clin Pharmacol. 2010 Nov;70(5):656-63. PMID: [21039759](#)

**Article Published Date** : Nov 01, 2010

**Authors** : Marta Duran, Eulàlia Pérez, Sergio Abanades, Xavier Vidal, Cristina Saura, Margarita Majem, Edurne Arriola, Manel Rabanal, Antoni Pastor, Magí Farré, Neus Rams, Joan-Ramon Laporte, Dolors Capellà

**Study Type** : Human Study

### Additional Links

**Substances** : [Cannabis](#) : CK(1776) : AC(408)

**Diseases** : [Chemotherapy](#) : CK(83) : AC(17), [Chemotherapy-Induced Toxicity](#) : CK(1033) : AC(327),

Nausea: Chemotherapy-Induced : CK(173) : AC(19)

**Pharmacological Actions** : Antiemetics : CK(40) : AC(4)

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## Nausea: Pregnancy-Associated (AC 1) (CK 10)

**Childbearing women have used marihuana medicinally to treat severe naseau and vomitng during pregnancy.**

**Pubmed Data** : Complement Ther Clin Pract. 2009 Nov;15(4):242-6. Epub 2009 Aug 15. PMID: [16401527](#)

**Article Published Date** : Nov 01, 2009

**Authors** : Rachel E Westfall, Patricia A Janssen, Philippe Lucas, Rielle Capler

**Study Type** : Human Study

**Additional Links**

**Substances** : Marijuana : CK(1952) : AC(456)

**Diseases** : Nausea: Pregnancy-Associated : CK(21) : AC(3)

---

## Neonatal Stroke (AC 1) (CK 2)

**The activation of the endocannabinoid system promotes white and gray matter recovery after neonatal HI injury.**

**Pubmed Data** : Stroke. 2010 Dec ;41(12):2956-64. PMID: [21115947](#)

**Article Published Date** : Nov 30, 2010

**Authors** : David Fernández-López, Jesús M Pradillo, Isaac García-Yébenes, José A Martínez-Orgado, María A Moro, Ignacio Lizasoain

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Brain Ischemia : CK(136) : AC(52) , Neonatal Stroke : CK(4) : AC(2) , Stroke: Attenuation/Recovery : CK(347) : AC(75)

**Pharmacological Actions** : Neurogenesis : CK(59) : AC(30)

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**Additional Keywords** : Endocannabinoid System : CK(60) : AC(23), Neuro-repair : CK(2) : AC(1)

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## Neuroblastoma (AC 1) (CK 2)

**The results of this study demonstrate the anti-tumourigenic action of cannabidiol on Neuroblastoma cells.**

**Pubmed Data** : Curr Oncol. 2016 Mar ;23(2):S15-22. Epub 2016 Mar 16. PMID: [27022310](#)

**Article Published Date** : Feb 29, 2016

**Authors** : T Fisher, H Golan, G Schiby, S PriChen, R Smoum, I Moshe, N Peshes-Yaloz, A Castiel, D Waldman, R Gallily, R Mechoulam, A Toren

**Study Type** : Animal Study, In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Neuroblastoma : CK(86) : AC(53)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

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## Neurodegenerative Diseases (AC 16) (CK 21)

**A review of the many benefits of cannabinoids in health and disease.**

**Pubmed Data** : Dialogues Clin Neurosci. 2007 ;9(4):413-30. PMID: [18286801](#)

**Article Published Date** : Dec 31, 2006

**Authors** : Natalya M Kogan, Raphael Mechoulam

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33)

**Diseases** : Anorexia : CK(73) : AC(9), Cancers: All : CK(14773) : AC(4596), Epilepsy : CK(255) : AC(66), Inflammation : CK(3240) : AC(882), Multiple Sclerosis : CK(964) : AC(184), Neurodegenerative Diseases : CK(3582) : AC(932), Obesity : CK(2443) : AC(521), Schizophrenia : CK(445) : AC(70)

---

## Agents modulating cannabinoid receptors or endocannabinoid tone provide promising therapeutic opportunities in the treatment of inflammatory neurodegenerative disorders of the CNS.

**Pubmed Data** : Exp Neurol. 2010 Jul ;224(1):92-102. Epub 2010 Mar 29. PMID: [20353778](#)

**Article Published Date** : Jun 30, 2010

**Authors** : Silvia Rossi, Giorgio Bernardi, Diego Centonze

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Amyotrophic Lateral Sclerosis : CK(567) : AC(140), Inflammation : CK(3240) : AC(882), Multiple Sclerosis : CK(964) : AC(184), Neurodegenerative Diseases : CK(3582) : AC(932)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

---

## CBD has a neurorestorative potential independent of NGF that might contribute to its neuroprotection against neurotoxins relevant to Parkinson's disease.

**Pubmed Data** : Toxicol In Vitro. 2015 Nov 7. Epub 2015 Nov 7. PMID: [26556726](#)

**Article Published Date** : Nov 06, 2015

**Authors** : Neife Aparecida Guinaim Santos, Nádia Maria Martins, Flávia Malvestio Sisti, Laís Silva Fernandes, Rafaela Scalco Ferreira, Regina Helena Costa Queiroz, Antônio Cardozo Santos

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Neurodegenerative Diseases : CK(3582) : AC(932), Parkinson's Disease : CK(1021) : AC(167)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

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## Cannabidiol normalizes caspase 3, synaptophysin, and mitochondrial fission protein DNMI1L expression levels in rats with brain iron overload.

**Pubmed Data** : Mol Neurobiol. 2014 Feb ;49(1):222-33. Epub 2013 Jul 28. PMID: [23893294](#)

**Article Published Date** : Jan 31, 2014

**Authors** : Vanessa Kappel da Silva, Betânia Souza de Freitas, Arethusa da Silva Dornelles, Laura

Roesler Nery, Lucio Falavigna, Rafael Dal Ponte Ferreira, Maurício Reis Bogo, Jaime Eduardo Cecílio Hallak, Antônio Waldo Zuardi, José Alexandre S Crippa, Nadja Schröder

**Study Type** : Animal Study

**Additional Links**

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Iron Overload](#) : CK(32) : AC(18), [Neurodegenerative Diseases](#) : CK(3582) : AC(932)

**Pharmacological Actions** : [Anti-Apoptotic](#) : CK(384) : AC(212), [Neuroprotective Agents](#) : CK(2360) : AC(1099)

---

## **Cannabidiol, a non-psychoactive component from Cannabis sativa, exhibits neuroprotective, antioxidant and anti-apoptotic effect against beta-amyloid peptide toxicity.**

**Pubmed Data** : Fitoterapia. 2011 Jan 26. Epub 2011 Jan 26. PMID: [15030397](#)

**Article Published Date** : Jan 26, 2011

**Authors** : Teresa Iuvone, Giuseppe Esposito, Ramona Esposito, Rita Santamaria, Massimo Di Rosa, Angelo A Izzo

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : [Marijuana](#) : CK(1952) : AC(456)

**Diseases** : [Alzheimer's Disease](#) : CK(1292) : AC(382), [Neurodegenerative Diseases](#) : CK(3582) : AC(932)

**Pharmacological Actions** : [Antioxidants](#) : CK(8430) : AC(3132), [Neuroprotective Agents](#) : CK(2360) : AC(1099)

---

## **Cannabidiol, a nonpsychoactive compound from cannabis, exhibits neuroprotective properties in binge ethanol-induced brain injury.**

**Pubmed Data** : J Pharmacol Exp Ther. 2005 Aug;314(2):780-8. Epub 2005 May 5. PMID: [15878999](#)

**Article Published Date** : Aug 01, 2005

**Authors** : Carol Hamelink, Aidan Hampson, David A Wink, Lee E Eiden, Robert L Eskay

**Study Type** : Animal Study

**Additional Links**

**Substances** : [Cannabis](#) : CK(1776) : AC(408)

**Diseases** : [Alcohol Toxicity](#) : CK(337) : AC(125), [Neurodegenerative Diseases](#) : CK(3582) : AC(932)

**Pharmacological Actions** : [Antioxidants](#) : CK(8430) : AC(3132), [Neuroprotective Agents](#) : CK(2360) : AC(1099)

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## **Cannabigerol could be used for the treatment of neurodegenerative diseases such as Huntington's disease.**

**Pubmed Data** : Neurotherapeutics. 2015 Jan ;12(1):185-99. PMID: [25252936](#)

**Article Published Date** : Dec 31, 2014

**Authors** : Sara Valdeolivas, Carmen Navarrete, Irene Cantarero, María L Bellido, Eduardo Muñoz, Onintza Sagredo

**Study Type** : Animal Study

**Additional Links**

**Substances** : [Cannabinoids](#) : CK(816) : AC(310)

**Diseases** : [Huntington Disease](#) : CK(91) : AC(36) , [Neurodegenerative Diseases](#) : CK(3582) : AC(932)

**Pharmacological Actions** : [Neuroprotective Agents](#) : CK(2360) : AC(1099)

---

## Cannabinoids have therapeutic potential in central nervous system disease.

**Pubmed Data** : Eur J Pharmacol. 2011 Jan 13. Epub 2011 Jan 13. PMID: [12617697](#)

**Article Published Date** : Jan 13, 2011

**Authors** : J Ludovic Croxford

**Study Type** : Review

**Additional Links**

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338), [Cannabis](#) : CK(1776) : AC(408)

**Diseases** : [Central Nervous System Diseases](#) : CK(6) : AC(6) , [Neurodegenerative Diseases](#) : CK(3582) : AC(932)

**Pharmacological Actions** : [Neuroprotective Agents](#) : CK(2360) : AC(1099)

---

## Cannabinoids may therapeutic value in neurodegenerative conditions and cancer.

**Pubmed Data** : J Mol Med. 2001;78(11):613-25. PMID: [11269508](#)

**Article Published Date** : Jan 01, 2001

**Authors** : M Guzmán, C Sánchez, I Galve-Roperh

**Study Type** : Review

**Additional Links**

**Substances** : [Cannabinoids](#) : CK(816) : AC(310)

**Diseases** : [Cancers: All](#) : CK(14773) : AC(4596) , [Neurodegenerative Diseases](#) : CK(3582) : AC(932)

**Pharmacological Actions** : [Antiproliferative](#) : CK(2546) : AC(1685), [Apoptotic](#) : CK(2958) : AC(2075) , [Neuroprotective Agents](#) : CK(2360) : AC(1099)

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## Grossamide could be a potential therapeutic candidate for inhibiting neuroinflammation in neurodegenerative diseases.

**Pubmed Data** : Mol Cell Biochem. 2017 Apr ;428(1-2):129-137. Epub 2017 Feb 21. PMID: [28224333](#)

**Article Published Date** : Mar 31, 2017

**Authors** : Qian Luo, Xiaoli Yan, Larisa Bobrovskaya, Mei Ji, Huiqing Yuan, Hongxiang Lou, Peihong Fan

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : [Hemp Seed](#) : CK(446) : AC(5)

**Diseases** : [Brain Inflammation](#) : CK(274) : AC(145), [Neurodegenerative Diseases](#) : CK(3582) : AC(932)

**Pharmacological Actions** : [Anti-Inflammatory Agents](#) : CK(4861) : AC(1630), [Interleukin-6 Downregulation](#) : CK(1137) : AC(354), [NF-kappaB Inhibitor](#) : CK(1114) : AC(694), [Tumor Necrosis Factor \(TNF\) Alpha Inhibitor](#) : CK(1823) : AC(669)

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## THC exerts anti-apoptotic and restores mitochondrial membrane potential.

**Pubmed Data** : [Phytother Res. 2016 Dec ;30\(12\):2044-2052. Epub 2016 Sep 22. PMID: 27654887](#)

**Article Published Date** : Nov 30, 2016

**Authors** : Chi Huu Nguyen, Christopher Krewenka, Khaled Radad, Barbara Kranner, Alexandra Huber, Johanna Catharina Duvigneau, Ingrid Miller, Rudolf Moldzio

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : [Delta-tetrahydrocannabinol \(THC\)](#) : CK(1135) : AC(342)

**Diseases** : [Neurodegenerative Diseases](#) : CK(3582) : AC(932), [Parkinson's Disease](#) : CK(1021) : AC(167)

**Pharmacological Actions** : [Anti-Apoptotic](#) : CK(384) : AC(212), [Neuroprotective Agents](#) : CK(2360) : AC(1099)

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## These findings constitute the first evidence for an astroprotective role of cannabinoids.

**Pubmed Data** : [J Biol Chem. 2002 Sep 27 ;277\(39\):36527-33. Epub 2002 Jul 19. PMID: 12133838](#)

**Article Published Date** : Sep 26, 2002

**Authors** : Teresa Gómez Del Pulgar, Maria L De Ceballos, Manuel Guzmán, Guillermo Velasco

**Study Type** : Animal Study, In Vitro Study

**Additional Links**

**Substances** : [Cannabinoids](#) : CK(816) : AC(310)

**Diseases** : [Neurodegenerative Diseases](#) : CK(3582) : AC(932)

**Pharmacological Actions** : [Neuroprotective Agents](#) : CK(2360) : AC(1099)

**Additional Keywords** : [Dose Response](#) : CK(1056) : AC(408)

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## These results support the view of a potential neuroprotective action of cannabinoids against the in vivo and in vitro toxicity of 6-hydroxydopamine.

**Pubmed Data** : Neurobiol Dis. 2005 Jun-Jul;19(1-2):96-107. PMID: [15837565](#)

**Article Published Date** : May 31, 2005

**Authors** : Isabel Lastres-Becker, Francisco Molina-Holgado, José A Ramos, Raphael Mechoulam, Javier Fernández-Ruiz

**Study Type** : Animal Study, In Vitro Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Neurodegenerative Diseases : CK(3582) : AC(932), Parkinson's Disease : CK(1021) : AC(167)

**Pharmacological Actions** : Antioxidants : CK(8430) : AC(3132), Neuroprotective Agents : CK(2360) : AC(1099)

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## **This review details the mechanisms of neurodegeneration and highlights the beneficial effects of cannabinoid treatment.**

**Pubmed Data** : Br J Pharmacol. 2014 Mar ;171(6):1347-60. PMID: [24172185](#)

**Article Published Date** : Feb 28, 2014

**Authors** : S G Fagan, V A Campbell

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Alzheimer's Disease : CK(1292) : AC(382), Brain Inflammation : CK(274) : AC(145), Huntington Disease : CK(91) : AC(36), Neurodegenerative Diseases : CK(3582) : AC(932), Parkinson's Disease : CK(1021) : AC(167)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Neurogenesis : CK(59) : AC(30), Neuroprotective Agents : CK(2360) : AC(1099)

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## **This reviews the basis for the use of cannabinoids in the treatment of cancers and neurodegenerative diseases.**

**Pubmed Data** : Handb Exp Pharmacol. 2005(168):627-42. PMID: [16596790](#)

**Article Published Date** : Dec 31, 2004

**Authors** : M Guzmán

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Cancers: All : CK(14773) : AC(4596), Neurodegenerative Diseases : CK(3582) : AC(932)

**Pharmacological Actions** : Anti-Angiogenic : CK(197) : AC(137), Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Neuroprotective Agents : CK(2360) : AC(1099)

---

## This summarizes the therapeutic effects of CBD and their relevance to brain function, neuroprotection and neuropsychiatric disorders.

**Pubmed Data** : Pharmacol Res. 2016 Feb 1. Epub 2016 Feb 1. PMID: [26845349](#)

**Article Published Date** : Jan 31, 2016

**Authors** : Alline C Campos, Manoela V Fogaça, Andreza B Sonego, Francisco S Guimarães

**Study Type** : Review

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Anxiety Disorders : CK(1225) : AC(180), Brain Damage : CK(93) : AC(44), Brain Ischemia : CK(136) : AC(52), Depression : CK(2043) : AC(290), Neurodegenerative Diseases : CK(3582) : AC(932), Psychiatric Disorders : CK(123) : AC(31)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

---

## Neurogenic Bladder (AC 1) (CK 10)

### Whole-plant cannabis extract can improve intractable neurogenic symptoms.

**Pubmed Data** : Clin Rehabil. 2003 Feb;17(1):21-9. PMID: [12617376](#)

**Article Published Date** : Feb 01, 2003

**Authors** : Derick T Wade, Philip Robson, Heather House, Petra Makela, Julia Aram

**Study Type** : Human Study

### Additional Links

**Substances** : Marijuana : CK(1952) : AC(456)

**Diseases** : Brachial Plexus Neuropathies : CK(20) : AC(2), Multiple Sclerosis : CK(964) : AC(184), Neurogenic Bladder : CK(91) : AC(10), Phantom Limb : CK(26) : AC(4), Spinal Cord Injuries : CK(155) : AC(55)

---

## Neuropathic Pain (AC 7) (CK 52)

## "Low-Dose Vaporized Cannabis Significantly Improves Neuropathic Pain."

**Pubmed Data** : J Pain. 2012 Dec 10. Epub 2012 Dec 10. PMID: [23237736](#)

**Article Published Date** : Dec 09, 2012

**Authors** : Barth Wilsey, Thomas Marcotte, Reena Deutsch, Ben Gouaux, Staci Sakai, Haylee Donaghe

**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Neuropathic Pain : CK(284) : AC(69)

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## Cannabis cigarettes may be effective at ameliorating neuropathic pain.

**Pubmed Data** : J Pain. 2008 Jun;9(6):506-21. Epub 2008 Apr 10. PMID: [18403272](#)

**Article Published Date** : Jun 01, 2008

**Authors** : Barth Wilsey, Thomas Marcotte, Alexander Tsodikov, Jeanna Millman, Heather Bentley, Ben Gouaux, Scott Fishman

**Study Type** : Human Study

**Additional Links**

**Substances** : Marijuana : CK(1952) : AC(456)

**Diseases** : Neuropathic Pain : CK(284) : AC(69)

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## Cannabis is well-tolerated and efficacious in the treatment of neuropathic pain from brachial plexus avulsion.

**Pubmed Data** : Pain. 2004 Dec;112(3):299-306. PMID: [15561385](#)

**Article Published Date** : Dec 01, 2004

**Authors** : Jonathan S Berman, Catherine Symonds, Rolfe Birch

**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Brachial Plexus Neuropathies : CK(20) : AC(2), Neuropathic Pain : CK(284) : AC(69)

**Additional Keywords** : Plant Extracts : CK(7645) : AC(2539)

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## Smoked cannabis reduces the intensity of pain and improves sleep in those with chronic neuropathic pain.



**Pubmed Data** : CMAJ. 2010 Oct 5;182(14):E694-701. Epub 2010 Aug 30. PMID: [20805210](#)

**Article Published Date** : Oct 05, 2010

**Authors** : Mark A Ware, Tongtong Wang, Stan Shapiro, Ann Robinson, Thierry Ducruet, Thao Huynh, Ann Gamsa, Gary J Bennett, Jean-Paul Collet

**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Insomnia : CK(523) : AC(66) , Neuropathic Pain : CK(284) : AC(69) , Pain : CK(880) : AC(142)

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## THC/CBD spray was beneficial for the majority of patients with PNP associated with diabetes or allodynia.

**Pubmed Data** : J Neurol. 2015 Jan ;262(1):27-40. Epub 2014 Sep 30. PMID: [25270679](#)

**Article Published Date** : Dec 31, 2014

**Authors** : B Hoggart, S Ratcliffe, E Ehler, K H Simpson, J Hovorka, J Lejčko, L Taylor, H Lauder, M Serpell

**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Neuropathic Pain : CK(284) : AC(69), Peripheral Nerve Diseases : CK(51) : AC(14)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217)

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## This review suggests that cannabinoids may provide effective analgesia in chronic neuropathic pain conditions that are refractory to other treatments.

**Pubmed Data** : J Oral Facial Pain Headache. 2015 ;29(1):7-14. PMID: [25635955](#)

**Article Published Date** : Dec 31, 2014

**Authors** : Darrell G Boychuk, Greg Goddard, Giovanni Mauro, Maria F Orellana

**Study Type** : Review

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Chronic Pain : CK(206) : AC(33), Neuropathic Pain : CK(284) : AC(69)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217)

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## This study revealed the crucial role of THC in promoting the immunomodulatory effects of MSCs and proposed a new strategy to alleviate pain.

**Pubmed Data** : Oncotarget. 2016 Jan 27. Epub 2016 Jan 27. PMID: [26824325](#)

**Article Published Date** : Jan 26, 2016

**Authors** : Junran Xie, Dongju Xiao, Yun Xu, Jinning Zhao, Li Jiang, Xuming Hu, Yaping Zhang, Lina Yu

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Inflammation : CK(3240) : AC(882), Neuropathic Pain : CK(284) : AC(69)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Antinoceptive : CK(193) : AC(51), Immunomodulatory : CK(1287) : AC(358)

---

## Neuropathic Pain: HIV-associated (AC 1) (CK 10)

**Smoked medicinal cannabis is well tolerated and effective in treating neuropathic pain in patients with HIV.**

**Pubmed Data** : Neuropsychopharmacology. 2009 Feb;34(3):672-80. Epub 2008 Aug 6. PMID: [18688212](#)

**Article Published Date** : Feb 01, 2009

**Authors** : Ronald J Ellis, Will Toperoff, Florin Vaida, Geoffrey van den Brande, James Gonzales, Ben Gouaux, Heather Bentley, J Hampton Atkinson

**Study Type** : Human Study

**Additional Links**

**Substances** : Marijuana : CK(1952) : AC(456)

**Diseases** : Neuropathic Pain: HIV-associated : CK(10) : AC(1)

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## Neuropathy: HIV associated (AC 1) (CK 10)

**Cannabis is well tolerated and effective in the treatment of HIV-associated neuropathy**

**Pubmed Data** : Neurology. 2007 Feb 13;68(7):515-21. PMID: [17296917](#)

**Article Published Date** : Feb 13, 2007

**Authors** : D I Abrams, C A Jay, S B Shade, H Vizoso, H Reda, S Press, M E Kelly, M C Rowbotham, K L Petersen

**Study Type** : Human Study

**Additional Links**

**Substances** : Marijuana : CK(1952) : AC(456)

**Diseases** : Neuropathy: HIV associated : CK(10) : AC(1)

## Nonalcoholic fatty liver disease (NAFLD) (AC 1) (CK 2)

**THCV and CBD might be used as new therapeutic agents for the treatment of obesity- and metabolic syndrome-related NAFLD/hepatosteatoris.**

**Pubmed Data** : J Hepatol. 2015 Jun ;62(6):1382-90. Epub 2015 Jan 13. PMID: [25595882](#)

**Article Published Date** : May 31, 2015

**Authors** : Cristoforo Silvestri, Debora Paris, Andrea Martella, Dominique Melck, Irene Guadagnino, Mike Cawthorne, Andrea Motta, Vincenzo Di Marzo

**Study Type** : Animal Study, In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310)

**Diseases** : Metabolic Syndrome X : CK(916) : AC(158) , Nonalcoholic fatty liver disease (NAFLD) : CK(392) : AC(88), Obesity : CK(2443) : AC(521)

**Pharmacological Actions** : Obesity : CK(2443) : AC(521)

## Obesity (AC 6) (CK 18)

**A review of the many benefits of cannabinoids in health and disease.**

**Pubmed Data** : Dialogues Clin Neurosci. 2007 ;9(4):413-30. PMID: [18286801](#)

**Article Published Date** : Dec 31, 2006

**Authors** : Natalya M Kogan, Raphael Mechoulam

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33)

**Diseases** : Anorexia : CK(73) : AC(9), Cancers: All : CK(14773) : AC(4596), Epilepsy : CK(255) : AC(66), Inflammation : CK(3240) : AC(882), Multiple Sclerosis : CK(964) : AC(184), Neurodegenerative Diseases : CK(3582) : AC(932), Obesity : CK(2443) : AC(521), Schizophrenia : CK(445) : AC(70)

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## Cannabidiol may be explored as a potentially promising therapeutic agent for the prevention of obesity.

**Pubmed Data** : Mol Cell Biochem. 2016 Apr 11. Epub 2016 Apr 11. PMID: [27067870](#)

**Article Published Date** : Apr 10, 2016

**Authors** : Hilal Ahmad Parray, Jong Won Yun

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Obesity : CK(2443) : AC(521)

**Additional Keywords** : Anti-Obesity Agents : CK(487) : AC(108), Gene Expression Regulation : CK(431) : AC(214)

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## Cannabis use is associated with a lower rate of obesity in young adults.

**Pubmed Data** : Am J Drug Alcohol Abuse. 2010 Oct 12. Epub 2010 Oct 12. PMID: [20936991](#)

**Article Published Date** : Oct 12, 2010

**Authors** : Mohammad R Hayatbakhsh, Michael J O'Callaghan, Abdullah A Mamun, Gail M Williams, Alexandra Clavarino, Jake M Najman

**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Obesity : CK(2443) : AC(521), Overweight : CK(3643) : AC(612)

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## THC prevents weight gain in obesity and suggests these actions may be mediated in part by modifications of the gut microbiota.

**Pubmed Data** : PLoS One. 2015 ;10(12):e0144270. Epub 2015 Dec 3. PMID: [26633823](#)

**Article Published Date** : Dec 31, 2014

**Authors** : Nina L Cluny, Catherine M Keenan, Raylene A Reimer, Bernard Le Foll, Keith A Sharkey

**Study Type** : Animal Study

**Additional Links**

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : High Fat Diet : CK(212) : AC(103) , Obesity : CK(2443) : AC(521)

**Additional Keywords** : Anti-Obesity Agents : CK(487) : AC(108) , Microbiota : CK(396) : AC(101) , Risk Reduction : CK(6417) : AC(686)

---

## THCV and CBD might be used as new therapeutic agents for the treatment of obesity- and metabolic syndrome-related NAFLD/hepatosteatoris.

**Pubmed Data** : J Hepatol. 2015 Jun ;62(6):1382-90. Epub 2015 Jan 13. PMID: [25595882](#)

**Article Published Date** : May 31, 2015

**Authors** : Cristoforo Silvestri, Debora Paris, Andrea Martella, Dominique Melck, Irene Guadagnino, Mike Cawthorne, Andrea Motta, Vincenzo Di Marzo

**Study Type** : Animal Study, In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310)

**Diseases** : Metabolic Syndrome X : CK(916) : AC(158) , Nonalcoholic fatty liver disease (NAFLD) : CK(392) : AC(88), Obesity : CK(2443) : AC(521)

**Pharmacological Actions** : Obesity : CK(2443) : AC(521)

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## Tetrahydrocannabivarin is a new potential treatment against obesity-associated glucose intolerance.

**Pubmed Data** : Nutr Diabetes. 2013 ;3:e68. Epub 2013 May 27. PMID: [23712280](#)

**Article Published Date** : Dec 31, 2012

**Authors** : E T Wargent, M S Zaibi, C Silvestri, D C Hislop, C J Stocker, C G Stott, G W Guy, M Duncan, V Di Marzo, M A Cawthorne

**Study Type** : Animal Study, In Vitro Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Insulin Resistance : CK(1683) : AC(346) , Metabolic Diseases : CK(411) : AC(75) , Obesity : CK(2443) : AC(521)

**Pharmacological Actions** : Hypoglycemic Agents : CK(1446) : AC(342)

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**Obsessive-Compulsive Disorder (AC 4)  
(CK 23)**

## A single-dose treatment with Delta(9)-THC is effective and safe in treating tics and obsessive-compulsive disorder in Tourette Syndrome.

**Pubmed Data** : J Agric Food Chem. 2008 Sep 24;56(18):8601-8. Epub 2008 Aug 30. PMID: [11951146](#)

**Article Published Date** : Sep 24, 2008

**Authors** : K R Müller-Vahl, U Schneider, A Koblenz, M Jöbges, H Kolbe, T Daldrup, H M Emrich

**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Obsessive-Compulsive Disorder : CK(188) : AC(26), Tourette Syndrome : CK(152) : AC(19)

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## Cannabidiol exhibits therapeutic activity in a mouse model of obsessive-compulsive disorder.

**Pubmed Data** : Platelets. 2006 Feb;17(1):37-41. PMID: [20695034](#)

**Article Published Date** : Feb 01, 2006

**Authors** : Plinio C Casarotto, Felipe V Gomes, Leonardo B M Resstel, Francisco S Guimarães

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408)

**Diseases** : Obsessive-Compulsive Disorder : CK(188) : AC(26)

---

## Cannabis may have therapeutic value in the treatment of Tourette syndrome.

**Pubmed Data** : Acta Psychiatr Scand. 1998 Dec;98(6):502-6. PMID: [9879795](#)

**Article Published Date** : Dec 01, 1998

**Authors** : K R Müller-Vahl, H Kolbe, U Schneider, H M Emrich

**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Obsessive-Compulsive Disorder : CK(188) : AC(26), Tourette Syndrome : CK(152) : AC(19)

---

## Current evidence indicates CBD has considerable potential as a treatment for multiple anxiety disorders.

**Pubmed Data** : Neurotherapeutics. 2015 Sep 4. Epub 2015 Sep 4. PMID: [26341731](#)

**Article Published Date** : Sep 03, 2015

**Authors** : Esther M Blessing, Maria M Steenkamp, Jorge Manzanares, Charles R Marmar

**Study Type** : Review

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Anxiety Disorders : CK(1225) : AC(180), Obsessive-Compulsive Disorder : CK(188) : AC(26), Post-Traumatic Stress Disorders (PTSD) : CK(243) : AC(35)

**Pharmacological Actions** : Anti-Anxiety Agents : CK(356) : AC(59)

---

## Oncovirus (AC 1) (CK 1)

**THC, the compound in cannabis, inhibits replication of Epstein-Barr and Kaposi's Sarcoma Associated Herpesvirus in vitro.**

**Pubmed Data** : BMC Med. 2004 Sep 15;2:34. Epub 2004 Sep 15. PMID: [15369590](#)

**Article Published Date** : Sep 15, 2004

**Authors** : Maria M Medveczky, Tracy A Sherwood, Thomas W Klein, Herman Friedman, Peter G Medveczky

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Epstein-Barr Virus Infections : CK(132) : AC(47), Herpes family viruses : CK(1152) : AC(219), Kaposi's Sarcoma : CK(2) : AC(2), Oncovirus : CK(4) : AC(4)

**Pharmacological Actions** : Antiviral Agents : CK(938) : AC(433)

---

## Opiate Addiction/Withdrawal (AC 2) (CK 11)

**Cannabis may provide a safer alternative to opioids.**

**Pubmed Data** : Am J Hosp Palliat Care. 2011 Apr 7. Epub 2011 Apr 7. PMID: [21444324](#)

**Article Published Date** : Apr 07, 2011

**Authors** : Gregory T Carter, Aaron M Flanagan, Mitchell Earleywine, Donald I Abrams, Sunil K

Aggarwal, Lester Grinspoon

**Study Type** : Review

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Opiate Addiction/Withdrawal : CK(65) : AC(15)

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## Intermittent marijuana use is associated with improved retention in naltrexone treatment for opiate-dependence.

**Pubmed Data** : Am J Addict. 2009 Jul-Aug;18(4):301-8. PMID: [19444734](#)

**Article Published Date** : Jul 01, 2009

**Authors** : Wilfrid Noel Raby, Kenneth M Carpenter, Jami Rothenberg, Adam C Brooks, Huiping Jiang, Maria Sullivan, Adam Bisaga, Sandra Comer, Edward V Nunes

**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Heroin Addiction/Withdrawal : CK(20) : AC(2), Opiate Addiction/Withdrawal : CK(65) : AC(15)

---

## Opioid Tolerance/Dependence (AC 1) (CK 20)

### The median effective dose of morphine administered in combination with THC is 3.6 times lower than of morphine alone.

**Pubmed Data** : Neuropsychopharmacology. 2017 Mar 22. Epub 2017 Mar 22. PMID: [28327548](#)

**Article Published Date** : Mar 21, 2017

**Authors** : Suzanne Nielsen, Pamela Sabioni, Jose M Trigo, Mark A Ware, Brigid D Betz-Stablein, Bridin Murnion, Nicholas Lintzeris, Kok Eng Khor, Michael Farrell, Andrew Smith, Bernard Le Foll

**Study Type** : Meta Analysis, Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Morphine Tolerance/Dependence : CK(89) : AC(34), Opioid Tolerance/Dependence : CK(1) : AC(1)

**Additional Keywords** : Medication Reduction : CK(52) : AC(6)

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## Oral Cancer (AC 1) (CK 1)

**Cannabinoids are potent inhibitors of Tu183 cellular respiration and are toxic to this highly malignant tumor.**

**Pubmed Data** : Pharmacology. 2010 ;85(6):328-35. Epub 2010 Jun 2. PMID: [20516734](#)

**Article Published Date** : Dec 31, 2009

**Authors** : Donna A Whyte, Suleiman Al-Hammadi, Ghazala Balhaj, Oliver M Brown, Harvey S Penefsky, Abdul-Kader Souid

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : [Cannabinoids](#) : CK(816) : AC(310), [Delta-tetrahydrocannabinol \(THC\)](#) : CK(1135) : AC(342)

**Diseases** : [Oral Cancer](#) : CK(223) : AC(86)

**Pharmacological Actions** : [Anti-Tumor](#) : CK(146) : AC(73), [Antiproliferative](#) : CK(2546) : AC(1685)

**Additional Keywords** : [Dose Response](#) : CK(1056) : AC(408)

## Oral Mucositis (AC 1) (CK 1)

**The control of oxidative stress may prevent and alleviate oral mucositis.**

**Pubmed Data** : J Clin Pharm Ther. 2017 Feb 12. Epub 2017 Feb 12. PMID: [28191662](#)

**Article Published Date** : Feb 11, 2017

**Authors** : L F Cuba, F G Salum, K Cherubini, M A Z Figueiredo

**Study Type** : Review

**Additional Links**

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Oral Mucositis](#) : CK(53) : AC(7)

**Pharmacological Actions** : [Analgesics](#) : CK(1327) : AC(217), [Anti-Inflammatory Agents](#) : CK(4861) : AC(1630), [Antioxidants](#) : CK(8430) : AC(3132)

## Osteoporosis (AC 1) (CK 1)

**Ajulemic acid, a compound found within marihuana, may have therapeutic value in the treatment of rheumatoid arthritis and osteoporosis.**

**Pubmed Data** : J Cell Physiol. 2008 Mar;214(3):714-20. PMID: [17786950](#)

**Article Published Date** : Mar 01, 2008

**Authors** : Kerri L George, Laura H Saltman, Gary S Stein, Jane B Lian, Robert B Zurier

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Marijuana : CK(1952) : AC(456)

**Diseases** : Arthritis: Rheumatoid : CK(307) : AC(55), Osteoporosis : CK(1302) : AC(257)

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## Overweight (AC 1) (CK 10)

**Cannabis use is associated with a lower rate of obesity in young adults.**

**Pubmed Data** : Am J Drug Alcohol Abuse. 2010 Oct 12. Epub 2010 Oct 12. PMID: [20936991](#)

**Article Published Date** : Oct 12, 2010

**Authors** : Mohammad R Hayatbakhsh, Michael J O'Callaghan, Abdullah A Mamun, Gail M Williams, Alexandra Clavarino, Jake M Najman

**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Obesity : CK(2443) : AC(521), Overweight : CK(3643) : AC(612)

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## Oxidative Stress (AC 10) (CK 18)

## A hemp seed meal protein hydrolysate contained antioxidant peptides that reduced the rate of lipid peroxidation in spontaneously hypertensive rats.

**Pubmed Data** : Nutrients. 2014 Dec ;6(12):5652-66. PMID: [25493943](#)

**Article Published Date** : Nov 30, 2014

**Authors** : Abraham T Girgih, Adeola M Alashi, Rong He, Sunday A Malomo, Pema Raj, Thomas Netticadan, Rotimi E Aluko

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabis : CK(1776) : AC(408), Hemp Seed : CK(446) : AC(5)

**Diseases** : Hypertension : CK(2984) : AC(406), Lipid Peroxidation : CK(695) : AC(255), Oxidative Stress : CK(3871) : AC(1382)

**Pharmacological Actions** : Antioxidants : CK(8430) : AC(3132), Catalase Up-Regulation : CK(118) : AC(42), Superoxide Dismutase Up-regulation : CK(530) : AC(174)

---

## CBD exerts protective effects against Doxorubicin induced cardiotoxicity and cardiac dysfunction by attenuating oxidative and nitrative stress.

**Pubmed Data** : Mol Med. 2015 Jan 6. Epub 2015 Jan 6. PMID: [25569804](#)

**Article Published Date** : Jan 05, 2015

**Authors** : Enkui Hao, Partha Mukhopadhyay, Zongxian Cao, Katalin Erdélyi, Eileen Holovac, Lucas Liaudet, Wen-Shin Lee, György Haskó, Raphael Mechoulam, Pál Pacher

**Study Type** : Animal Study, In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Chemotherapy-Induced Toxicity: Doxorubicin : CK(132) : AC(56), Oxidative Stress : CK(3871) : AC(1382)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Cardioprotective : CK(1596) : AC(409), Chemoprotective Agents : CK(356) : AC(146), Chemoprotective Agents : CK(356) : AC(146)

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## Cannabidiol and (-)Delta9-tetrahydrocannabinol are neuroprotective antioxidants.

**Pubmed Data** : Proc Natl Acad Sci U S A. 1998 Jul 7 ;95(14):8268-73. PMID: [9653176](#)

**Article Published Date** : Jul 06, 1998

**Authors** : A J Hampson, M Grimaldi, J Axelrod, D Wink

**Study Type** : Review

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Brain Inflammation : CK(274) : AC(145), Cerebral Ischemia : CK(229) : AC(77), Oxidative Stress : CK(3871) : AC(1382)

**Pharmacological Actions** : Antioxidants : CK(8430) : AC(3132), Neuroprotective Agents : CK(2360) : AC(1099)

---

## Cannabidiol has a neuroprotective and blood-retinal-preserving effect in experimental diabetes.

**Pubmed Data** : Int Urol Nephrol. 2004;36(4):591-8. PMID: [16400026](#)

**Article Published Date** : Jan 01, 2004

**Authors** : Azza B El-Remessy, Mohamed Al-Shabrawey, Yousuf Khalifa, Nai-Tse Tsai, Ruth B Caldwell, Gregory I Liou

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Diabetes: Cataract : CK(22) : AC(14), Diabetes Mellitus: Type 1 : CK(1130) : AC(301), Diabetes Mellitus: Type 2 : CK(3572) : AC(624), Oxidative Stress : CK(3871) : AC(1382)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669), Vascular Endothelial Growth Factor A Inhibitor : CK(132) : AC(71)

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## Cannabidiol has a neuroprotective effect in endotoxin-induced uveitis.

**Pubmed Data** : Mol Vis. 2008;14:2190-203. Epub 2008 Dec 3. PMID: [19052649](#)

**Article Published Date** : Jan 01, 2008

**Authors** : A B El-Remessy, Y Tang, G Zhu, S Matragoon, Y Khalifa, E K Liu, J-Y Liu, E Hanson, S Mian, N Fatteh, G I Liou

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408)

**Diseases** : Brain: Microglial Activation : CK(82) : AC(53), Endotoxemia : CK(83) : AC(43), Lipopolysaccharide-Induced Toxicity : CK(380) : AC(218), Oxidative Stress : CK(3871) : AC(1382), Uveitis : CK(91) : AC(17)

**Pharmacological Actions** : Enzyme Inhibitors : CK(473) : AC(251), Neuroprotective Agents : CK(2360) : AC(1099), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

---

## Cannabidiol may represent a promising new protective strategy against cisplatin-induced nephrotoxicity.

**Pubmed Data** : J Pharmacol Exp Ther. 2009 Mar ;328(3):708-14. Epub 2008 Dec 12. PMID: [19074681](#)

**Article Published Date** : Feb 28, 2009

**Authors** : Hao Pan, Partha Mukhopadhyay, Mohanraj Rajesh, Vivek Patel, Bani Mukhopadhyay,

Bin Gao, György Haskó, Pál Pacher

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Chemotherapy-Induced Toxicity: Cisplatin : CK(319) : AC(133) , Inflammation : CK(3240) : AC(882), Oxidative Stress : CK(3871) : AC(1382)

**Pharmacological Actions** : Chemoprotective Agents : CK(356) : AC(146)

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## Cannabidiol protects mouse liver from acute alcohol-induced steatosis through multiple mechanisms.

**Pubmed Data** : Free Radic Biol Med. 2014 Mar ;68:260-7. Epub 2014 Jan 4. PMID: [24398069](#)

**Article Published Date** : Feb 28, 2014

**Authors** : Lili Yang, Raphael Rozenfeld, Defeng Wu, Lakshmi A Devi, Zhenfeng Zhang, Arthur Cederbaum

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Alcohol Toxicity : CK(337) : AC(125), Fatty Liver : CK(887) : AC(204) , Oxidative Stress : CK(3871) : AC(1382)

**Pharmacological Actions** : Antioxidants : CK(8430) : AC(3132) , Autophagy Up-regulation : CK(108) : AC(65), Autophagy Up-regulation : CK(108) : AC(65)

---

## Cannabidiol represents a potential protective agent against doxorubicin cardiac injury.

**Pubmed Data** : Environ Toxicol Pharmacol. 2013 Sep ;36(2):347-57. Epub 2013 May 10. PMID: [23721741](#)

**Article Published Date** : Aug 31, 2013

**Authors** : Amr A Fouad, Waleed H Albuali, Abdulruhman S Al-Mulhim, Iyad Jresat

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Chemotherapy-Induced Toxicity: Doxorubicin : CK(132) : AC(56) , Oxidative Stress : CK(3871) : AC(1382)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630) , Antioxidants : CK(8430) : AC(3132), Cardioprotective : CK(1596) : AC(409) , Malondialdehyde Down-regulation : CK(554) : AC(152), NF-kappaB Inhibitor : CK(1114) : AC(694) , Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

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## Low doses of CBD exert oligoprotective effects in oligodendrocyte progenitor cells under conditions of inflammation, oxidative and ER stress.

**Pubmed Data** : Cell Death Dis. 2012 ;3:e331. Epub 2012 Jun 28. PMID: [22739983](#)

**Article Published Date** : Dec 31, 2011

**Authors** : M Mecha, A S Torrao, L Mestre, F J Carrillo-Salinas, R Mechoulam, C Guaza

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Inflammation : CK(3240) : AC(882), Multiple Sclerosis : CK(964) : AC(184), Oxidative Stress : CK(3871) : AC(1382)

**Pharmacological Actions** : Anti-Apoptotic : CK(384) : AC(212), Anti-Inflammatory Agents : CK(4861) : AC(1630), Antioxidants : CK(8430) : AC(3132), Neuroprotective Agents : CK(2360) : AC(1099)

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## THC may provide a protective effect against oxidative damage induced by diabetes.

**Pubmed Data** : Cell Biochem Funct. 2014 Oct ;32(7):612-9. Epub 2014 Sep 3. PMID: [25187240](#)

**Article Published Date** : Sep 30, 2014

**Authors** : Zeynep Mine Coskun, Sema Bolkent

**Study Type** : Animal Study

**Additional Links**

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Diabetes Mellitus: Type 2 : CK(3572) : AC(624), Oxidative Stress : CK(3871) : AC(1382)

**Pharmacological Actions** : Catalase Up-Regulation : CK(118) : AC(42), Superoxide Dismutase Up-regulation : CK(530) : AC(174)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

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## Pain (AC 9) (CK 83)

### A tetrahydrocannabinol:cannabidiol (THC:CBD) extract is efficacious for relief of pain in patients with advanced cancer pain not fully relieved by strong opioids.

**Pubmed Data** : Hum Reprod. 2009 Jul;24(7):1717-25. Epub 2009 Mar 11. PMID: [19896326](#)

**Article Published Date** : Jul 01, 2009

**Authors** : Jeremy R Johnson, Mary Burnell-Nugent, Dominique Lossignol, Elena Doina Ganae-Motan, Richard Potts, Marie T Fallon

**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Cancers: All : CK(14773) : AC(4596) , Pain : CK(880) : AC(142)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217)

---

## Cannabinoid potentiation of glycine receptors contributes to cannabis-induced analgesia.

**Pubmed Data** : Nat Chem Biol. 2011 May;7(5):296-303. Epub 2011 Apr 3. PMID: [21460829](#)

**Article Published Date** : May 01, 2011

**Authors** : Wei Xiong, Kejun Cheng, Tanxing Cui, Grzegorz Godlewski, Kenner C Rice, Yan Xu, Li Zhang

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Pain : CK(880) : AC(142)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217) , Glycine Agents : CK(2) : AC(1)

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## Cannabinoids have analgesic potential.

**Pubmed Data** : J Opioid Manag. 2009 Nov-Dec;5(6):341-57. PMID: [20073408](#)

**Article Published Date** : Nov 01, 2009

**Authors** : Jaseena Elikkottil, Jaseena Elikotttil, Pankaj Gupta, Kalpna Gupta

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Pain : CK(880) : AC(142)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217)

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## Cannabinoids have therapeutic value in chronic non-cancer pain.

**Pubmed Data** : Arch Pediatr Adolesc Med. 2009 Jul;163(7):601-7. PMID: [21426373](#)

**Article Published Date** : Jul 01, 2009

**Authors** : Mary E Lynch, Fiona Campbell

**Study Type** : Meta Analysis

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Pain : CK(880) : AC(142)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217)

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## Cannabis may improve pain, mood and sleep in some patients with chronic pain.

**Pubmed Data** : Pain Res Manag. 2002 Summer;7(2):95-9. PMID: [12185373](#)

**Article Published Date** : Jun 01, 2002

**Authors** : Mark A Ware, Ann Gamsa, Jan Persson, Mary-Ann Fitzcharles

**Study Type** : Human Study

**Additional Links**

**Substances** : Marijuana : CK(1952) : AC(456)

**Diseases** : Insomnia : CK(523) : AC(66) , Pain : CK(880) : AC(142)

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## **Cannabis, used with adequate precaution, appears to be moderately efficacious for the treatment of chronic pain.**

**Pubmed Data** : Pain Med. 2009 Sep 1. PMID: [19732371](#)

**Article Published Date** : Sep 01, 2009

**Authors** : Eva Martín-Sánchez, Toshiaki A Furukawa, Julian Taylor, Jose Luis R Martin

**Study Type** : Human Study

**Additional Links**

**Substances** : Marijuana : CK(1952) : AC(456)

**Diseases** : Pain : CK(880) : AC(142)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217)

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## **Cannabis-based medicine is effective in reducing pain and sleep disturbance in patients with multiple sclerosis related central neuropathic pain and is mostly well tolerated.**

**Pubmed Data** : Neurology. 2005 Sep 27;65(6):812-9. PMID: [16186518](#)

**Article Published Date** : Sep 27, 2005

**Authors** : David J Rog, Turo J Nurmikko, Tim Friede, Carolyn A Young

**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Insomnia : CK(523) : AC(66) , Multiple Sclerosis : CK(964) : AC(184) , Pain : CK(880) : AC(142), Sleep Disorders : CK(361) : AC(44)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217)

---

## **Smoked cannabis reduces the intensity of pain and improves sleep in those with chronic neuropathic pain.**

**Pubmed Data** : CMAJ. 2010 Oct 5;182(14):E694-701. Epub 2010 Aug 30. PMID: [20805210](#)

**Article Published Date** : Oct 05, 2010

**Authors** : Mark A Ware, Tongtong Wang, Stan Shapiro, Ann Robinson, Thierry Ducruet, Thao Huynh, Ann Gamsa, Gary J Bennett, Jean-Paul Collet



**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Insomnia : CK(523) : AC(66) , Neuropathic Pain : CK(284) : AC(69) , Pain : CK(880) : AC(142)

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**These results indicate that in cannabis smokers, men exhibit greater cannabis-induced analgesia relative to women.**

**Pubmed Data** : Drug Alcohol Depend. 2016 Aug 5. Epub 2016 Aug 5. PMID: [27522535](#)

**Article Published Date** : Aug 04, 2016

**Authors** : Ziva D Cooper, Margaret Haney

**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Pain : CK(880) : AC(142)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217)

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## Pancreatic Cancer (AC 4) (CK 4)

**Cannabinoids could be used for the inhibition of tumor growth in a clinical setting.**

**Pubmed Data** : Cancer Res. 2008 Jan 15 ;68(2):339-42. PMID: [18199524](#)

**Article Published Date** : Jan 14, 2008

**Authors** : Sami Sarfaraz, Vaqar M Adhami, Deeba N Syed, Farrukh Afaq, Hasan Mukhtar

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Breast Cancer : CK(3592) : AC(1064) , Cancers: All : CK(14773) : AC(4596) , Glioblastoma Multiforme : CK(200) : AC(88) , Lung Cancer : CK(1043) : AC(393) , Lymphoma : CK(253) : AC(83) , Pancreatic Cancer : CK(890) : AC(260) , Prostate Cancer : CK(1586) : AC(463) , Skin Cancer : CK(736) : AC(293)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

**Additional Keywords** : Higher Dose Better Than Lower Dose : CK(2) : AC(2)

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**Cannabinoids induce apoptosis of pancreatic tumor cells.**

**Pubmed Data** : Cancer Res. 2006 Jul 1;66(13):6748-55. PMID: [16818650](#)

**Article Published Date** : Jul 01, 2006

**Authors** : Arkaitz Carracedo, Meritxell Gironella, Mar Lorente, Stephane Garcia, Manuel Guzmán, Guillermo Velasco, Juan L Iovanna

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Pancreatic Cancer : CK(890) : AC(260)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075)

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## Preclinical and clinical assessment of cannabinoids as anti-cancer agents.

**Pubmed Data** : Front Pharmacol. 2016 ;7:361. Epub 2016 Oct 7. PMID: [27774065](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Daniel A Ladin, Eman Soliman, LaToya Griffin, Rukiyah Van Dross

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33), Cannabis : CK(1776) : AC(408)

**Diseases** : Breast Cancer : CK(3592) : AC(1064), Colorectal Cancer : CK(1646) : AC(619), Glioma : CK(177) : AC(86), Liver Cancer : CK(1235) : AC(462), Lung Cancer : CK(1043) : AC(393), Melanoma : CK(285) : AC(149), Pancreatic Cancer : CK(890) : AC(260), Prostate Cancer : CK(1586) : AC(463), Skin Cancer : CK(736) : AC(293), Thyroid Cancer : CK(237) : AC(55)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Anticarcinogenic Agents : CK(1099) : AC(519), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

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## The present study demonstrates in vitro anticancer activity of CB derivatives on the poorly differentiated pancreatic cancer cell line MIA PaCa-2.

**Pubmed Data** : FEBS Lett. 2006 Mar 20 ;580(7):1733-9. Epub 2006 Feb 20. PMID: [16500647](#)

**Article Published Date** : Mar 19, 2006

**Authors** : Stefano Fogli, Paola Nieri, Andrea Chicca, Barbara Adinolfi, Veronica Mariotti, Paola Iacopetti, Maria Cristina Breschi, Silvia Pellegrini

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Pancreatic Cancer : CK(890) : AC(260)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Cell cycle arrest : CK(810) : AC(612)

**Additional Keywords** : Gene Expression Regulation : CK(431) : AC(214), Natural Substance/Drug Synergy : CK(352) : AC(142)

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## Pancreatitis: Chronic (AC 1) (CK 10)

**These results reveal an immunosuppressive effect of cannabinoid preparations.**

**Pubmed Data** : Front Mol Neurosci. 2017 ;10:14. Epub 2017 Jan 24. PMID: [28174520](#)

**Article Published Date** : Dec 31, 2016

**Authors** : Wesley K Utomo, Marjan de Vries, Henri Braat, Marco J Bruno, Kaushal Parikh, Mònica Comalada, Maikel P Peppelenbosch, Harry van Goor, Gwenny M Fuhler

**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Inflammation : CK(3240) : AC(882), Pancreatitis: Chronic : CK(4) : AC(4)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Immunosuppressive Agents : CK(37) : AC(24)

**Additional Keywords** : Immunosuppressive Agents : CK(37) : AC(24), Immunosuppressive Agents : CK(37) : AC(24), Immunosuppressive Agents : CK(37) : AC(24), Inflammation : CK(2) : AC(2), Inflammation : CK(2) : AC(2)

## Parkinson's Disease (AC 9) (CK 13)

**A review of the promising aspects of cannabinoid-based therapies for Parkinson's disease.**

**Pubmed Data** : Mol Neurodegener. 2015 ;10:17. Epub 2015 Apr 8. PMID: [25888232](#)

**Article Published Date** : Dec 31, 2014

**Authors** : Sandeep Vasant More, Dong-Kug Choi

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33)

**Diseases** : Parkinson's Disease : CK(1021) : AC(167)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Neuroprotective Agents : CK(2360) : AC(1099)

## CBD has a neurorestorative potential independent of NGF that might contribute to its neuroprotection against neurotoxins relevant to Parkinson's disease.

**Pubmed Data** : Toxicol In Vitro. 2015 Nov 7. Epub 2015 Nov 7. PMID: [26556726](#)

**Article Published Date** : Nov 06, 2015

**Authors** : Neife Aparecida Guinaim Santos, Nádia Maria Martins, Flávia Malvestio Sisti, Laís Silva Fernandes, Rafaela Scalco Ferreira, Regina Helena Costa Queiroz, Antônio Cardozo Santos

**Study Type** : In Vitro Study

### Additional Links

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Neurodegenerative Diseases](#) : CK(3582) : AC(932), [Parkinson's Disease](#) : CK(1021) : AC(167)

**Pharmacological Actions** : [Neuroprotective Agents](#) : CK(2360) : AC(1099)

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## Cannabidiol is able to attenuate motor and cognitive impairments induced by reserpine.

**Pubmed Data** : Front Pharmacol. 2016 ;7:343. Epub 2016 Aug 28. PMID: [27733830](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Fernanda F Peres, Raquel Levin, Mayra A Suiama, Mariana C Diana, Douglas A Gouvêa, Valéria Almeida, Camila M Santos, Lisandro Lungato, Antônio W Zuardi, Jaime E C Hallak, José A Crippa, D'Almeida Vânia, Regina H Silva, Vanessa C Abílio

**Study Type** : Animal Study

### Additional Links

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Memory Disorders: Drug-Induced](#) : CK(101) : AC(26) , [Parkinson's Disease](#) : CK(1021) : AC(167), [Tardive Dyskinesia](#) : CK(78) : AC(12)

**Pharmacological Actions** : [Neuroprotective Agents](#) : CK(2360) : AC(1099)

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## Pre-clinical evidence largely shows that CBD can produce beneficial effects in AD, PD and MS patients

**Pubmed Data** : CNS Neurol Disord Drug Targets. 2017 Apr 13. Epub 2017 Apr 13. PMID: [28412918](#)

**Article Published Date** : Apr 12, 2017

**Authors** : Carmen Mannucci, Michele Navarra, Fabrizio Calapai, Elvira Ventura Spagnolo, Francesco Paolo Busardò, Roberto Da Cas, Francesca Menniti Ippolito, Giocchino Calapai

**Study Type** : Review

### Additional Links

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Alzheimer's Disease](#) : CK(1292) : AC(382) , [Multiple Sclerosis](#) : CK(964) : AC(184) , [Parkinson's Disease](#) : CK(1021) : AC(167)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

**Additional Keywords** : Neuroprotective Agents : CK(2360) : AC(1099) , Neuroprotective Agents : CK(2360) : AC(1099), Multiple Sclerosis : CK(10) : AC(1) , Multiple Sclerosis : CK(10) : AC(1) , Multiple Sclerosis : CK(10) : AC(1)

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## THC exerts anti-apoptotic and restores mitochondrial membrane potential.

**Pubmed Data** : Phytother Res. 2016 Dec ;30(12):2044-2052. Epub 2016 Sep 22. PMID: [27654887](#)

**Article Published Date** : Nov 30, 2016

**Authors** : Chi Huu Nguyen, Christopher Krewenka, Khaled Radad, Barbara Kranner, Alexandra Huber, Johanna Catharina Duvigneau, Ingrid Miller, Rudolf Moldzio

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Neurodegenerative Diseases : CK(3582) : AC(932) , Parkinson's Disease : CK(1021) : AC(167)

**Pharmacological Actions** : Anti-Apoptotic : CK(384) : AC(212) , Neuroprotective Agents : CK(2360) : AC(1099)

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## THC mediates neuroprotection via PPAR $\gamma$ -dependent restoration of mitochondrial content which may be beneficial for PD treatment.

**Pubmed Data** : Oncotarget. 2016 Jun 27. Epub 2016 Jun 27. PMID: [27366949](#)

**Article Published Date** : Jun 26, 2016

**Authors** : Marie-Louise Zeissler, Jordan Eastwood, Kieran McCorry, C Oliver Hanemann, John P Zajicek, Camille B Carroll

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310) , Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Parkinson's Disease : CK(1021) : AC(167)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

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## Tetrahydrocannabivarin could be used for delaying disease progression in PD and also for ameliorating parkinsonian symptoms.

**Pubmed Data** : Br J Pharmacol. 2011 Aug ;163(7):1495-506. PMID: [21323909](#)

**Article Published Date** : Jul 31, 2011

**Authors** : C Garca, C Palomo-Garo, M Garca-Arencibia, Ja Ramos, Rg Pertwee, J Fernandez-Ruiz

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Parkinson's Disease : CK(1021) : AC(167)

**Pharmacological Actions** : Antioxidants : CK(8430) : AC(3132), Neuroprotective Agents : CK(2360) : AC(1099)

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## These results support the view of a potential neuroprotective action of cannabinoids against the in vivo and in vitro toxicity of 6-hydroxydopamine.

**Pubmed Data** : Neurobiol Dis. 2005 Jun-Jul;19(1-2):96-107. PMID: [15837565](#)

**Article Published Date** : May 31, 2005

**Authors** : Isabel Lastres-Becker, Francisco Molina-Holgado, José A Ramos, Raphael Mechoulam, Javier Fernández-Ruiz

**Study Type** : Animal Study, In Vitro Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Neurodegenerative Diseases : CK(3582) : AC(932), Parkinson's Disease : CK(1021) : AC(167)

**Pharmacological Actions** : Antioxidants : CK(8430) : AC(3132), Neuroprotective Agents : CK(2360) : AC(1099)

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## This review details the mechanisms of neurodegeneration and highlights the beneficial effects of cannabinoid treatment.

**Pubmed Data** : Br J Pharmacol. 2014 Mar ;171(6):1347-60. PMID: [24172185](#)

**Article Published Date** : Feb 28, 2014

**Authors** : S G Fagan, V A Campbell

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Alzheimer's Disease : CK(1292) : AC(382), Brain Inflammation : CK(274) : AC(145), Huntington Disease : CK(91) : AC(36), Neurodegenerative Diseases : CK(3582) : AC(932), Parkinson's Disease : CK(1021) : AC(167)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Neurogenesis : CK(59) : AC(30), Neuroprotective Agents : CK(2360) : AC(1099)

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# Peripheral Nerve Diseases (AC 1) (CK 10)

**THC/CBD spray was beneficial for the majority of patients with PNP associated with diabetes or allodynia.**

**Pubmed Data** : J Neurol. 2015 Jan ;262(1):27-40. Epub 2014 Sep 30. PMID: [25270679](#)

**Article Published Date** : Dec 31, 2014

**Authors** : B Hoggart, S Ratcliffe, E Ehler, K H Simpson, J Hovorka, J Lejčko, L Taylor, H Lauder, M Serpell

**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Neuropathic Pain : CK(284) : AC(69), Peripheral Nerve Diseases : CK(51) : AC(14)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217)

# Peripheral Neuropathies (AC 1) (CK 1)

**A review of cannabis and cannabinoids and their benefits in many health conditions.**

**Pubmed Data** : Clin Pharmacol Ther. 2015 Jun ;97(6):575-86. Epub 2015 Apr 17. PMID: [25777363](#)

**Article Published Date** : May 31, 2015

**Authors** : D I Abrams, M Guzman

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : AIDS : CK(79) : AC(13), Cachexia: Cancer : CK(50) : AC(15), Cancer: Pain : CK(55) : AC(8), Cancers: All : CK(14773) : AC(4596), Peripheral Neuropathies : CK(218) : AC(37)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Appetite Stimulants : CK(10) : AC(1), Chemopreventive : CK(2835) : AC(787)

**Additional Keywords** : Natural Substance/Drug Synergy : CK(352) : AC(142)

# Phantom Limb (AC 1) (CK 10)

## Whole-plant cannabis extract can improve intractable neurogenic symptoms.

**Pubmed Data** : Clin Rehabil. 2003 Feb;17(1):21-9. PMID: [12617376](#)

**Article Published Date** : Feb 01, 2003

**Authors** : Derick T Wade, Philip Robson, Heather House, Petra Makela, Julia Aram

**Study Type** : Human Study

### Additional Links

**Substances** : Marijuana : CK(1952) : AC(456)

**Diseases** : Brachial Plexus Neuropathies : CK(20) : AC(2), Multiple Sclerosis : CK(964) : AC(184), Neurogenic Bladder : CK(91) : AC(10), Phantom Limb : CK(26) : AC(4), Spinal Cord Injuries : CK(155) : AC(55)

# Phencyclidine (PCP) Induced Toxicity (AC 1) (CK 2)

## Cannabinoids attenuate PCP-induced schizophrenia-like symptoms in adult rats.

**Pubmed Data** : Eur Neuropsychopharmacol. 2010 Jan;20(1):25-36. PMID: [19854030](#)

**Article Published Date** : Jan 01, 2010

**Authors** : Maria Sabrina Spano, Paola Fadda, Roberto Frau, Liana Fattore, Walter Fratta

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Phencyclidine (PCP) Induced Toxicity : CK(2) : AC(1)



# Post-Traumatic Stress Disorders (PTSD) (AC 7) (CK 10)

**CBD might be an improvement over other available drugs used for treating the fear-related symptoms of phobias.**

**Pubmed Data** : Front Pharmacol. 2016 ;7:454. Epub 2016 Nov 24. PMID: [27932983](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Regimantas Jurkus, Harriet L L Day, Francisco S Guimarães, Jonathan L C Lee, Leandro J Bertoglio, Carl W Stevenson

**Study Type** : Review

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Anxiety : CK(48) : AC(8), Post-Traumatic Stress Disorders (PTSD) : CK(243) : AC(35), Psychiatric Disorder: Conditioned Fear : CK(11) : AC(6)

**Additional Keywords** : Natural Substances Versus Drugs : CK(1698) : AC(302)

**Problem Substances** : Benzodiazepines : CK(10) : AC(1)

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**Cannabidiol oil could be used as a safe treatment for reducing anxiety and improving sleep in posttraumatic stress disorders.**

**Pubmed Data** : Perm J. 2016 Oct 12 ;20(4). Epub 2016 Aug 12. PMID: [27768570](#)

**Article Published Date** : Oct 11, 2016

**Authors** : Scott Shannon, Janet Opila-Lehman

**Study Type** : Human: Case Report

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Anxiety Disorders : CK(1225) : AC(180), Insomnia : CK(523) : AC(66), Post-Traumatic Stress Disorders (PTSD) : CK(243) : AC(35)

**Pharmacological Actions** : Anti-Anxiety Agents : CK(356) : AC(59)

---

**Cannabinoids administered shortly after exposure to a traumatic event were found to prevent the development of PTSD-like phenotype.**

**Pubmed Data** : Behav Pharmacol. 2016 Aug 22. Epub 2016 Aug 22. PMID: [27551883](#)

**Article Published Date** : Aug 21, 2016

**Authors** : Tomer Mizrachi Zer-Aviv, Amir Segev, Irit Akirav

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Post-Traumatic Stress Disorders (PTSD) : CK(243) : AC(35)

**Additional Keywords** : Risk Reduction : CK(6417) : AC(686)

---

## Current evidence indicates CBD has considerable potential as a treatment for multiple anxiety disorders.

**Pubmed Data** : Neurotherapeutics. 2015 Sep 4. Epub 2015 Sep 4. PMID: [26341731](#)

**Article Published Date** : Sep 03, 2015

**Authors** : Esther M Blessing, Maria M Steenkamp, Jorge Manzanares, Charles R Marmar

**Study Type** : Review

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Anxiety Disorders : CK(1225) : AC(180), Obsessive-Compulsive Disorder : CK(188) : AC(26), Post-Traumatic Stress Disorders (PTSD) : CK(243) : AC(35)

**Pharmacological Actions** : Anti-Anxiety Agents : CK(356) : AC(59)

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## THC and CBD could be therapeutic in mitigating a dysfunctional aversive memory through reconsolidation disruption in PTSD patients.

**Pubmed Data** : Eur Neuropsychopharmacol. 2015 Jun ;25(6):958-65. Epub 2015 Feb 16. PMID: [25799920](#)

**Article Published Date** : May 31, 2015

**Authors** : Cristina A J Stern, Lucas Gazarini, Ana C Vanvossen, Antonio W Zuardi, Ismael Galve-Roperh, Francisco S Guimaraes, Reinaldo N Takahashi, Leandro J Bertoglio

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Memory Disorders : CK(344) : AC(104), Post-Traumatic Stress Disorders (PTSD) : CK(243) : AC(35)

**Additional Keywords** : Extinction Of Fear Conditioning : CK(4) : AC(2)

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## Targeting the endocannabinoid system represents an attractive and novel approach to the treatment of anxiety-related disorders.

**Pubmed Data** : J Basic Clin Physiol Pharmacol. 2015 Sep 30. Epub 2015 Sep 30. PMID: [26426887](#)

**Article Published Date** : Sep 29, 2015

**Authors** : Nachshon Korem, Tomer Mizrachi Zer-Aviv, Eti Ganon-Elazar, Hila Abush, Irit Akirav

**Study Type** : Review

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Anxiety Disorders : CK(1225) : AC(180), Post-Traumatic Stress Disorders (PTSD) : CK(243) : AC(35)

**Pharmacological Actions** : Anti-Anxiety Agents : CK(356) : AC(59)

**Additional Keywords** : Endocannabinoid System : CK(60) : AC(23)

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## The endocannabinoid system might influence the generation of dream experiences.

**Pubmed Data** : CNS Neurol Disord Drug Targets. 2017 Feb 23. Epub 2017 Feb 23. PMID: [28240187](#)

**Article Published Date** : Feb 22, 2017

**Authors** : Eric Murillo-Rodriguez, José Carlos Pastrana-Trejo, Mireille Salas-Crisóstomo, Miriel de-la-Cruz

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Post-Traumatic Stress Disorders (PTSD) : CK(243) : AC(35)

**Additional Keywords** : Endocannabinoid System : CK(60) : AC(23)

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## Prenatal Chemical Exposures (AC 1) (CK 2)

### Adolescent exposure to chronic delta-9-tetrahydrocannabinol blocks opiate dependence in maternally deprived rats.

**Pubmed Data** : Neuropsychopharmacology. 2009 Oct ;34(11):2469-76. Epub 2009 Jun 24. PMID: [19553915](#)

**Article Published Date** : Sep 30, 2009

**Authors** : Lydie J Morel, Bruno Giros, Valérie Daugé

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Morphine Tolerance/Dependence : CK(89) : AC(34) , Prenatal Chemical Exposures : CK(538) : AC(129)

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## Prostate Cancer (AC 9) (CK 9)

### A novel cannabinoid induces IL-6 secretion and decreases prostate cancer cell proliferation.

**Pubmed Data** : J Immunotoxicol. 2009 Dec;6(4):249-56. PMID: [19908944](#)

**Article Published Date** : Dec 01, 2009

**Authors** : Nuria Olea-Herrero, Diana Vara, Sophie Malagarie-Cazenave, Inés Díaz-Laviada

**Study Type** : In Vitro Study

#### Additional Links

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Prostate Cancer : CK(1586) : AC(463)

**Pharmacological Actions** : Interleukin-6 upregulation : CK(26) : AC(7)

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### Cannabinoids could be used for the inhibition of tumor growth in a clinical setting.

**Pubmed Data** : Cancer Res. 2008 Jan 15 ;68(2):339-42. PMID: [18199524](#)

**Article Published Date** : Jan 14, 2008

**Authors** : Sami Sarfaraz, Vaqar M Adhami, Deeba N Syed, Farrukh Afaq, Hasan Mukhtar

**Study Type** : Review

#### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Breast Cancer : CK(3592) : AC(1064) , Cancers: All : CK(14773) : AC(4596) , Glioblastoma Multiforme : CK(200) : AC(88) , Lung Cancer : CK(1043) : AC(393) , Lymphoma : CK(253) : AC(83) , Pancreatic Cancer : CK(890) : AC(260) , Prostate Cancer : CK(1586) : AC(463) , Skin Cancer : CK(736) : AC(293)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685) , Apoptotic : CK(2958) : AC(2075)

**Additional Keywords** : Higher Dose Better Than Lower Dose : CK(2) : AC(2)

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### Cannabinoids may be promising tools in combination therapy for breast and prostate cancers.

**Pubmed Data** : Expert Opin Investig Drugs. 2016 Nov ;25(11):1311-1323. Epub 2016 Aug 28.

PMID: [27633508](#)

**Article Published Date** : Oct 31, 2016

**Authors** : A I Fraguas-Sánchez, A Fernández-Carballido, A I Torres-Suárez

**Study Type** : Review

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33), Endocannabinoids : CK(9) : AC(1)

**Diseases** : Breast Cancer : CK(3592) : AC(1064), Prostate Cancer : CK(1586) : AC(463)

**Pharmacological Actions** : Chemotherapeutic : CK(397) : AC(152)

---

## Cannabinoids may have therapeutic value in the treatment of prostate cancer.

**Pubmed Data** : Cancer Res. 2005 Mar 1;65(5):1635-41. PMID: [15753356](#)

**Article Published Date** : Mar 01, 2005

**Authors** : Sami Sarfaraz, Farrukh Afaq, Vaqar M Adhami, Hasan Mukhtar

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Marijuana : CK(1952) : AC(456)

**Diseases** : Prostate Cancer : CK(1586) : AC(463)

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## Cannabinoids possess attributes that have impact in both cancer pain and prostate cancer pathophysiology.

**Pubmed Data** : Indian J Urol. 2012 Jan ;28(1):9-14. PMID: [22557710](#)

**Article Published Date** : Dec 31, 2011

**Authors** : Juan A Ramos, Fernando J Bianco

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Prostate: PSA Doubling : CK(164) : AC(20), Prostate Cancer : CK(1586) : AC(463)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217), Anti-Angiogenic : CK(197) : AC(137)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

---

## Cannabinoids prevent proliferation and cause apoptosis via a combination of cannabinoid receptor-independent, cellular and molecular mechanisms.

**Pubmed Data** : Br J Pharmacol. 2013 Jan ;168(1):79-102. PMID: [22594963](#)

**Article Published Date** : Dec 31, 2012

**Authors** : Luciano De Petrocellis, Alessia Ligresti, Aniello Schiano Moriello, Mariagrazia Iappelli, Roberta Verde, Colin G Stott, Luigia Cristino, Pierangelo Orlando, Vincenzo Di Marzo

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310)

**Diseases** : Prostate Cancer : CK(1586) : AC(463)

**Pharmacological Actions** : Anti-Androgen : CK(60) : AC(18), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Cell cycle arrest : CK(810) : AC(612)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

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## Induction of apoptosis by cannabinoids in prostate and colon cancer cells is phosphatase dependent.

**Pubmed Data** : Anticancer Res. 2011 Nov ;31(11):3799-807. PMID: [22110202](#)

**Article Published Date** : Oct 31, 2011

**Authors** : Sandeep Sreevalsan, Sonia Joseph, Indira Jutooru, Gayathri Chadalapaka, Stephen H Safe

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids: Synthetic : CK(78) : AC(33)

**Diseases** : Colon Cancer : CK(749) : AC(430), Prostate Cancer : CK(1586) : AC(463)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

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## Preclinical and clinical assessment of cannabinoids as anti-cancer agents.

**Pubmed Data** : Front Pharmacol. 2016 ;7:361. Epub 2016 Oct 7. PMID: [27774065](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Daniel A Ladin, Eman Soliman, LaToya Griffin, Rukiyah Van Dross

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33), Cannabis : CK(1776) : AC(408)

**Diseases** : Breast Cancer : CK(3592) : AC(1064), Colorectal Cancer : CK(1646) : AC(619), Glioma : CK(177) : AC(86), Liver Cancer : CK(1235) : AC(462), Lung Cancer : CK(1043) : AC(393), Melanoma : CK(285) : AC(149), Pancreatic Cancer : CK(890) : AC(260), Prostate Cancer : CK(1586) : AC(463), Skin Cancer : CK(736) : AC(293), Thyroid Cancer : CK(237) : AC(55)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Anticarcinogenic Agents : CK(1099) : AC(519), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

---

## THC induced prostate PC-3 cell death by an apoptotic process in a dose dependent manner.

**Pubmed Data** : FEBS Lett. 1999 Sep 24 ;458(3):400-4. PMID: [10570948](#)

**Article Published Date** : Sep 23, 1999

**Authors** : L Ruiz, A Miguel, I Díaz-Laviada

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : [Delta-tetrahydrocannabinol \(THC\)](#) : CK(1135) : AC(342)

**Diseases** : [Prostate Cancer](#) : CK(1586) : AC(463)

**Pharmacological Actions** : [Apoptotic](#) : CK(2958) : AC(2075)

---

## Prostate: PSA Doubling (AC 1) (CK 1)

**Cannabinoids possess attributes that have impact in both cancer pain and prostate cancer pathophysiology.**

**Pubmed Data** : Indian J Urol. 2012 Jan ;28(1):9-14. PMID: [22557710](#)

**Article Published Date** : Dec 31, 2011

**Authors** : Juan A Ramos, Fernando J Bianco

**Study Type** : Review

**Additional Links**

**Substances** : [Cannabinoids](#) : CK(816) : AC(310)

**Diseases** : [Prostate: PSA Doubling](#) : CK(164) : AC(20), [Prostate Cancer](#) : CK(1586) : AC(463)

**Pharmacological Actions** : [Analgesics](#) : CK(1327) : AC(217), [Anti-Angiogenic](#) : CK(197) : AC(137)

**Additional Keywords** : [Cannabinoid Receptors](#) : CK(67) : AC(37)

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## Pseudomonas aeruginosa (AC 1) (CK 1)

**Biologically active cannabinoids from high-potency Cannabis sativa displayed significant antibacterial and antifungal activities.**

**Pubmed Data** : J Nat Prod. 2009 May 22 ;72(5):906-11. PMID: [19344127](#)

**Article Published Date** : May 21, 2009

**Authors** : Mohamed M Radwan, Mahmoud A Elsohly, Desmond Slade, Safwat A Ahmed, Ikhlas A Khan, Samir A Ross

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Candida Infection : CK(241) : AC(112), Leishmaniasis : CK(53) : AC(36), Pseudomonas aeruginosa : CK(115) : AC(73), Staphylococcus aureus: Methicillin-resistant (MRSA) : CK(257) : AC(103)

**Pharmacological Actions** : Anti-Bacterial Agents : CK(1367) : AC(475), Antifungal Agents : CK(234) : AC(146)

## Psoriasis (AC 2) (CK 2)

### Cannabinoids have a potential therapeutic value in the treatment of psoriasis.

**Pubmed Data** : J Dermatol Sci. 2007 Feb;45(2):87-92. Epub 2006 Dec 6. PMID: [17157480](#)

**Article Published Date** : Feb 01, 2007

**Authors** : Jonathan D Wilkinson, Elizabeth M Williamson

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Marijuana : CK(1952) : AC(456)

**Diseases** : Psoriasis : CK(372) : AC(66)

### Cannabinoids may have potential anti-psoriatic activity

**Pubmed Data** : Curr Clin Pharmacol. 2016 May 11. Epub 2016 May 11. PMID: [27164964](#)

**Article Published Date** : May 10, 2016

**Authors** : Nima Derakhshan, Mahboubeh Kazemi

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Psoriasis : CK(372) : AC(66)

## Psychiatric Disorder: Conditioned



# Fear (AC 3) (CK 5)

## CBD both acutely inhibited fear expression and enhanced extinction to produce longer lasting reductions in fear.

**Pubmed Data** : Front Pharmacol. 2016 ;7:493. Epub 2016 Dec 16. PMID: [28018227](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Chenchen Song, Carl W Stevenson, Francisco S Guimaraes, Jonathan L C Lee

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Psychiatric Disorder: Conditioned Fear : CK(11) : AC(6) , Traumatic Memory Formation : CK(6) : AC(3)

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## CBD might be an improvement over other available drugs used for treating the fear-related symptoms of phobias.

**Pubmed Data** : Front Pharmacol. 2016 ;7:454. Epub 2016 Nov 24. PMID: [27932983](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Regimantas Jurkus, Harriet L L Day, Francisco S Guimarães, Jonathan L C Lee, Leandro J Bertoglio, Carl W Stevenson

**Study Type** : Review

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Anxiety : CK(48) : AC(8) , Post-Traumatic Stress Disorders (PTSD) : CK(243) : AC(35) , Psychiatric Disorder: Conditioned Fear : CK(11) : AC(6)

**Additional Keywords** : Natural Substances Versus Drugs : CK(1698) : AC(302)

**Problem Substances** : Benzodiazepines : CK(10) : AC(1)

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## Cannabidiol modulates fear memory formation through Interactions with serotonergic transmission.

**Pubmed Data** : Neuropsychopharmacology. 2016 Jun 14. Epub 2016 Jun 14. PMID: [27296152](#)

**Article Published Date** : Jun 13, 2016

**Authors** : Christopher Norris, Michael Loureiro, Cecilia Kramar, Jordan Zunder, Justine Renard, Walter Rushlow, Steven R Laviolette

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Psychiatric Disorder: Conditioned Fear : CK(11) : AC(6) , Traumatic Memory Formation : CK(6) : AC(3)

## Psychiatric Disorders (AC 1) (CK 1)

**This summarizes the therapeutic effects of CBD and their relevance to brain function, neuroprotection and neuropsychiatric disorders.**

**Pubmed Data** : Pharmacol Res. 2016 Feb 1. Epub 2016 Feb 1. PMID: [26845349](#)

**Article Published Date** : Jan 31, 2016

**Authors** : Alline C Campos, Manoela V Fogaça, Andreza B Sonego, Francisco S Guimarães

**Study Type** : Review

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Anxiety Disorders : CK(1225) : AC(180), Brain Damage : CK(93) : AC(44), Brain Ischemia : CK(136) : AC(52), Depression : CK(2043) : AC(290), Neurodegenerative Diseases : CK(3582) : AC(932), Psychiatric Disorders : CK(123) : AC(31)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

## Psychoses (AC 3) (CK 3)

**Cannabidiol may have therapeutic value as an antipsychotic drug.**

**Pubmed Data** : Braz J Med Biol Res. 2006 Apr;39(4):421-9. Epub 2006 Apr 3. PMID: [16612464](#)

**Article Published Date** : Apr 01, 2006

**Authors** : A W Zuardi, J A S Crippa, J E C Hallak, F A Moreira, F S Guimarães

**Study Type** : Review

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Psychoses : CK(39) : AC(9)

**Pharmacological Actions** : Anti-Psychotic : CK(1) : AC(1)

**Cannabidiol shows great promise for the treatment of**

## psychosis.

**Pubmed Data** : J Psychiatr Res. 2016 May 28 ;80:14-21. Epub 2016 May 28. PMID: [27267317](#)

**Article Published Date** : May 27, 2016

**Authors** : Marc Fakhoury

**Study Type** : Review

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Psychoses : CK(39) : AC(9), Schizophrenia : CK(445) : AC(70)

**Additional Keywords** : Endocannabinoid System : CK(60) : AC(23)

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**This review further confirms the potential of CBD as an effective, safe and well tolerated antipsychotic compound.**

**Pubmed Data** : Schizophr Res. 2015 Mar ;162(1-3):153-161. Epub 2015 Feb 7. PMID: [25667194](#)

**Article Published Date** : Feb 28, 2015

**Authors** : Tabitha A Iseger, Matthijs G Bossong

**Study Type** : Review

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Psychoses : CK(39) : AC(9), Schizophrenia : CK(445) : AC(70)

**Pharmacological Actions** : Antipsychotic Agents : CK(15) : AC(2)

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## Psychotic Disorders (AC 2) (CK 2)

**Cannabidiol acts in pathways associated with psychotic symptoms and may be important in the management of psychotic states and psychosis.**

**Pubmed Data** : CNS Neurol Disord Drug Targets. 2015 ;14(8):970-8. PMID: [26350340](#)

**Article Published Date** : Dec 31, 2014

**Authors** : Jose Alexandre Crippa, Jaime Eduardo Cecilio Hallak, Vanessa Costhek Abilio, Acioly Luiz Tavares de Lacerda, Antonio Waldo Zuardi

**Study Type** : Review

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Psychotic Disorders : CK(12) : AC(3), Schizophrenia : CK(445) : AC(70)

**Pharmacological Actions** : Antipsychotic Agents : CK(15) : AC(2)

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## Studies indicate that the cannabinoid system is impaired in different psychotic disorders.

**Pubmed Data** : Curr Top Med Chem. 2016 Feb 4. Epub 2016 Feb 4. PMID: [26845552](#)

**Article Published Date** : Feb 03, 2016

**Authors** : Anna Capasso, Eduardo Sobarzo-Sánchez, Seyed Fazel Nabavi, Luca Rastrelli

**Study Type** : Review

### Additional Links

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Psychotic Disorders : CK(12) : AC(3), Schizophrenia : CK(445) : AC(70)

**Additional Keywords** : Endocannabinoid System : CK(60) : AC(23)

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## Rhabdomyosarcoma (AC 1) (CK 2)

### Cannabinoid receptor agonists HU210 and Delta(9)-tetrahydrocannabinol lowers the viability of translocation-positive rhabdomyosarcoma cells through the induction of apoptosis.

**Pubmed Data** : Mol Cancer Ther. 2009 Jul ;8(7):1838-45. Epub 2009 Jun 9. PMID: [19509271](#)

**Article Published Date** : Jun 30, 2009

**Authors** : Susanne Oesch, Dagmar Walter, Marco Wachtel, Kathya Pretre, Maria Salazar, Manuel Guzmán, Guillermo Velasco, Beat W Schäfer

**Study Type** : Animal Study, In Vitro Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Rhabdomyosarcoma : CK(8) : AC(5)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Cannabinoid Receptor Antagonist/Inverse Agonist : CK(1) : AC(1), Glycogen synthase kinase-3beta (GSK-3beta) Inhibitor : CK(14) : AC(4)

**Additional Keywords** : Chemotherapeutic Synergy: Cisplatin : CK(80) : AC(57), Chemotherapeutic Synergy: Doxorubicin : CK(44) : AC(32)

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# Schizophrenia (AC 10) (CK 14)

## A review of the many benefits of cannabinoids in health and disease.

**Pubmed Data** : Dialogues Clin Neurosci. 2007 ;9(4):413-30. PMID: [18286801](#)

**Article Published Date** : Dec 31, 2006

**Authors** : Natalya M Kogan, Raphael Mechoulam

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33)

**Diseases** : Anorexia : CK(73) : AC(9), Cancers: All : CK(14773) : AC(4596), Epilepsy : CK(255) : AC(66), Inflammation : CK(3240) : AC(882), Multiple Sclerosis : CK(964) : AC(184), Neurodegenerative Diseases : CK(3582) : AC(932), Obesity : CK(2443) : AC(521), Schizophrenia : CK(445) : AC(70)

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## CBD can attenuate both behavioural and dopaminergic neuronal correlates of mesolimbic dopaminergic sensitization.

**Pubmed Data** : J Neurosci. 2016 May 4 ;36(18):5160-9. PMID: [27147666](#)

**Article Published Date** : May 03, 2016

**Authors** : Justine Renard, Michael Loureiro, Laura G Rosen, Jordan Zunder, Cleusa de Oliveira, Susanne Schmid, Walter J Rushlow, Steven R Laviolette

**Study Type** : Animal Study, In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Amphetamine Addiction/Withdrawal : CK(36) : AC(11), Schizophrenia : CK(445) : AC(70)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

**Problem Substances** : Amphetamine : CK(12) : AC(3)

---

## Cannabidiol acts in pathways associated with psychotic symptoms and may be important in the management of psychotic states and psychosis.

**Pubmed Data** : CNS Neurol Disord Drug Targets. 2015 ;14(8):970-8. PMID: [26350340](#)

**Article Published Date** : Dec 31, 2014

**Authors** : Jose Alexandre Crippa, Jaime Eduardo Cecilio Hallak, Vanessa Costhek Abilio, Acioly Luiz Tavares de Lacerda, Antonio Waldo Zuardi

**Study Type** : Review

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Psychotic Disorders : CK(12) : AC(3), Schizophrenia : CK(445) : AC(70)

**Pharmacological Actions** : Antipsychotic Agents : CK(15) : AC(2)

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## Cannabidiol seems to represent a mechanistically different and less side-effect prone antipsychotic compound for the treatment of schizophrenia.

**Pubmed Data** : Front Pharmacol. 2016 ;7:422. Epub 2016 Nov 8. PMID: [27877130](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Cathrin Rohleder, Juliane K Müller, Bettina Lange, F M Leweke

**Study Type** : Review

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Schizophrenia : CK(445) : AC(70)

**Pharmacological Actions** : Antipsychotic Agents : CK(15) : AC(2)

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## Cannabidiol shows great promise for the treatment of psychosis.

**Pubmed Data** : J Psychiatr Res. 2016 May 28 ;80:14-21. Epub 2016 May 28. PMID: [27267317](#)

**Article Published Date** : May 27, 2016

**Authors** : Marc Fakhoury

**Study Type** : Review

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Psychoses : CK(39) : AC(9), Schizophrenia : CK(445) : AC(70)

**Additional Keywords** : Endocannabinoid System : CK(60) : AC(23)

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## Pretreatment of mice with cannabidiol attenuated the amphetamine induced disruptive effects on prepulse inhibition (PPI).

**Pubmed Data** : Psychopharmacology (Berl). 2015 May 6. Epub 2015 May 6. PMID: [25943166](#)

**Article Published Date** : May 05, 2015

**Authors** : J F C Pedrazzi, A C Issy, F V Gomes, F S Guimarães, E A Del-Bel

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Schizophrenia : CK(445) : AC(70)

**Pharmacological Actions** : Antipsychotic Agents : CK(15) : AC(2)

**Problem Substances** : Amphetamine : CK(12) : AC(3)

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## Studies indicate that the cannabinoid system is impaired in different psychotic disorders.

**Pubmed Data** : Curr Top Med Chem. 2016 Feb 4. Epub 2016 Feb 4. PMID: [26845552](#)

**Article Published Date** : Feb 03, 2016

**Authors** : Anna Capasso, Eduardo Sobarzo-Sánchez, Seyed Fazel Nabavi, Luca Rastrelli

**Study Type** : Review

### Additional Links

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Psychotic Disorders : CK(12) : AC(3), Schizophrenia : CK(445) : AC(70)

**Additional Keywords** : Endocannabinoid System : CK(60) : AC(23)

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## Tetrahydrocannabivarin has therapeutic potential for ameliorating some of the negative, cognitive and positive symptoms of schizophrenia.

**Pubmed Data** : Br J Pharmacol. 2015 Mar ;172(5):1305-18. PMID: [25363799](#)

**Article Published Date** : Feb 28, 2015

**Authors** : Maria Grazia Cascio, Erica Zamberletti, Pietro Marini, Daniela Parolaro, Roger G Pertwee

**Study Type** : Animal Study, In Vitro Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Schizophrenia : CK(445) : AC(70)

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## The data from this study supports the view that inhibition of microglial activation may improve schizophrenia symptoms.

**Pubmed Data** : Schizophr Res. 2015 May ;164(1-3):155-63. Epub 2015 Feb 10. PMID: [25680767](#)

**Article Published Date** : Apr 30, 2015

**Authors** : Felipe V Gomes, Ricardo Llorente, Elaine A Del Bel, Maria-Paz Viveros, Meritxell López-Gallardo, Francisco S Guimarães

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Brain Inflammation : CK(274) : AC(145), Schizophrenia : CK(445) : AC(70)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Antipsychotic Agents : CK(15) : AC(2), Neuroprotective Agents : CK(2360) : AC(1099)

**Additional Keywords** : Clozapine : CK(2) : AC(1), Natural Substances Versus Drugs : CK(1698) : AC(302)

## This review further confirms the potential of CBD as an effective, safe and well tolerated antipsychotic compound.

**Pubmed Data** : Schizophr Res. 2015 Mar ;162(1-3):153-161. Epub 2015 Feb 7. PMID: [25667194](#)

**Article Published Date** : Feb 28, 2015

**Authors** : Tabitha A Iseger, Matthijs G Bossong

**Study Type** : Review

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Psychoses : CK(39) : AC(9), Schizophrenia : CK(445) : AC(70)

**Pharmacological Actions** : Antipsychotic Agents : CK(15) : AC(2)

## Sciatic Nerve Crush Injury (AC 1) (CK 2)

### Cannabidiol possesses neuroprotective characteristics that may, in turn, be promising for future clinical use.

**Pubmed Data** : Eur J Neurosci. 2013 Nov ;38(10):3424-34. Epub 2013 Aug 25. PMID: [23981015](#)

**Article Published Date** : Oct 31, 2013

**Authors** : Matheus Perez, Suzana U Benitez, Luciana P Cartarozzi, Elaine Del Bel, Francisco S Guimarães, Alexandre L R Oliveira

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Sciatic Nerve Crush Injury : CK(18) : AC(9)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

## Seborrheic Dermatitis (AC 1) (CK 10)



## Cannabis seeds extract could be used in the treatment of acne vulgaris, seborrhea, papules and pustules.

**Pubmed Data** : Pak J Pharm Sci. 2015 Jul ;28(4):1389-95. PMID: [26142529](#)

**Article Published Date** : Jun 30, 2015

**Authors** : Atif Ali, Naveed Akhtar

**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Acne : CK(327) : AC(53), Seborrheic Dermatitis : CK(62) : AC(12)

**Additional Keywords** : Cannabis Seed : CK(10) : AC(1)

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## Seizures (AC 2) (CK 3)

### A review of the therapeutic effects of cannabinoids in animal models of seizures, epilepsy, epileptogenesis.

**Pubmed Data** : Epilepsy Behav. 2017 Feb 9. Epub 2017 Feb 9. PMID: [28190698](#)

**Article Published Date** : Feb 08, 2017

**Authors** : Evan C Rosenberg, Pabitra H Patra, Benjamin J Whalley

**Study Type** : Review

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310)

**Diseases** : Epilepsy : CK(255) : AC(66), Seizures : CK(208) : AC(60)

**Pharmacological Actions** : Anticonvulsants : CK(238) : AC(67), Neuroprotective Agents : CK(2360) : AC(1099)

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### Cannabidivarin-rich cannabis extracts exerted significant anticonvulsant effects in three rat models of seizure.

**Pubmed Data** : Br J Pharmacol. 2013 Oct ;170(3):679-92. PMID: [23902406](#)

**Article Published Date** : Sep 30, 2013

**Authors** : T D M Hill, M-G Cascio, B Romano, M Duncan, R G Pertwee, C M Williams, B J Whalley, A J Hill

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Epilepsy : CK(255) : AC(66) , Seizures : CK(208) : AC(60)

**Pharmacological Actions** : Anticonvulsants : CK(238) : AC(67)

**Additional Keywords** : Plant Extracts : CK(7645) : AC(2539)

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## Sepsis (AC 1) (CK 2)

**Treatment with cannabidiol reverses oxidative stress parameters, cognitive impairment and mortality in rats submitted to sepsis by cecal ligation and puncture.**

**Pubmed Data** : Brain Res. 2010 Aug 12;1348:128-38. Epub 2010 Jun 16. PMID: [20561509](#)

**Article Published Date** : Aug 12, 2010

**Authors** : Omar J Cassol-Jr, Clarissa M Comim, Bruno R Silva, Fernanda V Hermani, Larissa S Constantino, Francine Felisberto, Fabricia Petronilho, Jaime Eduardo C Hallak, Bruno S De Martinis, Antonio W Zuardi, José A S Crippa, João Quevedo, Felipe Dal-Pizzol

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408)

**Diseases** : Endotoxemia : CK(83) : AC(43), Sepsis : CK(216) : AC(61)

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## Skin Cancer (AC 5) (CK 7)

**Activation of cannabinoid receptors could be a new therapeutic approach for the treatment of skin tumors.**

**Pubmed Data** : J Clin Invest. 2003 Jan ;111(1):43-50. PMID: [12511587](#)

**Article Published Date** : Dec 31, 2002

**Authors** : M Llanos Casanova, Cristina Blázquez, Jesús Martínez-Palacio, Concepción Villanueva, M Jesús Fernández-Aceñero, John W Huffman, José L Jorcano, Manuel Guzmán

**Study Type** : Animal Study, In Vitro Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Skin Cancer : CK(736) : AC(293)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Antineoplastic Agents : CK(1158) : AC(639), Apoptotic : CK(2958) : AC(2075), Vascular Endothelial Growth Factor A Inhibitor : CK(132) : AC(71), Vascular Endothelial Growth Factor Regulator : CK(31) : AC(14)  
**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

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## Cannabinoid-induced cytotoxic autophagy as an effective strategy to drive melanoma cell death.

**Pubmed Data** : J Invest Dermatol. 2015 Jun ;135(6):1629-37. Epub 2015 Feb 10. PMID: [25674907](#)

**Article Published Date** : May 31, 2015

**Authors** : Jane L Armstrong, David S Hill, Christopher S McKee, Sonia Hernandez-Tiedra, Mar Lorente, Israel Lopez-Valero, Maria Eleni Anagnostou, Fiyinfoluwa Babatunde, Marco Corazzari, Christopher P F Redfern, Guillermo Velasco, Penny E Lovat

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Melanoma : CK(285) : AC(149), Skin Cancer : CK(736) : AC(293)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

**Additional Keywords** : Plant Extracts : CK(7645) : AC(2539)

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## Cannabinoids could be used for the inhibition of tumor growth in a clinical setting.

**Pubmed Data** : Cancer Res. 2008 Jan 15 ;68(2):339-42. PMID: [18199524](#)

**Article Published Date** : Jan 14, 2008

**Authors** : Sami Sarfaraz, Vaqar M Adhami, Deeba N Syed, Farrukh Afaq, Hasan Mukhtar

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Breast Cancer : CK(3592) : AC(1064), Cancers: All : CK(14773) : AC(4596), Glioblastoma Multiforme : CK(200) : AC(88), Lung Cancer : CK(1043) : AC(393), Lymphoma : CK(253) : AC(83), Pancreatic Cancer : CK(890) : AC(260), Prostate Cancer : CK(1586) : AC(463), Skin Cancer : CK(736) : AC(293)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

**Additional Keywords** : Higher Dose Better Than Lower Dose : CK(2) : AC(2)

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## Preclinical and clinical assessment of cannabinoids as anti-cancer agents.

**Pubmed Data** : Front Pharmacol. 2016 ;7:361. Epub 2016 Oct 7. PMID: [27774065](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Daniel A Ladin, Eman Soliman, LaToya Griffin, Rukiyah Van Dross

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33) , Cannabis : CK(1776) : AC(408)

**Diseases** : Breast Cancer : CK(3592) : AC(1064) , Colorectal Cancer : CK(1646) : AC(619) , Glioma : CK(177) : AC(86) , Liver Cancer : CK(1235) : AC(462) , Lung Cancer : CK(1043) : AC(393) , Melanoma : CK(285) : AC(149) , Pancreatic Cancer : CK(890) : AC(260) , Prostate Cancer : CK(1586) : AC(463) , Skin Cancer : CK(736) : AC(293) , Thyroid Cancer : CK(237) : AC(55)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62) , Anticarcinogenic Agents : CK(1099) : AC(519) , Antiproliferative : CK(2546) : AC(1685) , Apoptotic : CK(2958) : AC(2075)

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## These results confirm the value of exogenous cannabinoids for the treatment of melanomas.

**Pubmed Data** : Life Sci. 2015 Oct 1 ;138:35-40. Epub 2015 Apr 25. PMID: [25921771](#)

**Article Published Date** : Sep 30, 2015

**Authors** : Nicole Glodde, Mira Jakobs, Tobias Bald, Thomas Tüting, Evelyn Gaffal

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Skin Cancer : CK(736) : AC(293)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

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## Sleep Disorders (AC 3) (CK 23)

**Cannabis-based medicine is effective in reducing pain and sleep disturbance in patients with multiple sclerosis related central neuropathic pain and is mostly well tolerated.**

**Pubmed Data** : Neurology. 2005 Sep 27;65(6):812-9. PMID: [16186518](#)

**Article Published Date** : Sep 27, 2005

**Authors** : David J Rog, Turo J Nurmikko, Tim Friede, Carolyn A Young

**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Insomnia : CK(523) : AC(66) , Multiple Sclerosis : CK(964) : AC(184) , Pain : CK(880) :

AC(142), Sleep Disorders : CK(361) : AC(44)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217)

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## Delta-9-tetrahydrocannabinol appears to be therapeutic for nighttime agitation in severe dementia.

**Pubmed Data** : Psychopharmacology (Berl). 2006 May ;185(4):524-8. Epub 2006 Mar 7. PMID: [16521031](#)

**Article Published Date** : Apr 30, 2006

**Authors** : Sebastian Walther, Richard Mahlberg, Uta Eichmann, Dieter Kunz

**Study Type** : Human Study

**Additional Links**

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Dementia : CK(571) : AC(79), Sleep Disorders : CK(361) : AC(44)

---

## Four patients treated with CBD had prompt and substantial reduction in the frequency of REM sleep behaviour disorder related events without side effects.

**Pubmed Data** : J Clin Pharm Ther. 2014 Oct ;39(5):564-6. Epub 2014 May 21. PMID: [24845114](#)

**Article Published Date** : Sep 30, 2014

**Authors** : M H N Chagas, A L Eckeli, A W Zuardi, M A Pena-Pereira, M A Sobreira-Neto, E T Sobreira, M R Camilo, M M Bergamaschi, C H Schenck, J E C Hallak, V Tumas, J A S Crippa

**Study Type** : Human: Case Report

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408)

**Diseases** : Sleep Disorders : CK(361) : AC(44)

**Additional Keywords** : Phytotherapy : CK(1216) : AC(221), Significant Treatment Outcome : CK(3038) : AC(366)

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# Social Anxiety Disorder (SAD) (AC 1) (CK 10)

**Cannabidiol reduces anxiety in social anxiety disorder through modulating the limbic and paralimbic brain**

## areas.

**Pubmed Data** : J Psychopharmacol. 2010 Sep 9. Epub 2010 Sep 9. PMID: [20829306](#)

**Article Published Date** : Sep 09, 2010

**Authors** : José Alexandre S Crippa, Guilherme Nogueira Derenusson, Thiago Borduqui Ferrari, Lauro Wichert-Ana, Fábio L S Duran, Rocio Martin-Santos, Marcus Vinícius Simões, Sagnik Bhattacharyya, Paolo Fusar-Poli, Zerrin Atakan, Alaor Santos Filho, Maria Cecília Freitas-Ferrari, Philip K McGuire, Antonio Waldo Zuardi, Geraldo F Busatto, Jaime Eduardo Cecílio Hallak

**Study Type** : Human Study

### Additional Links

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338), [Cannabis](#) : CK(1776) : AC(408)

**Diseases** : [Anxiety Disorders](#) : CK(1225) : AC(180), [Social Anxiety Disorder \(SAD\)](#) : CK(10) : AC(1)

**Pharmacological Actions** : [Anxiolytic](#) : CK(379) : AC(57)

---

## Spinal Cord Injuries (AC 1) (CK 10)

### Whole-plant cannabis extract can improve intractable neurogenic symptoms.

**Pubmed Data** : Clin Rehabil. 2003 Feb;17(1):21-9. PMID: [12617376](#)

**Article Published Date** : Feb 01, 2003

**Authors** : Derick T Wade, Philip Robson, Heather House, Petra Makela, Julia Aram

**Study Type** : Human Study

### Additional Links

**Substances** : [Marijuana](#) : CK(1952) : AC(456)

**Diseases** : [Brachial Plexus Neuropathies](#) : CK(20) : AC(2), [Multiple Sclerosis](#) : CK(964) : AC(184), [Neurogenic Bladder](#) : CK(91) : AC(10), [Phantom Limb](#) : CK(26) : AC(4), [Spinal Cord Injuries](#) : CK(155) : AC(55)

---

## Staphylococcus aureus infection (AC 1) (CK 2)

**THC treatment led to 100% survival of mice due to its**

## potent anti-inflammatory action that suppressed SEB-induced pulmonary inflammation.

**Pubmed Data** : Br J Pharmacol. 2015 Apr ;172(7):1792-806. Epub 2015 Feb 10. PMID: [25425209](#)

**Article Published Date** : Mar 31, 2015

**Authors** : R Rao, P S Nagarkatti, M Nagarkatti

**Study Type** : Animal Study

### Additional Links

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Lung Inflammation : CK(11) : AC(6), Staphylococcus aureus infection : CK(188) : AC(125)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), MicroRNA modulator : CK(264) : AC(145)

**Additional Keywords** : Significant Treatment Outcome : CK(3038) : AC(366)

## Staphylococcus aureus: Methicillin-resistant (MRSA) (AC 2) (CK 2)

### Biologically active cannabinoids from high-potency Cannabis sativa displayed significant antibacterial and antifungal activities.

**Pubmed Data** : J Nat Prod. 2009 May 22 ;72(5):906-11. PMID: [19344127](#)

**Article Published Date** : May 21, 2009

**Authors** : Mohamed M Radwan, Mahmoud A Elsohly, Desmond Slade, Safwat A Ahmed, Ikhlas A Khan, Samir A Ross

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Candida Infection : CK(241) : AC(112), Leishmaniasis : CK(53) : AC(36), Pseudomonas aeruginosa : CK(115) : AC(73), Staphylococcus aureus: Methicillin-resistant (MRSA) : CK(257) : AC(103)

**Pharmacological Actions** : Anti-Bacterial Agents : CK(1367) : AC(475), Antifungal Agents : CK(234) : AC(146)

### Cannabinoids showed potent activity against a variety of methicillin-resistant Staphylococcus aureus (MRSA)

## strains.

**Pubmed Data** : J Nat Prod. 2008 Aug ;71(8):1427-30. Epub 2008 Aug 6. PMID: [18681481](#)

**Article Published Date** : Jul 31, 2008

**Authors** : Giovanni Appendino, Simon Gibbons, Anna Giana, Alberto Pagani, Gianpaolo Grassi, Michael Stavri, Eileen Smith, M Mukhlesur Rahman

**Study Type** : In Vitro Study

### Additional Links

**Substances** : [Cannabinoids](#) : CK(816) : AC(310), [Cannabis](#) : CK(1776) : AC(408)

**Diseases** : [Staphylococcus aureus: Methicillin-resistant \(MRSA\)](#) : CK(257) : AC(103)

**Pharmacological Actions** : [Anti-Bacterial Agents](#) : CK(1367) : AC(475)

---

## Stroke (AC 2) (CK 40)

### Cannabinoids significantly reduced infarct volume and improve functional outcome in experimental stroke models.

**Pubmed Data** : J Cereb Blood Flow Metab. 2015 Mar ;35(3):348-58. Epub 2014 Dec 10. PMID: [25492113](#)

**Article Published Date** : Feb 28, 2015

**Authors** : Timothy J England, William H Hind, Nadiah A Rasid, Saoirse E O'Sullivan

**Study Type** : Meta Analysis, Review

### Additional Links

**Substances** : [Cannabinoids](#) : CK(816) : AC(310)

**Diseases** : [Stroke](#) : CK(1365) : AC(168), [Stroke: Attenuation/Recovery](#) : CK(347) : AC(75)

**Pharmacological Actions** : [Neuroprotective Agents](#) : CK(2360) : AC(1099)

---

### This meta-analysis and systematic review has highlighted the haemodynamic effects of CBD.

**Pubmed Data** : Front Pharmacol. 2017 ;8:81. Epub 2017 Feb 24. PMID: [28286481](#)

**Article Published Date** : Dec 31, 2016

**Authors** : Salahaden R Sultan, Sophie A Millar, Timothy J England, Saoirse E O'Sullivan

**Study Type** : Meta Analysis, Review

### Additional Links

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Stroke](#) : CK(1365) : AC(168)



## Stroke: Attenuation/Recovery (AC 4) (CK 37)

### Cannabinoids significantly reduced infarct volume and improve functional outcome in experimental stroke models.

**Pubmed Data** : J Cereb Blood Flow Metab. 2015 Mar ;35(3):348-58. Epub 2014 Dec 10. PMID: [25492113](#)

**Article Published Date** : Feb 28, 2015

**Authors** : Timothy J England, William H Hind, Nadiah A Rasid, Saoirse E O'Sullivan

**Study Type** : Meta Analysis, Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Stroke : CK(1365) : AC(168), Stroke: Attenuation/Recovery : CK(347) : AC(75)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

---

### Data suggest that activity at the BBB could represent an as yet unrecognised mechanism of CBD-induced neuroprotection in ischaemic stroke

**Pubmed Data** : Br J Pharmacol. 2015 Oct 24. Epub 2015 Oct 24. PMID: [26497782](#)

**Article Published Date** : Oct 23, 2015

**Authors** : William H Hind, Timothy J England, Saoirse E O'Sullivan

**Study Type** : Human In Vitro

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Stroke: Attenuation/Recovery : CK(347) : AC(75), Stroke: Ischemic : CK(218) : AC(31)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099), Vascular Cell Adhesion Molecule-1 Inhibitor : CK(117) : AC(30)

**Additional Keywords** : Blood Brain Barrier : CK(34) : AC(13)

---

### The activation of the endocannabinoid system promotes

## white and gray matter recovery after neonatal HI injury.

**Pubmed Data** : Stroke. 2010 Dec ;41(12):2956-64. PMID: [21115947](#)

**Article Published Date** : Nov 30, 2010

**Authors** : David Fernández-López, Jesús M Pradillo, Isaac García-Yébenes, José A Martínez-Orgado, María A Moro, Ignacio Lizasoain

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Brain Ischemia : CK(136) : AC(52) , Neonatal Stroke : CK(4) : AC(2) , Stroke: Attenuation/Recovery : CK(347) : AC(75)

**Pharmacological Actions** : Neurogenesis : CK(59) : AC(30)

**Additional Keywords** : Endocannabinoid System : CK(60) : AC(23) , Neuro-repair : CK(2) : AC(1)

---

## This study found that cannabinoid positive patients had milder intracerebral haemorrhage presentation and less disability at discharge.

**Pubmed Data** : Cerebrovasc Dis. 2016 Jan 29 ;41(5-6):248-255. Epub 2016 Jan 29. PMID: [26820826](#)

**Article Published Date** : Jan 28, 2016

**Authors** : Mario Di Napoli, Alicia M Zha, Daniel A Godoy, Luca Masotti, Floris H B M Schreuder, Aurel Popa-Wagner, Réza Behrouz,

**Study Type** : Human Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Stroke: Attenuation/Recovery : CK(347) : AC(75), Stroke: Ischemic : CK(218) : AC(31)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

**Additional Keywords** : Risk Reduction : CK(6417) : AC(686)

---

## Stroke: Ischemic (AC 3) (CK 17)

### Cannabidiol reduces brain damage and improves functional recovery in a neonatal rat model of arterial ischemic stroke.

**Pubmed Data** : Neuropharmacology. 2016 Dec 21. Epub 2016 Dec 21. PMID: [28012949](#)

**Article Published Date** : Dec 20, 2016

**Authors** : Maria Ceprián, Laura Jiménez-Sánchez, Carlos Vargas, Lorena Barata, Will Hind, Jose

Martínez-Orgado

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Stroke: Ischemic : CK(218) : AC(31)

**Pharmacological Actions** : Anti-Apoptotic : CK(384) : AC(212), Anti-Inflammatory Agents : CK(4861) : AC(1630), Neuroprotective Agents : CK(2360) : AC(1099)

---

## Data suggest that activity at the BBB could represent an as yet unrecognised mechanism of CBD-induced neuroprotection in ischaemic stroke

**Pubmed Data** : Br J Pharmacol. 2015 Oct 24. Epub 2015 Oct 24. PMID: [26497782](#)

**Article Published Date** : Oct 23, 2015

**Authors** : William H Hind, Timothy J England, Saoirse E O'Sullivan

**Study Type** : Human In Vitro

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Stroke: Attenuation/Recovery : CK(347) : AC(75), Stroke: Ischemic : CK(218) : AC(31)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099), Vascular Cell Adhesion Molecule-1 Inhibitor : CK(117) : AC(30)

**Additional Keywords** : Blood Brain Barrier : CK(34) : AC(13)

---

## This study found that cannabinoid positive patients had milder intracerebral haemorrhage presentation and less disability at discharge.

**Pubmed Data** : Cerebrovasc Dis. 2016 Jan 29 ;41(5-6):248-255. Epub 2016 Jan 29. PMID: [26820826](#)

**Article Published Date** : Jan 28, 2016

**Authors** : Mario Di Napoli, Alicia M Zha, Daniel A Godoy, Luca Masotti, Floris H B M Schreuder, Aurel Popa-Wagner, Réza Behrouz,

**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Stroke: Attenuation/Recovery : CK(347) : AC(75), Stroke: Ischemic : CK(218) : AC(31)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

**Additional Keywords** : Risk Reduction : CK(6417) : AC(686)

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**Tardive Dvskinesia (AC 1) (CK 2)**

## Cannabidiol is able to attenuate motor and cognitive impairments induced by reserpine.

**Pubmed Data** : Front Pharmacol. 2016 ;7:343. Epub 2016 Aug 28. PMID: [27733830](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Fernanda F Peres, Raquel Levin, Mayra A Suiama, Mariana C Diana, Douglas A Gouvêa, Valéria Almeida, Camila M Santos, Lisandro Lungato, Antônio W Zuardi, Jaime E C Hallak, José A Crippa, D'Almeida Vânia, Regina H Silva, Vanessa C Abílio

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Memory Disorders: Drug-Induced : CK(101) : AC(26) , Parkinson's Disease : CK(1021) : AC(167), Tardive Dyskinesia : CK(78) : AC(12)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

## Thymoma (AC 1) (CK 1)

### Cannabinoids may have a therapeutic role to play in treating thymoma.

**Pubmed Data** : Int Immunopharmacol. 2008 May;8(5):732-40. Epub 2008 Feb 14. PMID: [18387516](#)

**Article Published Date** : May 01, 2008

**Authors** : Chi-Ya Lee, Shiaw-Pyng Wey, Mei-Hsiu Liao, Wei-Lun Hsu, Hsin-Ying Wu, Tong-Rong Jan

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Thymoma : CK(1) : AC(1)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075)

## Thyroid Cancer (AC 3) (CK 4)

## Cannabidiol, a non-psychoactive component from Cannabis sativa, is a potent inhibitor of breast and thyroid cancer cells.

**Pubmed Data** : J Pharmacol Exp Ther. 2006 Sep;318(3):1375-87. Epub 2006 May 25. PMID: [16728591](#)

**Article Published Date** : Sep 01, 2006

**Authors** : Alessia Ligresti, Aniello Schiano Moriello, Katarzyna Starowicz, Isabel Matias, Simona Pisanti, Luciano De Petrocellis, Chiara Laezza, Giuseppe Portella, Maurizio Bifulco, Vincenzo Di Marzo

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Marijuana : CK(1952) : AC(456)

**Diseases** : Breast Cancer : CK(3592) : AC(1064), Thyroid Cancer : CK(237) : AC(55)

**Pharmacological Actions** : Anti-Tumor : CK(146) : AC(73), Apoptotic : CK(2958) : AC(2075)

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## Preclinical and clinical assessment of cannabinoids as anti-cancer agents.

**Pubmed Data** : Front Pharmacol. 2016 ;7:361. Epub 2016 Oct 7. PMID: [27774065](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Daniel A Ladin, Eman Soliman, LaToya Griffin, Rukiyah Van Dross

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33), Cannabis : CK(1776) : AC(408)

**Diseases** : Breast Cancer : CK(3592) : AC(1064), Colorectal Cancer : CK(1646) : AC(619), Glioma : CK(177) : AC(86), Liver Cancer : CK(1235) : AC(462), Lung Cancer : CK(1043) : AC(393), Melanoma : CK(285) : AC(149), Pancreatic Cancer : CK(890) : AC(260), Prostate Cancer : CK(1586) : AC(463), Skin Cancer : CK(736) : AC(293), Thyroid Cancer : CK(237) : AC(55)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Anticarcinogenic Agents : CK(1099) : AC(519), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

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## The discovery of IL-12-induced CB2 overexpression in thyroid cancer cells may offer a new target for anaplastic thyroid cancer treatment

**Pubmed Data** : Cancer Gene Ther. 2008 Feb ;15(2):101-7. Epub 2007 Dec 21. PMID: [18197164](#)

**Article Published Date** : Jan 31, 2008

**Authors** : Y Shi, M Zou, E Y Baitei, A S Alzahrani, R S Parhar, Z Al-Makhalafi, F A Al-Mohanna

**Study Type** : Animal Study, In Vitro Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33)

**Diseases** : Thyroid Cancer : CK(237) : AC(55)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075), Cannabinoid Receptor Antagonist/Inverse Agonist : CK(1) : AC(1), Chemosensitizer : CK(394) : AC(286)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37), Chemotherapeutic Synergy: Paclitaxel : CK(32) : AC(23)

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## Tourette Syndrome (AC 7) (CK 56)

### A case of oral Delta 9-tetrahydrocannabinol (THC) improving refractory Gilles de la Tourette Syndrome and comorbid ADHD has been reported.

**Pubmed Data** : J Clin Psychopharmacol. 2010 Apr;30(2):190-2. PMID: [20520294](#)

**Article Published Date** : Apr 01, 2010

**Authors** : Alkomiet Hasan, Aribert Rothenberger, Alexander Münchau, Thomas Wobrock, Peter Falkai, Veit Roessner

**Study Type** : Human: Case Report

#### Additional Links

**Substances** : Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Attention Deficit Disorder with Hyperactivity : CK(303) : AC(38), Tourette Syndrome : CK(152) : AC(19)

---

### A single-dose treatment with Delta(9)-THC is effective and safe in treating tics and obsessive-compulsive disorder in Tourette Syndrome.

**Pubmed Data** : J Agric Food Chem. 2008 Sep 24;56(18):8601-8. Epub 2008 Aug 30. PMID: [11951146](#)

**Article Published Date** : Sep 24, 2008

**Authors** : K R Müller-Vahl, U Schneider, A Koblenz, M Jöbges, H Kolbe, T Daldrup, H M Emrich

**Study Type** : Human Study

#### Additional Links

**Substances** : Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Obsessive-Compulsive Disorder : CK(188) : AC(26), Tourette Syndrome : CK(152) : AC(19)

---

## Cannabinoids are a safe and effective treatment for

## Tourette syndrome and should be considered in treatment-resistant cases.

**Pubmed Data** : Australas Psychiatry. 2016 Aug 24. Epub 2016 Aug 24. PMID: [27558217](#)

**Article Published Date** : Aug 23, 2016

**Authors** : David Trainor, Lois Evans, Rupert Bird

**Study Type** : Human: Case Report

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Tourette Syndrome : CK(152) : AC(19)

**Additional Keywords** : Plant Extracts : CK(7645) : AC(2539)

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## Cannabinoids may have therapeutic value in the treatment of tics in Tourette syndrome.

**Pubmed Data** : Expert Opin Pharmacother. 2003 Oct;4(10):1717-25. PMID: [14521482](#)

**Article Published Date** : Oct 01, 2003

**Authors** : Kirsten R Müller-Vahl

**Study Type** : Human Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Tourette Syndrome : CK(152) : AC(19)

---

## Cannabis may have therapeutic value in the treatment of Tourette syndrome.

**Pubmed Data** : Acta Psychiatr Scand. 1998 Dec;98(6):502-6. PMID: [9879795](#)

**Article Published Date** : Dec 01, 1998

**Authors** : K R Müller-Vahl, H Kolbe, U Schneider, H M Emrich

**Study Type** : Human Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Obsessive-Compulsive Disorder : CK(188) : AC(26), Tourette Syndrome : CK(152) : AC(19)

---

## In patients suffering from Tourette syndrome, treatment with Delta(9)-THC causes neither acute nor long-term cognitive deficits.

**Pubmed Data** : Neuropsychopharmacology. 2003 Feb;28(2):384-8. PMID: [12589392](#)

**Article Published Date** : Feb 01, 2003

**Authors** : Kirsten R Müller-Vahl, Heidrun Prevedel, Karen Theloe, Hans Kolbe, Hinderk M Emrich, Udo Schneider

**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Tourette Syndrome : CK(152) : AC(19)

---

## THC is effective and safe in the treatment of tics.

**Pubmed Data** : J Clin Psychiatry. 2003 Apr;64(4):459-65. PMID: [12716250](#)

**Article Published Date** : Apr 01, 2003

**Authors** : Kirsten R Müller-Vahl, Udo Schneider, Heidrun Prevedel, Karen Theloe, Hans Kolbe, Thomas Daldrup, Hinderk M Emrich

**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Tourette Syndrome : CK(152) : AC(19)

---

## Traumatic Brain Injury (AC 1) (CK 2)

**Administration of synthetic 2-AG to mice after CHI led to significant reduction of brain oedema, better clinical recovery, reduced infarct volume and reduced hippocampal cell death compared with controls.**

**Pubmed Data** : Nature. 2001 Oct 4 ;413(6855):527-31. PMID: [11586361](#)

**Article Published Date** : Oct 03, 2001

**Authors** : D Panikashvili, C Simeonidou, S Ben-Shabat, L Hanus, A Breuer, R Mechoulam, E Shohami

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Endocannabinoids : CK(9) : AC(1)

**Diseases** : Brain Edema : CK(49) : AC(13), Brain Inflammation : CK(274) : AC(145), Traumatic Brain Injury : CK(88) : AC(25)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Neuroprotective Agents : CK(2360) : AC(1099)

**Additional Keywords** : Significant Treatment Outcome : CK(3038) : AC(366)

---



## Traumatic Memory Formation (AC 2) (CK 4)

**CBD both acutely inhibited fear expression and enhanced extinction to produce longer lasting reductions in fear.**

**Pubmed Data** : Front Pharmacol. 2016 ;7:493. Epub 2016 Dec 16. PMID: [28018227](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Chenchen Song, Carl W Stevenson, Francisco S Guimaraes, Jonathan L C Lee

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Psychiatric Disorder: Conditioned Fear : CK(11) : AC(6) , Traumatic Memory Formation : CK(6) : AC(3)

---

**Cannabidiol modulates fear memory formation through interactions with serotonergic transmission.**

**Pubmed Data** : Neuropsychopharmacology. 2016 Jun 14. Epub 2016 Jun 14. PMID: [27296152](#)

**Article Published Date** : Jun 13, 2016

**Authors** : Christopher Norris, Michael Loureiro, Cecilia Kramar, Jordan Zunder, Justine Renard, Walter Rushlow, Steven R Laviolette

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Psychiatric Disorder: Conditioned Fear : CK(11) : AC(6) , Traumatic Memory Formation : CK(6) : AC(3)

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## Tremor (AC 2) (CK 3)

**Cannabinoids control spasticity and tremor in a multiple sclerosis model.**

**Pubmed Data** : Nature. 2000 Mar 2;404(6773):84-7. PMID: [10716447](#)

**Article Published Date** : Mar 02, 2000

**Authors** : D Baker, G Pryce, J L Croxford, P Brown, R G Pertwee, J W Huffman, L Layward

**Study Type** : Animal Study

**Additional Links**

**Substances** : [Cannabinoids](#) : CK(816) : AC(310), [Cannabis](#) : CK(1776) : AC(408)

**Diseases** : [Multiple Sclerosis](#) : CK(964) : AC(184), [Muscle Spasticity](#) : CK(34) : AC(5), [Tremor](#) : CK(44) : AC(10)

**Pharmacological Actions** : [Antispasmodic](#) : CK(132) : AC(32)

---

## Cannabinoids may have therapeutic value in the treatment of movement disorders.

**Pubmed Data** : Forsch Komplementarmed. 1999 Oct;6 Suppl 3:23-7. PMID: [10627163](#)

**Article Published Date** : Oct 01, 1999

**Authors** : K R Müller-Vahl, H Kolbe, U Schneider, H M Emrich

**Study Type** : Commentary

**Additional Links**

**Substances** : [Marijuana](#) : CK(1952) : AC(456)

**Diseases** : [Dystonia](#) : CK(1) : AC(1), [Movement Disorders](#) : CK(7) : AC(4), [Tremor](#) : CK(44) : AC(10)

---

## Trigeminal Neuralgia (AC 2) (CK 3)

### Cannabinoids have therapeutic potential in trigeminal neuralgia.

**Pubmed Data** : Phytother Res. 2007 Dec;21(12):1187-92. PMID: [15578967](#)

**Article Published Date** : Dec 01, 2007

**Authors** : Ying-Ching Liang, Chiung-Chun Huang, Kuei-Sen Hsu

**Study Type** : Commentary

**Additional Links**

**Substances** : [Cannabis](#) : CK(1776) : AC(408)

**Diseases** : [Trigeminal Neuralgia](#) : CK(140) : AC(18)

**Pharmacological Actions** : [Analgesics](#) : CK(1327) : AC(217)

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### Synthetic cannabinoids attenuate allodynia and hyperalgesia in a rat model of trigeminal neuropathic

## pain.

**Pubmed Data** : Neuropharmacology. 2007 Jul;53(1):169-77. Epub 2007 May 13. PMID: [17572451](#)

**Article Published Date** : Jul 01, 2007

**Authors** : Ying-Ching Liang, Chiung-Chun Huang, Kuei-Sen Hsu

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Allodynia : CK(26) : AC(9), Hyperalgesia : CK(63) : AC(24), Trigeminal Neuralgia : CK(140) : AC(18)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217)

---

## Tuberous Sclerosis (AC 1) (CK 10)

### Cannabidiol may be an effective and well-tolerated treatment option for patients with refractory seizures in Tuberous sclerosis complex.

**Pubmed Data** : Epilepsia. 2016 Oct ;57(10):1617-1624. Epub 2016 Aug 3. PMID: [27696387](#)

**Article Published Date** : Sep 30, 2016

**Authors** : Evan J Hess, Kirsten A Moody, Alexandra L Geffrey, Sarah F Pollack, Lauren A Skirvin, Patricia L Bruno, Jan L Paolini, Elizabeth A Thiele

**Study Type** : Human Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Tuberous Sclerosis : CK(30) : AC(3)

**Pharmacological Actions** : Anticonvulsants : CK(238) : AC(67)

---

## Tumors (AC 2) (CK 2)

### Cannabinoids have antitumor activity.

**Pubmed Data** : J Pharmacol Exp Ther. 2009 Nov 4. PMID: [19889794](#)

**Article Published Date** : Nov 04, 2009

**Authors** : Nadine Freimuth, Robert Ramer, Burkhard Hinz

**Study Type** : Commentary

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Cancers: All : CK(14773) : AC(4596) , Tumors : CK(205) : AC(120)

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## Delta 9-tetrahydrocannabinol exhibits anti-tumor properties.

**Pubmed Data** : Eur J Pharmacol. 2007 Jun 14;564(1-3):57-65. Epub 2007 Feb 22. PMID: [17379209](#)

**Article Published Date** : Jun 14, 2007

**Authors** : Eric J Downer, Aoife Gowran, Aine C Murphy, Veronica A Campbell

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Tumors : CK(205) : AC(120)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075) , Tumor Suppressor Protein p53 Upregulation : CK(293) : AC(202)

---

## Ulcerative Colitis (AC 1) (CK 5)

### Cannabidiol reduces intestinal inflammation through the control of neuroimmune axis.

**Pubmed Data** : PLoS One. 2011 ;6(12):e28159. Epub 2011 Dec 6. PMID: [22163000](#)

**Article Published Date** : Dec 31, 2010

**Authors** : Daniele De Filippis, Giuseppe Esposito, Carla Cirillo, Mariateresa Cipriano, Benedicte Y De Winter, Caterina Scuderi, Giovanni Sarnelli, Rosario Cuomo, Luca Steardo, Joris G De Man, Teresa Iuvone

**Study Type** : Animal Study, Human In Vitro

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Inflammation : CK(3240) : AC(882) , Inflammatory Bowel Diseases : CK(1052) : AC(197) , Ulcerative Colitis : CK(347) : AC(69)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630) , Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

---

# Urinary Bladder Diseases (AC 1) (CK 1)

## Cannabinoids are promising candidates for gastrointestinal and urinary diseases.

**Pubmed Data** : Handb Exp Pharmacol. 2015 ;231:423-47. PMID: [26408170](#)

**Article Published Date** : Dec 31, 2014

**Authors** : Angelo A Izzo, Giulio G Muccioli, Michael R Ruggieri, Rudolf Schicho

**Study Type** : Review

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310)

**Diseases** : Gastrointestinal Diseases : CK(76) : AC(24), Urinary Bladder Diseases : CK(3) : AC(2)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

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# Uveitis (AC 1) (CK 2)

## Cannabidiol has a neuroprotective effect in endotoxin-induced uveitis.

**Pubmed Data** : Mol Vis. 2008;14:2190-203. Epub 2008 Dec 3. PMID: [19052649](#)

**Article Published Date** : Jan 01, 2008

**Authors** : A B El-Remessy, Y Tang, G Zhu, S Matragoon, Y Khalifa, E K Liu, J-Y Liu, E Hanson, S Mian, N Fatteh, G I Liou

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408)

**Diseases** : Brain: Microglial Activation : CK(82) : AC(53), Endotoxemia : CK(83) : AC(43), Lipopolysaccharide-Induced Toxicity : CK(380) : AC(218), Oxidative Stress : CK(3871) : AC(1382), Uveitis : CK(91) : AC(17)

**Pharmacological Actions** : Enzyme Inhibitors : CK(473) : AC(251), Neuroprotective Agents : CK(2360) : AC(1099), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

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## Vomiting (AC 1) (CK 2)

**This study found a synergy between cannabidiol, cannabidiolic acid, and THC in the regulation of emesis in animals.**

**Pubmed Data** : Behav Neurosci. 2015 Jun ;129(3):368-70. PMID: [26030435](#)

**Article Published Date** : May 31, 2015

**Authors** : Erin M Rock, Linda A Parker

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Emesis : CK(2) : AC(1), Vomiting : CK(12) : AC(2)

**Additional Keywords** : Natural Substance Synergy : CK(540) : AC(249)

## Category : Pharmacological Actions

## Acetylcholinesterase Inhibitor (AC 1) (CK 1)

**THC appears to be superior as a Abeta aggregation to currently approved drugs prescribed for the treatment of Alzheimer's disease.**

**Pubmed Data** : Mol Pharm. 2006 Nov-Dec;3(6):773-7. PMID: [17140265](#)

**Article Published Date** : Oct 31, 2006

**Authors** : Lisa M Eubanks, Claude J Rogers, Albert E Beuscher, George F Koob, Arthur J Olson, Tobin J Dickerson, Kim D Janda

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Pharmacological Actions** : Acetylcholinesterase Inhibitor : CK(37) : AC(19)

**Additional Keywords** : Superiority of Natural Substances versus Drugs : CK(1316) : AC(251)

## Analgesics (AC 25) (CK 120)

### A review of cannabis and cannabinoids and their benefits in many health conditions.

**Pubmed Data** : Clin Pharmacol Ther. 2015 Jun ;97(6):575-86. Epub 2015 Apr 17. PMID: [25777363](#)

**Article Published Date** : May 31, 2015

**Authors** : D I Abrams, M Guzman

**Study Type** : Review

#### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : AIDS : CK(79) : AC(13), Cachexia: Cancer : CK(50) : AC(15), Cancer: Pain : CK(55) : AC(8), Cancers: All : CK(14773) : AC(4596), Peripheral Neuropathies : CK(218) : AC(37)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Appetite Stimulants : CK(10) : AC(1), Chemopreventive : CK(2835) : AC(787)

**Additional Keywords** : Natural Substance/Drug Synergy : CK(352) : AC(142)

### A review of the pharmacokinetics and pharmacodynamics of cannabinoids.

**Pubmed Data** : Clin Pharmacokinet. 2003 ;42(4):327-60. PMID: [12648025](#)

**Article Published Date** : Dec 31, 2002

**Authors** : Franjo Grotenhermen

**Study Type** : Review

#### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Cancers: All : CK(14773) : AC(4596)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217), Apoptotic : CK(2958) : AC(2075), Immunosuppressive Agents : CK(37) : AC(24), Neuroprotective Agents : CK(2360) : AC(1099)

**Additional Keywords** : Phytotherapy : CK(1216) : AC(221)

### A tetrahydrocannabinol:cannabidiol (THC:CBD) extract is efficacious for relief of pain in patients with advanced cancer pain not fully relieved by strong opioids.

**Pubmed Data** : Hum Reprod. 2009 Jul;24(7):1717-25. Epub 2009 Mar 11. PMID: [19896326](#)

**Article Published Date** : Jul 01, 2009

**Authors** : Jeremy R Johnson, Mary Burnell-Nugent, Dominique Lossignol, Elena Doina Ganae-Motan, Richard Potts, Marie T Fallon

**Study Type** : Human Study

**Additional Links**

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Cancers: All](#) : CK(14773) : AC(4596) , [Pain](#) : CK(880) : AC(142)

**Pharmacological Actions** : [Analgesics](#) : CK(1327) : AC(217)

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## Cannabinoid potentiation of glycine receptors contributes to cannabis-induced analgesia.

**Pubmed Data** : Nat Chem Biol. 2011 May;7(5):296-303. Epub 2011 Apr 3. PMID: [21460829](#)

**Article Published Date** : May 01, 2011

**Authors** : Wei Xiong, Kejun Cheng, Tanxing Cui, Grzegorz Godlewski, Kenner C Rice, Yan Xu, Li Zhang

**Study Type** : Animal Study

**Additional Links**

**Substances** : [Cannabinoids](#) : CK(816) : AC(310)

**Diseases** : [Pain](#) : CK(880) : AC(142)

**Pharmacological Actions** : [Analgesics](#) : CK(1327) : AC(217) , [Glycine Agents](#) : CK(2) : AC(1)

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## Cannabinoids have analgesic potential.

**Pubmed Data** : J Opioid Manag. 2009 Nov-Dec;5(6):341-57. PMID: [20073408](#)

**Article Published Date** : Nov 01, 2009

**Authors** : Jaseena Elikkottil, Jaseena Elikottil, Pankaj Gupta, Kalpna Gupta

**Study Type** : Review

**Additional Links**

**Substances** : [Cannabinoids](#) : CK(816) : AC(310)

**Diseases** : [Pain](#) : CK(880) : AC(142)

**Pharmacological Actions** : [Analgesics](#) : CK(1327) : AC(217)

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## Cannabinoids have therapeutic potential in trigeminal neuralgia.

**Pubmed Data** : Phytother Res. 2007 Dec;21(12):1187-92. PMID: [15578967](#)

**Article Published Date** : Dec 01, 2007

**Authors** : Ying-Ching Liang, Chiung-Chun Huang, Kuei-Sen Hsu

**Study Type** : Commentary

**Additional Links**

**Substances** : [Cannabis](#) : CK(1776) : AC(408)



**Diseases** : Trigeminal Neuralgia : CK(140) : AC(18)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217)

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## Cannabinoids have therapeutic value in chronic non-cancer pain.

**Pubmed Data** : Arch Pediatr Adolesc Med. 2009 Jul;163(7):601-7. PMID: [21426373](#)

**Article Published Date** : Jul 01, 2009

**Authors** : Mary E Lynch, Fiona Campbell

**Study Type** : Meta Analysis

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Pain : CK(880) : AC(142)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217)

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## Cannabinoids may have therapeutic value in neurodegenerative conditions by preventing and/or reducing neuroinflammation.

**Pubmed Data** : Neuroscience. 2007 Feb 23 ;144(4):1516-22. Epub 2006 Dec 18. PMID: [17178196](#)

**Article Published Date** : Feb 22, 2007

**Authors** : Y Marchalant, S Rosi, G L Wenk

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Brain: Microglial Activation : CK(82) : AC(53), Brain Inflammation : CK(274) : AC(145), Lipopolysaccharide-Induced Toxicity : CK(380) : AC(218), Memory Disorders : CK(344) : AC(104)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217), Anti-Inflammatory Agents : CK(4861) : AC(1630), Neuroprotective Agents : CK(2360) : AC(1099)

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## Cannabinoids possess attributes that have impact in both cancer pain and prostate cancer pathophysiology.

**Pubmed Data** : Indian J Urol. 2012 Jan ;28(1):9-14. PMID: [22557710](#)

**Article Published Date** : Dec 31, 2011

**Authors** : Juan A Ramos, Fernando J Bianco

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Prostate: PSA Doubling : CK(164) : AC(20), Prostate Cancer : CK(1586) : AC(463)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217), Anti-Angiogenic : CK(197) : AC(137)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

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## Cannabis cannabinoids can achieve analgesic effects against cisplatin neuropathy.

**Pubmed Data** : Planta Med. 2016 May 23. Epub 2016 May 23. PMID: [27214593](#)

**Article Published Date** : May 22, 2016

**Authors** : Hannah M Harris, Kenneth J Sufka, Waseem Gul, Mahmoud A ElSohly

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Chemotherapy-Induced Toxicity: Cisplatin : CK(319) : AC(133)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217)

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## Cannabis users report greater pain relief in combination with opioids than when opioids are used alone.

**Pubmed Data** : Drug Alcohol Depend. 2015 Feb 1 ;147:144-50. Epub 2014 Dec 10. PMID: [25533893](#)

**Article Published Date** : Jan 31, 2015

**Authors** : Louisa Degenhardt, Nicholas Lintzeris, Gabrielle Campbell, Raimondo Bruno, Milton Cohen, Michael Farrell, Wayne D Hall

**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Chronic Pain : CK(206) : AC(33)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217)

**Additional Keywords** : Natural Substance/Drug Synergy : CK(352) : AC(142)

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## Cannabis, used with adequate precaution, appears to be moderately efficacious for the treatment of chronic pain.

**Pubmed Data** : Pain Med. 2009 Sep 1. PMID: [19732371](#)

**Article Published Date** : Sep 01, 2009

**Authors** : Eva Martín-Sánchez, Toshiaki A Furukawa, Julian Taylor, Jose Luis R Martin

**Study Type** : Human Study

**Additional Links**

**Substances** : Marijuana : CK(1952) : AC(456)

**Diseases** : Pain : CK(880) : AC(142)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217)

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## Cannabis-based medicine is effective in reducing pain and

## sleep disturbance in patients with multiple sclerosis related central neuropathic pain and is mostly well tolerated.

**Pubmed Data** : Neurology. 2005 Sep 27;65(6):812-9. PMID: [16186518](#)

**Article Published Date** : Sep 27, 2005

**Authors** : David J Rog, Turo J Nurmikko, Tim Friede, Carolyn A Young

**Study Type** : Human Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Insomnia : CK(523) : AC(66), Multiple Sclerosis : CK(964) : AC(184), Pain : CK(880) : AC(142), Sleep Disorders : CK(361) : AC(44)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217)

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## Inhaled cannabis demonstrated a dose dependent reduction in diabetic peripheral neuropathy pain in patients with treatment refractory pain.

**Pubmed Data** : J Pain. 2015 Jul ;16(7):616-27. Epub 2015 Apr 3. PMID: [25843054](#)

**Article Published Date** : Jun 30, 2015

**Authors** : Mark S Wallace, Thomas D Marcotte, Anya Umlauf, Ben Gouaux, Joseph H Atkinson

**Study Type** : Human Study

### Additional Links

**Substances** : Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Diabetic Neuropathies : CK(233) : AC(36)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217)

**Additional Keywords** : Dose Response : CK(1056) : AC(408), Significant Treatment Outcome : CK(3038) : AC(366)

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## Some studies have thus far shown evidence to support the use of cannabinoids for some cancer, neuropathic, spasticity, acute pain, and chronic pain conditions.

**Pubmed Data** : Curr Pain Headache Rep. 2015 Oct ;19(10):524. PMID: [26325482](#)

**Article Published Date** : Sep 30, 2015

**Authors** : Bjorn Jensen, Jeffrey Chen, Tim Furnish, Mark Wallace

**Study Type** : Review

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33), Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342), Endocannabinoids : CK(9) : AC(1)

**Diseases** : Cancer: Pain : CK(55) : AC(8), Cancers: All : CK(14773) : AC(4596)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217)

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## Synthetic cannabinoids attenuate allodynia and hyperalgesia in a rat model of trigeminal neuropathic pain.

**Pubmed Data** : Neuropharmacology. 2007 Jul;53(1):169-77. Epub 2007 May 13. PMID: [17572451](#)

**Article Published Date** : Jul 01, 2007

**Authors** : Ying-Ching Liang, Chiung-Chun Huang, Kuei-Sen Hsu

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Allodynia : CK(26) : AC(9), Hyperalgesia : CK(63) : AC(24), Trigeminal Neuralgia : CK(140) : AC(18)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217)

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## THC/CBD spray was beneficial for the majority of patients with PNP associated with diabetes or allodynia.

**Pubmed Data** : J Neurol. 2015 Jan ;262(1):27-40. Epub 2014 Sep 30. PMID: [25270679](#)

**Article Published Date** : Dec 31, 2014

**Authors** : B Hoggart, S Ratcliffe, E Ehler, K H Simpson, J Hovorka, J Lejčko, L Taylor, H Lauder, M Serpell

**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Neuropathic Pain : CK(284) : AC(69), Peripheral Nerve Diseases : CK(51) : AC(14)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217)

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## The authors concluded that cannabinoids demonstrate a modest analgesic effect and are safe for the management of chronic pain.

**Pubmed Data** : J Basic Clin Physiol Pharmacol. 2015 Nov 18. Epub 2015 Nov 18. PMID: [26581068](#)

**Article Published Date** : Nov 17, 2015

**Authors** : Mary E Lynch

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Chronic Pain : CK(206) : AC(33)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217)

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## The control of oxidative stress may prevent and alleviate oral mucositis.

**Pubmed Data** : J Clin Pharm Ther. 2017 Feb 12. Epub 2017 Feb 12. PMID: [28191662](#)

**Article Published Date** : Feb 11, 2017

**Authors** : L F Cuba, F G Salum, K Cherubini, M A Z Figueiredo

**Study Type** : Review

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Oral Mucositis : CK(53) : AC(7)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217), Anti-Inflammatory Agents : CK(4861) : AC(1630), Antioxidants : CK(8430) : AC(3132)

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## The literature suggests that the medicinal use of cannabis may have a therapeutic role for a multitude of diseases.

**Pubmed Data** : Headache. 2015 Jun ;55(6):885-916. Epub 2015 May 25. PMID: [26015168](#)

**Article Published Date** : May 31, 2015

**Authors** : Eric P Baron

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Chronic Pain : CK(206) : AC(33), Headache : CK(785) : AC(92)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217)

**Additional Keywords** : Natural Substance/Drug Synergy : CK(352) : AC(142)

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## The present study suggests that THC does not selectively affect limbic regions, but rather interferes with sensory processing.

**Pubmed Data** : Neuropsychopharmacology. 2015 Oct 30. Epub 2015 Oct 30. PMID: [26514581](#)

**Article Published Date** : Oct 29, 2015

**Authors** : Carmen Walter, Bruno G Oertel, Lisa Felden, Christian A Kell, Ulrike Nöth, Johannes Vermehren, Jochen Kaiser, Ralf Deichmann, Jörn Lötsch

**Study Type** : Human Study

**Additional Links**

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Chronic Pain : CK(206) : AC(33)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217)

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**These results indicate that in cannabis smokers, men**

## exhibit greater cannabis-induced analgesia relative to women.

**Pubmed Data** : Drug Alcohol Depend. 2016 Aug 5. Epub 2016 Aug 5. PMID: [27522535](#)

**Article Published Date** : Aug 04, 2016

**Authors** : Ziva D Cooper, Margaret Haney

**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Pain : CK(880) : AC(142)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217)

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## This review adds further support that currently available cannabinoids are safe, modestly effective analgesics.

**Pubmed Data** : J Neuroimmune Pharmacol. 2015 Jun ;10(2):293-301. Epub 2015 Mar 22. PMID: [25796592](#)

**Article Published Date** : May 31, 2015

**Authors** : M E Lynch, Mark A Ware

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Chronic Pain : CK(206) : AC(33)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217)

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## This review suggests that cannabinoids may provide effective analgesia in chronic neuropathic pain conditions that are refractory to other treatments.

**Pubmed Data** : J Oral Facial Pain Headache. 2015 ;29(1):7-14. PMID: [25635955](#)

**Article Published Date** : Dec 31, 2014

**Authors** : Darrell G Boychuk, Greg Goddard, Giovanni Mauro, Maria F Orellana

**Study Type** : Review

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Chronic Pain : CK(206) : AC(33), Neuropathic Pain : CK(284) : AC(69)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217)

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## This reviews relevant literature regarding medical use of marijuana and cannabinoid pharmaceuticals with an

## emphasis on pain and headaches.

**Pubmed Data** : Curr Pain Headache Rep. 2017 Apr ;21(4):19. PMID: [28281107](#)

**Article Published Date** : Mar 31, 2017

**Authors** : Philip S Kim, Michael A Fishman

**Study Type** : Review

**Additional Links**

**Substances** : [Cannabinoids](#) : CK(816) : AC(310), [Cannabis](#) : CK(1776) : AC(408)

**Diseases** : [Headache](#) : CK(785) : AC(92)

**Pharmacological Actions** : [Analgesics](#) : CK(1327) : AC(217)

## Angiogenesis Inhibitors (AC 11) (CK 24)

### Activation of cannabinoid receptors could be a new therapeutic approach for the treatment of skin tumors.

**Pubmed Data** : J Clin Invest. 2003 Jan ;111(1):43-50. PMID: [12511587](#)

**Article Published Date** : Dec 31, 2002

**Authors** : M Llanos Casanova, Cristina Blázquez, Jesús Martínez-Palacio, Concepción Villanueva, M Jesús Fernández-Aceñero, John W Huffman, José L Jorcano, Manuel Guzmán

**Study Type** : Animal Study, In Vitro Study

**Additional Links**

**Substances** : [Cannabinoids](#) : CK(816) : AC(310)

**Diseases** : [Skin Cancer](#) : CK(736) : AC(293)

**Pharmacological Actions** : [Angiogenesis Inhibitors](#) : CK(114) : AC(62), [Antineoplastic Agents](#) : CK(1158) : AC(639), [Apoptotic](#) : CK(2958) : AC(2075), [Vascular Endothelial Growth Factor A Inhibitor](#) : CK(132) : AC(71), [Vascular Endothelial Growth Factor Regulator](#) : CK(31) : AC(14)

**Additional Keywords** : [Cannabinoid Receptors](#) : CK(67) : AC(37)

### Anti-migratory effects were confirmed for cannabinoid-treated lung cancer cell lines (H460 and H358).

**Pubmed Data** : Biochem Pharmacol. 2014 Sep 15 ;91(2):202-16. Epub 2014 Jun 26. PMID: [24976505](#)

**Article Published Date** : Sep 14, 2014

**Authors** : Robert Ramer, Sascha Fischer, Maria Haustein, Katrin Manda, Burkhard Hinz

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Lung Cancer : CK(1043) : AC(393)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Anti-metastatic : CK(634) : AC(414), Matrix metalloproteinase-1 (MMP-1) inhibitor : CK(32) : AC(16)

---

## Cannabinoids inhibit the growth of gliomas in vivo by targeting both tumor cells and vascular endothelial cells.

**Pubmed Data** : FASEB J. 2003 Mar ;17(3):529-31. Epub 2003 Jan 2. PMID: [12514108](#)

**Article Published Date** : Feb 28, 2003

**Authors** : Cristina Blázquez, M Llanos Casanova, Anna Planas, Teresa Gómez Del Pulgar, Concepción Villanueva, María J Fernández-Aceñero, Julián Aragonés, John W Huffman, José L Jorcano, Manuel Guzmán

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Cancers: All : CK(14773) : AC(4596), Gliomas : CK(5) : AC(3)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Matrix metalloproteinase-2 (MMP-2) inhibitor : CK(287) : AC(147), Vascular Endothelial Growth Factor Regulator : CK(31) : AC(14)

**Additional Keywords** : Disease Regression : CK(150) : AC(26)

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## Cannabinoids inhibit the growth of melanoma cells but not of normal melanocytes.

**Pubmed Data** : FASEB J. 2006 Dec ;20(14):2633-5. Epub 2006 Oct 25. PMID: [17065222](#)

**Article Published Date** : Nov 30, 2006

**Authors** : Cristina Blázquez, Arkaitz Carracedo, Lucía Barrado, Pedro José Real, José Luis Fernández-Luna, Guillermo Velasco, Marcos Malumbres, Manuel Guzmán

**Study Type** : Animal Study, In Vitro Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33)

**Diseases** : Melanoma : CK(285) : AC(149)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Anti-metastatic : CK(634) : AC(414), Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Cell cycle arrest : CK(810) : AC(612), Chemotherapeutic : CK(397) : AC(152)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37), Selective Cytotoxicity : CK(158) : AC(112)

---

## Delta9-tetrahydrocannabinol administration led to the inhibition of the VEGF Pathway in Two Patients with



## Glioblastoma Multiforme.

**Pubmed Data** : Cancer Res. 2004 Aug 15 ;64(16):5617-23. PMID: [15313899](#)

**Article Published Date** : Aug 14, 2004

**Authors** : Cristina Blázquez, Luis González-Feria, Luis Alvarez, Amador Haro, M Llanos Casanova, Manuel Guzmán

**Study Type** : Animal Study, Human Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Glioblastoma Multiforme : CK(200) : AC(88)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Vascular Endothelial Growth Factor Inhibitors : CK(123) : AC(61)

**Additional Keywords** : Gene Expression Regulation : CK(431) : AC(214)

---

## Preclinical and clinical assessment of cannabinoids as anti-cancer agents.

**Pubmed Data** : Front Pharmacol. 2016 ;7:361. Epub 2016 Oct 7. PMID: [27774065](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Daniel A Ladin, Eman Soliman, LaToya Griffin, Rukiyah Van Dross

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33), Cannabis : CK(1776) : AC(408)

**Diseases** : Breast Cancer : CK(3592) : AC(1064), Colorectal Cancer : CK(1646) : AC(619), Glioma : CK(177) : AC(86), Liver Cancer : CK(1235) : AC(462), Lung Cancer : CK(1043) : AC(393), Melanoma : CK(285) : AC(149), Pancreatic Cancer : CK(890) : AC(260), Prostate Cancer : CK(1586) : AC(463), Skin Cancer : CK(736) : AC(293), Thyroid Cancer : CK(237) : AC(55)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Anticarcinogenic Agents : CK(1099) : AC(519), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

---

## The in vivo administration of microencapsulated cannabinoids efficiently reduces tumor growth.

**Pubmed Data** : PLoS One. 2013 ;8(1):e54795. Epub 2013 Jan 22. PMID: [23349970](#)

**Article Published Date** : Dec 31, 2012

**Authors** : Dolores Hernán Pérez de la Ossa, Mar Lorente, Maria Esther Gil-Alegre, Sofía Torres, Elena García-Taboada, María Del Rosario Aberturas, Jesús Molpeceres, Guillermo Velasco, Ana Isabel Torres-Suárez

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Glioblastoma Multiforme : CK(200) : AC(88)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

---

## The present investigation confirms the antiproliferative and antiinvasive effects of CBD in U87-MG cells.

**Pubmed Data** : PLoS One. 2013 ;8(10):e76918. Epub 2013 Oct 21. PMID: [24204703](#)

**Article Published Date** : Dec 31, 2012

**Authors** : Marta Solinas, Paola Massi, Valentina Cinquina, Marta Valenti, Daniele Bolognini, Marzia Gariboldi, Elena Monti, Tiziana Rubino, Daniela Parolaro

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Cancer Metastasis : CK(442) : AC(206), Glioma : CK(177) : AC(86)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Anti-metastatic : CK(634) : AC(414), Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Hypoxia inducible factor-1 alpha (HIF-1 $\alpha$ ) inhibitor : CK(22) : AC(15)

---

## This review critically discusses the pharmacology of CB receptor activation as a novel therapeutic anticancer strategy

**Pubmed Data** : J Pharm Pharmacol. 2009 Jul ;61(7):839-53. PMID: [19589225](#)

**Article Published Date** : Jun 30, 2009

**Authors** : Susanne Oesch, Jürg Gertsch

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Endocannabinoids : CK(9) : AC(1)

**Diseases** : Cancers: All : CK(14773) : AC(4596)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Anti-Inflammatory Agents : CK(4861) : AC(1630), Anti-metastatic : CK(634) : AC(414), Anticarcinogenic Agents : CK(1099) : AC(519), Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37), Endocannabinoid System : CK(60) : AC(23)

---

## This review discusses the current understanding of cannabinoids as antitumour agents.

**Pubmed Data** : Handb Exp Pharmacol. 2015 ;231:449-72. PMID: [26408171](#)

**Article Published Date** : Dec 31, 2014

**Authors** : Guillermo Velasco, Cristina Sánchez, Manuel Guzmán

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Cancers: All : CK(14773) : AC(4596)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

---

**This review will center on mechanisms by which CBD, and other plant-derived cannabinoids inefficient at activating cannabinoid receptors, inhibit tumor cell viability, invasion, metastasis, angiogenesis.**

**Pubmed Data** : J Neuroimmune Pharmacol. 2015 Jun ;10(2):255-67. Epub 2015 Apr 28. PMID: [25916739](#)

**Article Published Date** : May 31, 2015

**Authors** : Sean D McAllister, Liliana Soroceanu, Pierre-Yves Desprez

**Study Type** : Review

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Cancers: All : CK(14773) : AC(4596)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Anti-metastatic : CK(634) : AC(414), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Autophagy Up-regulation : CK(108) : AC(65)

**Additional Keywords** : Cancer Stem Cells : CK(135) : AC(88)

---

## Anti-Androgen (AC 1) (CK 1)

**Cannabinoids prevent proliferation and cause apoptosis via a combination of cannabinoid receptor-independent, cellular and molecular mechanisms.**

**Pubmed Data** : Br J Pharmacol. 2013 Jan ;168(1):79-102. PMID: [22594963](#)

**Article Published Date** : Dec 31, 2012

**Authors** : Luciano De Petrocellis, Alessia Ligresti, Aniello Schiano Moriello, Mariagrazia Iappelli, Roberta Verde, Colin G Stott, Luigia Cristino, Pierangelo Orlando, Vincenzo Di Marzo

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310)

**Diseases** : Prostate Cancer : CK(1586) : AC(463)

**Pharmacological Actions** : Anti-Androgen : CK(60) : AC(18), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Cell cycle arrest : CK(810) : AC(612)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

---

## Anti-Angiogenic (AC 6) (CK 6)

### A cannabinoid quinone has anti-angiogenic and anticancer activity.

**Pubmed Data** : Mol Pharmacol. 2006 Jul;70(1):51-9. Epub 2006 Mar 29. PMID: [16571653](#)

**Article Published Date** : Jul 01, 2006

**Authors** : Natalya M Kogan, Cristina Blázquez, Luis Alvarez, Ruth Gallily, Michael Schlesinger, Manuel Guzmán, Raphael Mechoulam

**Study Type** : In Vitro Study

#### Additional Links

**Substances** : Marijuana : CK(1952) : AC(456)

**Diseases** : Cancer Metastasis : CK(442) : AC(206), Cancers: All : CK(14773) : AC(4596)

**Pharmacological Actions** : Anti-Angiogenic : CK(197) : AC(137), Anti-Tumor : CK(146) : AC(73)

---

### Cannabidiol exerts a potent anti-angiogenic effect by widely affecting several pathways involved in this process.

**Pubmed Data** : Br J Pharmacol. 2012 Nov ;167(6):1218-31. PMID: [22624859](#)

**Article Published Date** : Oct 31, 2012

**Authors** : M Solinas, P Massi, A R Cantelmo, M G Cattaneo, R Cammarota, D Bartolini, V Cinquina, M Valenti, L M Vicentini, D M Noonan, A Albin, D Parolaro

**Study Type** : In Vitro Study

#### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Cancers: All : CK(14773) : AC(4596)

**Pharmacological Actions** : Anti-Angiogenic : CK(197) : AC(137), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669), Vascular Endothelial Growth Factor Inhibitors : CK(123) : AC(61)

---

### Cannabinoids possess attributes that have impact in both cancer pain and prostate cancer pathophysiology.

**Pubmed Data** : Indian J Urol. 2012 Jan ;28(1):9-14. PMID: [22557710](#)

**Article Published Date** : Dec 31, 2011

**Authors** : Juan A Ramos, Fernando J Bianco

**Study Type** : Review

**Additional Links**

**Substances** : [Cannabinoids](#) : CK(816) : AC(310)

**Diseases** : [Prostate: PSA Doubling](#) : CK(164) : AC(20), [Prostate Cancer](#) : CK(1586) : AC(463)

**Pharmacological Actions** : [Analgesics](#) : CK(1327) : AC(217), [Anti-Angiogenic](#) : CK(197) : AC(137)

**Additional Keywords** : [Cannabinoid Receptors](#) : CK(67) : AC(37)

---

## Cannabinoids reduce ErbB2-positive breast cancer cell progression.

**Pubmed Data** : Mol Cancer. 2010;9:196. Epub 2010 Jul 22. PMID: [20649976](#)

**Article Published Date** : Jan 01, 2010

**Authors** : María M Caffarel, Clara Andradas, Emilia Mira, Eduardo Pérez-Gómez, Camilla Cerutti, Gema Moreno-Bueno, Juana M Flores, Isabel García-Real, José Palacios, Santos Mañes, Manuel Guzmán, Cristina Sánchez

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : [Cannabinoids](#) : CK(816) : AC(310), [Cannabis](#) : CK(1776) : AC(408)

**Diseases** : [Breast Cancer](#) : CK(3592) : AC(1064)

**Pharmacological Actions** : [Anti-Angiogenic](#) : CK(197) : AC(137), [Antiproliferative](#) : CK(2546) : AC(1685), [Apoptotic](#) : CK(2958) : AC(2075)

---

## New insights into antimetastatic and antiangiogenic effects of cannabinoids.

**Pubmed Data** : Int Rev Cell Mol Biol. 2015 ;314:43-116. Epub 2014 Dec 18. PMID: [25619715](#)

**Article Published Date** : Dec 31, 2014

**Authors** : Robert Ramer, Burkhard Hinz

**Study Type** : Review

**Additional Links**

**Substances** : [Cannabinoids](#) : CK(816) : AC(310)

**Diseases** : [Cancers: All](#) : CK(14773) : AC(4596)

**Pharmacological Actions** : [Anti-Angiogenic](#) : CK(197) : AC(137), [Anti-metastatic](#) : CK(634) : AC(414), [Antineoplastic Agents](#) : CK(1158) : AC(639)

---

## This reviews the basis for the use of cannabinoids in the treatment of cancers and neurodegenerative diseases.

**Pubmed Data** : Handb Exp Pharmacol. 2005(168):627-42. PMID: [16596790](#)

**Article Published Date** : Dec 31, 2004

**Authors** : M Guzmán

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Cancers: All : CK(14773) : AC(4596) , Neurodegenerative Diseases : CK(3582) : AC(932)

**Pharmacological Actions** : Anti-Angiogenic : CK(197) : AC(137), Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Neuroprotective Agents : CK(2360) : AC(1099)

---

## Anti-Anxiety Agents (AC 5) (CK 7)

**Cannabidiol oil could be used as a safe treatment for reducing anxiety and improving sleep in posttraumatic stress disorders.**

**Pubmed Data** : Perm J. 2016 Oct 12 ;20(4). Epub 2016 Aug 12. PMID: [27768570](#)

**Article Published Date** : Oct 11, 2016

**Authors** : Scott Shannon, Janet Opila-Lehman

**Study Type** : Human: Case Report

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Anxiety Disorders : CK(1225) : AC(180), Insomnia : CK(523) : AC(66), Post-Traumatic Stress Disorders (PTSD) : CK(243) : AC(35)

**Pharmacological Actions** : Anti-Anxiety Agents : CK(356) : AC(59)

---

**Current evidence indicates CBD has considerable potential as a treatment for multiple anxiety disorders.**

**Pubmed Data** : Neurotherapeutics. 2015 Sep 4. Epub 2015 Sep 4. PMID: [26341731](#)

**Article Published Date** : Sep 03, 2015

**Authors** : Esther M Blessing, Maria M Steenkamp, Jorge Manzanares, Charles R Marmar

**Study Type** : Review

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Anxiety Disorders : CK(1225) : AC(180), Obsessive-Compulsive Disorder : CK(188) : AC(26), Post-Traumatic Stress Disorders (PTSD) : CK(243) : AC(35)

**Pharmacological Actions** : Anti-Anxiety Agents : CK(356) : AC(59)

---

**Studies assessed in the present chapter clearly suggest an**

## anxiolytic-like effect of CBD in both animal models and healthy volunteers.

**Pubmed Data** : Curr Neuropharmacol. 2016 May 9. Epub 2016 May 9. PMID: [27157263](#)

**Article Published Date** : May 08, 2016

**Authors** : Vanessa P Soares, Alline C Campos

**Study Type** : Review

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Anxiety Disorders : CK(1225) : AC(180)

**Pharmacological Actions** : Anti-Anxiety Agents : CK(356) : AC(59) , Anxiolytic : CK(379) : AC(57)

---

## Targeting the endocannabinoid system represents an attractive and novel approach to the treatment of anxiety-related disorders.

**Pubmed Data** : J Basic Clin Physiol Pharmacol. 2015 Sep 30. Epub 2015 Sep 30. PMID: [26426887](#)

**Article Published Date** : Sep 29, 2015

**Authors** : Nachshon Korem, Tomer Mizrachi Zer-Aviv, Eti Ganon-Elazar, Hila Abush, Irit Akirav

**Study Type** : Review

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Anxiety Disorders : CK(1225) : AC(180) , Post-Traumatic Stress Disorders (PTSD) : CK(243) : AC(35)

**Pharmacological Actions** : Anti-Anxiety Agents : CK(356) : AC(59)

**Additional Keywords** : Endocannabinoid System : CK(60) : AC(23)

---

## This reviews the literature demonstrating the anxiolytic effects of Cannabidiol.

**Pubmed Data** : Br J Pharmacol. 2017 Mar 7. Epub 2017 Mar 7. PMID: [28268256](#)

**Article Published Date** : Mar 06, 2017

**Authors** : Jonathan L C Lee, Leandro J Bertoglio, Francisco S Guimarães, Carl W Stevenson

**Study Type** : Review

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Anxiety : CK(48) : AC(8)

**Pharmacological Actions** : Anti-Anxiety Agents : CK(356) : AC(59)

---

# Anti-Apoptotic (AC 8) (CK 11)

## A cannabinoid receptor 2 agonist attenuates cisplatin-induced apoptosis in auditory cells.

**Pubmed Data** : J Neurosci Res. 2007 Mar;85(4):896-905. PMID: [17183590](#)

**Article Published Date** : Mar 01, 2007

**Authors** : Hyun-Ja Jeong, Su-Jin Kim, Phil-Dong Moon, Na-Hyun Kim, Jung-Sun Kim, Rae-Kil Park, Min-Sun Kim, Byung-Rim Park, Sejin Jeong, Jae-Young Um, Hyung-Min Kim, Seung-Heon Hong

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Auditory Diseases : CK(3) : AC(2), Chemotherapy-Induced Toxicity: Cisplatin : CK(319) : AC(133)

**Pharmacological Actions** : Anti-Apoptotic : CK(384) : AC(212)

---

## Cannabidiol has a protective effect on hydrogen peroxide induced apoptosis, inflammation and oxidative stress in nucleus pulposus cells.

**Pubmed Data** : Mol Med Rep. 2016 Sep ;14(3):2321-7. Epub 2016 Jul 13. PMID: [27430346](#)

**Article Published Date** : Aug 31, 2016

**Authors** : Jie Chen, Chen Hou, Xin Chen, Dong Wang, Pinglin Yang, Xijing He, Jinsong Zhou, Haopeng Li

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Hydrogen Peroxide Induced Toxicity : CK(26) : AC(18)

**Pharmacological Actions** : Anti-Apoptotic : CK(384) : AC(212), Anti-Inflammatory Agents : CK(4861) : AC(1630), Antioxidants : CK(8430) : AC(3132)

---

## Cannabidiol normalizes caspase 3, synaptophysin, and mitochondrial fission protein DNM1L expression levels in rats with brain iron overload.

**Pubmed Data** : Mol Neurobiol. 2014 Feb ;49(1):222-33. Epub 2013 Jul 28. PMID: [23893294](#)

**Article Published Date** : Jan 31, 2014

**Authors** : Vanessa Kappel da Silva, Betânia Souza de Freitas, Arethuza da Silva Dornelles, Laura Roesler Nery, Lucio Falavigna, Rafael Dal Ponte Ferreira, Maurício Reis Bogo, Jaime Eduardo Cecílio Hallak, Antônio Waldo Zuardi, José Alexandre S Crippa, Nadja Schröder

**Study Type** : Animal Study



### **Additional Links**

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Iron Overload](#) : CK(32) : AC(18) , [Neurodegenerative Diseases](#) : CK(3582) : AC(932)

**Pharmacological Actions** : [Anti-Apoptotic](#) : CK(384) : AC(212) , [Neuroprotective Agents](#) : CK(2360) : AC(1099)

---

## **Cannabidiol possesses an anti-apoptotic power against the neurodegenerative processes underlying MS development.**

**Pubmed Data** : Eur Rev Med Pharmacol Sci. 2015 Dec ;19(24):4906-19. PMID: [26744883](#)

**Article Published Date** : Nov 30, 2015

**Authors** : S Giacoppo, T Soundara Rajan, M Galuppo, F Pollastro, G Grassi, P Bramanti, E Mazzon

**Study Type** : Animal Study

### **Additional Links**

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Multiple Sclerosis](#) : CK(964) : AC(184)

**Pharmacological Actions** : [Anti-Apoptotic](#) : CK(384) : AC(212) , [Neuroprotective Agents](#) : CK(2360) : AC(1099)

---

## **Cannabidiol promotes amyloid precursor protein ubiquitination and reduction of beta amyloid expression.**

**Pubmed Data** : Phytother Res. 2014 Jul ;28(7):1007-13. Epub 2013 Nov 28. PMID: [24288245](#)

**Article Published Date** : Jun 30, 2014

**Authors** : Caterina Scuderi, Luca Steardo, Giuseppe Esposito

**Study Type** : In Vitro Study

### **Additional Links**

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Pharmacological Actions** : [Anti-Apoptotic](#) : CK(384) : AC(212) , [Neuroprotective Agents](#) : CK(2360) : AC(1099)

---

## **Cannabidiol reduces brain damage and improves functional recovery in a neonatal rat model of arterial ischemic stroke.**

**Pubmed Data** : Neuropharmacology. 2016 Dec 21. Epub 2016 Dec 21. PMID: [28012949](#)

**Article Published Date** : Dec 20, 2016

**Authors** : Maria Ceprián, Laura Jiménez-Sánchez, Carlos Vargas, Lorena Barata, Will Hind, Jose Martínez-Orgado

**Study Type** : Animal Study

### **Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Stroke: Ischemic : CK(218) : AC(31)

**Pharmacological Actions** : Anti-Apoptotic : CK(384) : AC(212), Anti-Inflammatory Agents : CK(4861) : AC(1630), Neuroprotective Agents : CK(2360) : AC(1099)

---

## Low doses of CBD exert oligoprotective effects in oligodendrocyte progenitor cells under conditions of inflammation, oxidative and ER stress.

**Pubmed Data** : Cell Death Dis. 2012 ;3:e331. Epub 2012 Jun 28. PMID: [22739983](#)

**Article Published Date** : Dec 31, 2011

**Authors** : M Mecha, A S Torrao, L Mestre, F J Carrillo-Salinas, R Mechoulam, C Guaza

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Inflammation : CK(3240) : AC(882), Multiple Sclerosis : CK(964) : AC(184), Oxidative Stress : CK(3871) : AC(1382)

**Pharmacological Actions** : Anti-Apoptotic : CK(384) : AC(212), Anti-Inflammatory Agents : CK(4861) : AC(1630), Antioxidants : CK(8430) : AC(3132), Neuroprotective Agents : CK(2360) : AC(1099)

---

## THC exerts anti-apoptotic and restores mitochondrial membrane potential.

**Pubmed Data** : Phytother Res. 2016 Dec ;30(12):2044-2052. Epub 2016 Sep 22. PMID: [27654887](#)

**Article Published Date** : Nov 30, 2016

**Authors** : Chi Huu Nguyen, Christopher Krewenka, Khaled Radad, Barbara Kranner, Alexandra Huber, Johanna Catharina Duvigneau, Ingrid Miller, Rudolf Moldzio

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Neurodegenerative Diseases : CK(3582) : AC(932), Parkinson's Disease : CK(1021) : AC(167)

**Pharmacological Actions** : Anti-Apoptotic : CK(384) : AC(212), Neuroprotective Agents : CK(2360) : AC(1099)

---

## Anti-Bacterial Agents (AC 3) (CK 3)

Biologically active cannabinoids from high-potency

## Cannabis sativa displayed significant antibacterial and antifungal activities.

**Pubmed Data** : J Nat Prod. 2009 May 22 ;72(5):906-11. PMID: [19344127](#)

**Article Published Date** : May 21, 2009

**Authors** : Mohamed M Radwan, Mahmoud A Elsohly, Desmond Slade, Safwat A Ahmed, Ikhlas A Khan, Samir A Ross

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Candida Infection : CK(241) : AC(112), Leishmaniasis : CK(53) : AC(36), Pseudomonas aeruginosa : CK(115) : AC(73), Staphylococcus aureus: Methicillin-resistant (MRSA) : CK(257) : AC(103)

**Pharmacological Actions** : Anti-Bacterial Agents : CK(1367) : AC(475), Antifungal Agents : CK(234) : AC(146)

---

## Cannabinoids showed potent activity against a variety of methicillin-resistant Staphylococcus aureus (MRSA) strains.

**Pubmed Data** : J Nat Prod. 2008 Aug ;71(8):1427-30. Epub 2008 Aug 6. PMID: [18681481](#)

**Article Published Date** : Jul 31, 2008

**Authors** : Giovanni Appendino, Simon Gibbons, Anna Giana, Alberto Pagani, Gianpaolo Grassi, Michael Stavri, Eileen Smith, M Mukhlesur Rahman

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Staphylococcus aureus: Methicillin-resistant (MRSA) : CK(257) : AC(103)

**Pharmacological Actions** : Anti-Bacterial Agents : CK(1367) : AC(475)

---

## These results showed that essential oils of industrial hemp can significantly inhibit the microbial growth.

**Pubmed Data** : Fitoterapia. 2010 Jul ;81(5):413-9. Epub 2009 Dec 4. PMID: [19969046](#)

**Article Published Date** : Jun 30, 2010

**Authors** : Lorenzo Nissen, Alessandro Zatta, Ilaria Stefanini, Silvia Grandi, Barbara Sgorbati, Bruno Biavati, Andrea Monti

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Gram-Negative Bacterial Infections : CK(46) : AC(33), Gram-Positive Bacterial Infections : CK(35) : AC(29)

**Pharmacological Actions** : Anti-Bacterial Agents : CK(1367) : AC(475), Antifungal Agents : CK(234) : AC(146)

**Additional Keywords** : Essential Oils : CK(181) : AC(69)

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## Anti-Fibrotic (AC 1) (CK 1)

**Several cannabinoids may be considered candidates for development as anti-inflammatory and antifibrotic agents.**

**Pubmed Data** : FASEB J. 2016 Jul 19. Epub 2016 Jul 19. PMID: [27435265](#)

**Article Published Date** : Jul 18, 2016

**Authors** : Robert B Zurier, Sumner H Burstein

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Fibrosis : CK(16) : AC(10), Inflammation : CK(3240) : AC(882)

**Pharmacological Actions** : Anti-Fibrotic : CK(46) : AC(29), Anti-Inflammatory Agents : CK(4861) : AC(1630)

---

## Anti-Inflammatory Agents (AC 66) (CK 152)

**A cannabis extract with high content in cannabidiol attenuated chemically-induced intestinal inflammation.**

**Pubmed Data** : Front Pharmacol. 2016 ;7:341. Epub 2016 Aug 4. PMID: [27757083](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Ester Pagano, Raffaele Capasso, Fabiana Piscitelli, Barbara Romano, Olga A Parisi, Stefania Finizio, Anna Lauritano, Vincenzo Di Marzo, Angelo A Izzo, Francesca Borrelli

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Colitis : CK(255) : AC(111), Gastrointestinal Inflammation : CK(118) : AC(41), Inflammatory Bowel Diseases : CK(1052) : AC(197)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630)

**Additional Keywords** : Plant Extracts : CK(7645) : AC(2539)

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## A combination of Cannabichromene and Delta-tetrahydrocannabinol leads to enhanced tetrad and anti-inflammatory actions.

**Pubmed Data** : Drug Alcohol Depend. 2010 Nov 1 ;112(1-2):126-33. PMID: [20619971](#)

**Article Published Date** : Oct 31, 2010

**Authors** : Gerald T DeLong, Carl E Wolf, Alphonse Poklis, Aron H Lichtman

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Inflammation : CK(3240) : AC(882)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630)

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## A growing amount of experimental data imply possible exploitation of cannabinoids in cancer therapy.

**Pubmed Data** : Onco Targets Ther. 2016 ;9:4323-36. Epub 2016 Jul 18. PMID: [27486335](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Maria Pyszniak, Jacek Tabarkiewicz, Jarogniew J Łuszczki

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Cancers: All : CK(14773) : AC(4596)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Anti-metastatic : CK(634) : AC(414), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Autophagy Up-regulation : CK(108) : AC(65), Cell cycle arrest : CK(810) : AC(612)

**Additional Keywords** : Endocannabinoid System : CK(60) : AC(23)

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## A review of Cannabidiol and its analogs and their effects on inflammation.

**Pubmed Data** : Bioorg Med Chem. 2015 Apr 1 ;23(7):1377-85. Epub 2015 Feb 7. PMID: [25703248](#)

**Article Published Date** : Mar 31, 2015

**Authors** : Sumner Burstein

**Study Type** : Review

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Inflammation : CK(3240) : AC(882)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630)

---

## A review of the promising aspects of cannabinoid-based therapies for Parkinson's disease.

**Pubmed Data** : Mol Neurodegener. 2015 ;10:17. Epub 2015 Apr 8. PMID: [25888232](#)

**Article Published Date** : Dec 31, 2014

**Authors** : Sandeep Vasant More, Dong-Kug Choi

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33)

**Diseases** : Parkinson's Disease : CK(1021) : AC(167)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Neuroprotective Agents : CK(2360) : AC(1099)

---

## Administration of synthetic 2-AG to mice after CHI led to significant reduction of brain oedema, better clinical recovery, reduced infarct volume and reduced hippocampal cell death compared with controls.

**Pubmed Data** : Nature. 2001 Oct 4 ;413(6855):527-31. PMID: [11586361](#)

**Article Published Date** : Oct 03, 2001

**Authors** : D Panikashvili, C Simeonidou, S Ben-Shabat, L Hanus, A Breuer, R Mechoulam, E Shohami

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Endocannabinoids : CK(9) : AC(1)

**Diseases** : Brain Edema : CK(49) : AC(13), Brain Inflammation : CK(274) : AC(145), Traumatic Brain Injury : CK(88) : AC(25)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Neuroprotective Agents : CK(2360) : AC(1099)

**Additional Keywords** : Significant Treatment Outcome : CK(3038) : AC(366)

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## CBD exerts protective effects against Doxorubicin induced cardiotoxicity and cardiac dysfunction by attenuating oxidative and nitrative stress.

**Pubmed Data** : Mol Med. 2015 Jan 6. Epub 2015 Jan 6. PMID: [25569804](#)

**Article Published Date** : Jan 05, 2015

**Authors** : Enkui Hao, Partha Mukhopadhyay, Zongxian Cao, Katalin Erdélyi, Eileen Holovac, Lucas

Liaudet, Wen-Shin Lee, György Haskó, Raphael Mechoulam, Pál Pacher

**Study Type** : Animal Study, In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Chemotherapy-Induced Toxicity: Doxorubicin : CK(132) : AC(56) , Oxidative Stress : CK(3871) : AC(1382)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Cardioprotective : CK(1596) : AC(409), Chemoprotective Agents : CK(356) : AC(146) , Chemoprotective Agents : CK(356) : AC(146)

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## CBD may represent a promising novel treatment for management of autoimmune myocarditis and possibly other autoimmune disorders

**Pubmed Data** : Mol Med. 2016 Jan 8. Epub 2016 Jan 8. PMID: [26772776](#)

**Article Published Date** : Jan 07, 2016

**Authors** : Wen-Shin Lee, Katalin Erdelyi, Csaba Matyas, Partha Mukhopadhyay, Zoltan V Varga, Lucas Liaudet, György Haskó, Daniela Čiháková, Raphael Mechoulam, Pal Pacher

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Autoimmune Diseases : CK(6629) : AC(1128), Myocarditis: Autoimmune : CK(20) : AC(6)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Immunomodulatory : CK(1287) : AC(358)

---

## Cannabichromene could be considered for clinical experimentation in inflammatory bowel disease patients.

**Pubmed Data** : Biochem Pharmacol. 2013 May 1 ;85(9):1306-16. Epub 2013 Feb 12. PMID: [23415610](#)

**Article Published Date** : Apr 30, 2013

**Authors** : Francesca Borrelli, Ines Fasolino, Barbara Romano, Raffaele Capasso, Francesco Maiello, Diana Coppola, Pierangelo Orlando, Giovanni Battista, Ester Pagano, Vincenzo Di Marzo, Angelo A Izzo

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Colitis : CK(255) : AC(111), Inflammatory Bowel Diseases : CK(1052) : AC(197)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Interleukin-10 downregulation : CK(128) : AC(45), Interleukin-1 beta downregulation : CK(478) : AC(205) , Nitric Oxide Inhibitor : CK(223) : AC(108), Superoxide Dismutase Up-regulation : CK(530) : AC(174)

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## Cannabichromene exerts anti-inflammatory actions in

## activated macrophages.

**Pubmed Data** : Br J Pharmacol. 2013 May ;169(1):213-29. PMID: [23373571](#)

**Article Published Date** : Apr 30, 2013

**Authors** : B Romano, F Borrelli, I Fasolino, R Capasso, F Piscitelli, Mg Cascio, Rg Pertwee, D Coppola, L Vassallo, P Orlando, V Di Marzo, Aa Izzo

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Colitis : CK(255) : AC(111), Inflammation : CK(3240) : AC(882), Inflammatory Bowel Diseases : CK(1052) : AC(197), Lipopolysaccharide-Induced Toxicity : CK(380) : AC(218)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630)

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## Cannabichromene selectively reduces inflammation-induced hypermotility in vivo.

**Pubmed Data** : Br J Pharmacol. 2012 Jun ;166(4):1444-60. PMID: [22300105](#)

**Article Published Date** : May 31, 2012

**Authors** : Angelo A Izzo, Raffaele Capasso, Gabriella Aviello, Francesca Borrelli, Barbara Romano, Fabiana Piscitelli, Laura Gallo, Francesco Capasso, Pierangelo Orlando, Vincenzo Di Marzo

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Inflammation : CK(3240) : AC(882)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630)

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## Cannabidiol controls the exaggerated inflammatory response observed in an animal model of asthma.

**Pubmed Data** : Mediators Inflamm. 2015 ;2015:538670. Epub 2015 May 25. PMID: [26101464](#)

**Article Published Date** : Dec 31, 2014

**Authors** : Francieli Vuolo, Fabricia Petronilho, Beatriz Sonai, Cristiane Ritter, Jaime E C Hallak, Antonio Waldo Zuairi, José A Crippa, Felipe Dal-Pizzol

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Asthma : CK(1157) : AC(190)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), interleukin-13 downregulation : CK(2) : AC(1), Interleukin-4 downregulation : CK(119) : AC(34), Interleukin-5 downregulation : CK(25) : AC(4), Interleukin-6 Downregulation : CK(1137) : AC(354), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

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## Cannabidiol could be useful in Dravet syndrome



## treatments.

**Pubmed Data** : Pharmacol Res Perspect. 2016 Apr ;4(2):e00220. Epub 2016 Mar 5. PMID: [27069631](#)

**Article Published Date** : Mar 31, 2016

**Authors** : Marta Rubio, Sara Valdeolivas, Fabiana Piscitelli, Roberta Verde, Valentina Satta, Eva Barroso, Marisol Montolio, Luis Miguel Aras, Vincenzo Di Marzo, Onintza Sagredo, Javier Fernández-Ruiz

**Study Type** : Human Study

### Additional Links

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Dravet syndrome](#) : CK(40) : AC(4), [Endocannabinoid Disorders](#) : CK(46) : AC(13)

**Pharmacological Actions** : [Anti-Inflammatory Agents](#) : CK(4861) : AC(1630)

**Additional Keywords** : [Endocannabinoid System](#) : CK(60) : AC(23)

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## Cannabidiol has a protective effect on hydrogen peroxide induced apoptosis, inflammation and oxidative stress in nucleus pulposus cells.

**Pubmed Data** : Mol Med Rep. 2016 Sep ;14(3):2321-7. Epub 2016 Jul 13. PMID: [27430346](#)

**Article Published Date** : Aug 31, 2016

**Authors** : Jie Chen, Chen Hou, Xin Chen, Dong Wang, Pinglin Yang, Xijing He, Jinsong Zhou, Haopeng Li

**Study Type** : In Vitro Study

### Additional Links

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Hydrogen Peroxide Induced Toxicity](#) : CK(26) : AC(18)

**Pharmacological Actions** : [Anti-Apoptotic](#) : CK(384) : AC(212), [Anti-Inflammatory Agents](#) : CK(4861) : AC(1630), [Antioxidants](#) : CK(8430) : AC(3132)

---

## Cannabidiol has potential as a promising therapeutic agent for the treatment of acne vulgaris.

**Pubmed Data** : J Clin Invest. 2014 Sep ;124(9):3713-24. Epub 2014 Jul 25. PMID: [25061872](#)

**Article Published Date** : Aug 31, 2014

**Authors** : Attila Oláh, Balázs I Tóth, István Borbíró, Koji Sugawara, Attila G Szöllösi, Gabriella Czifra, Balázs Pál, Lídia Ambrus, Jennifer Kloepper, Emanuela Camera, Matteo Ludovici, Mauro Picardo, Thomas Voets, Christos C Zouboulis, Ralf Paus, Tamás Bíró

**Study Type** : Human In Vitro

### Additional Links

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Acne](#) : CK(327) : AC(53)

**Pharmacological Actions** : [Anti-Inflammatory Agents](#) : CK(4861) : AC(1630)

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## Cannabidiol may have potential as a preventative treatment for Alzheimer's disease.

**Pubmed Data** : J Alzheimers Dis. 2014 ;42(4):1383-96. PMID: [25024347](#)

**Article Published Date** : Dec 31, 2013

**Authors** : David Cheng, Adena S Spiro, Andrew M Jenner, Brett Garner, Tim Karl

**Study Type** : Transgenic Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Brain: Oxidative Stress : CK(79) : AC(46) , Brain Inflammation : CK(274) : AC(145), Memory Disorders : CK(344) : AC(104)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630) , Antioxidants : CK(8430) : AC(3132), Neuroprotective Agents : CK(2360) : AC(1099)

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## Cannabidiol might become a useful therapeutic tool for the attenuation and treatment of inflammatory lung diseases.

**Pubmed Data** : Immunopharmacol Immunotoxicol. 2015 Feb ;37(1):35-41. Epub 2014 Oct 30. PMID: [25356537](#)

**Article Published Date** : Jan 31, 2015

**Authors** : A Ribeiro, V I Almeida, C Costola-de-Souza, V Ferraz-de-Paula, M L Pinheiro, L B Vitoretti, J A Gimenes-Junior, A T Akamine, J A Crippa, W Tavares-de-Lima, J Palermo-Neto

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Interstitial Lung Diseases : CK(63) : AC(11) , Lipopolysaccharide-Induced Toxicity : CK(380) : AC(218)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630) , Interleukin-6 Downregulation : CK(1137) : AC(354), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

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## Cannabidiol reduces brain damage and improves functional recovery in a neonatal rat model of arterial ischemic stroke.

**Pubmed Data** : Neuropharmacology. 2016 Dec 21. Epub 2016 Dec 21. PMID: [28012949](#)

**Article Published Date** : Dec 20, 2016

**Authors** : Maria Ceprián, Laura Jiménez-Sánchez, Carlos Vargas, Lorena Barata, Will Hind, Jose Martínez-Orgado

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Stroke: Ischemic : CK(218) : AC(31)

**Pharmacological Actions** : Anti-Apoptotic : CK(384) : AC(212), Anti-Inflammatory Agents : CK(4861) : AC(1630), Neuroprotective Agents : CK(2360) : AC(1099)

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## Cannabidiol reduces intestinal inflammation through the control of neuroimmune axis.

**Pubmed Data** : PLoS One. 2011 ;6(12):e28159. Epub 2011 Dec 6. PMID: [22163000](#)

**Article Published Date** : Dec 31, 2010

**Authors** : Daniele De Filippis, Giuseppe Esposito, Carla Cirillo, Mariateresa Cipriano, Benedicte Y De Winter, Caterina Scuderi, Giovanni Sarnelli, Rosario Cuomo, Luca Steardo, Joris G De Man, Teresa Iuvone

**Study Type** : Animal Study, Human In Vitro

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Inflammation : CK(3240) : AC(882), Inflammatory Bowel Diseases : CK(1052) : AC(197), Ulcerative Colitis : CK(347) : AC(69)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

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## Cannabidiol reduces lung injury induced by hypoxic-ischemic brain damage.

**Pubmed Data** : Pediatr Res. 2017 Apr 7. Epub 2017 Apr 7. PMID: [28388598](#)

**Article Published Date** : Apr 06, 2017

**Authors** : Luis Arruza, Maria Ruth Pazos, Nagat Mohammed, Natalia Escribano, Hector Lafuente, Martín Santos, Francisco J Alvarez-Díaz, William Hind, Jose Martínez-Orgado

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Brain Damage: Hypoxic Ischemic Insult : CK(2) : AC(1)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Neuroprotective Agents : CK(2360) : AC(1099)

**Additional Keywords** : Neuroprotective Agents : CK(2360) : AC(1099), Neuroprotective Agents : CK(2360) : AC(1099), Neuroprotective Agents : CK(2360) : AC(1099), Neuroprotective Agents : CK(2360) : AC(1099)

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## Cannabidiol represents a potential protective agent against doxorubicin cardiac injury.

**Pubmed Data** : Environ Toxicol Pharmacol. 2013 Sep ;36(2):347-57. Epub 2013 May 10. PMID: [23721741](#)

**Article Published Date** : Aug 31, 2013

**Authors** : Amr A Fouad, Waleed H Albuali, Abdulruhman S Al-Mulhim, Iyad Jresat

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Chemotherapy-Induced Toxicity: Doxorubicin : CK(132) : AC(56) , Oxidative Stress : CK(3871) : AC(1382)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Antioxidants : CK(8430) : AC(3132), Cardioprotective : CK(1596) : AC(409), Malondialdehyde Down-regulation : CK(554) : AC(152), NF-kappaB Inhibitor : CK(1114) : AC(694), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

---

## Cannabidiol treatment had a protective effect against inflammation and oxidative damage in the kidney ischemia/reperfusion model.

**Pubmed Data** : Rev Bras Ter Intensiva. 2015 Dec ;27(4):383-389. PMID: [26761477](#)

**Article Published Date** : Nov 30, 2015

**Authors** : Rodrigo Zon Soares, Francieli Vuolo, Dhébora Mozena Dall'Igna, Monique Michels, José Alexandre de Souza Crippa, Jaime Eduardo Cecílio Hallak, Antonio Waldo Zuardi, Felipe Dal-Pizzol

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Ischemia : CK(76) : AC(38)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Antioxidants : CK(8430) : AC(3132), Renoprotective : CK(572) : AC(254)

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## Cannabidiol was found to promote neuronal survival by inhibiting JNK and p38 MAP kinases.

**Pubmed Data** : Fitoterapia. 2016 Nov 25 ;116:77-84. Epub 2016 Nov 25. PMID: [27890794](#)

**Article Published Date** : Nov 24, 2016

**Authors** : Sabrina Giacoppo, Federica Pollastro, Gianpaolo Grassi, Placido Bramanti, Emanuela Mazzon

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Multiple Sclerosis : CK(964) : AC(184)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Interferon Gamma Reducer : CK(58) : AC(24), Interleukin-17 downregulation : CK(39) : AC(13), Neuroprotective Agents : CK(2360) : AC(1099)

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## Cannabigerol quinone (VCE-003) has high potential for use against MS and perhaps other neuroinflammatory

## diseases.

**Pubmed Data** : J Neuroimmune Pharmacol. 2012 Dec ;7(4):1002-16. Epub 2012 Sep 14. PMID: [22971837](#)

**Article Published Date** : Nov 30, 2012

**Authors** : Aitor G Granja, Francisco Carrillo-Salinas, Alberto Pagani, María Gómez-Cañas, Roberto Negri, Carmen Navarrete, Miriam Mecha, Leyre Mestre, Bend L Fiebich, Irene Cantarero, Marco A Calzado, Maria L Bellido, Javier Fernandez-Ruiz, Giovanni Appendino, Carmen Guaza, Eduardo Muñoz

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33)

**Diseases** : Brain Inflammation : CK(274) : AC(145), Encephalomyelitis : CK(24) : AC(15), Multiple Sclerosis : CK(964) : AC(184)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Neuroprotective Agents : CK(2360) : AC(1099)

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## Cannabinoids has novel anti-inflammatory activity.

**Pubmed Data** : Future Med Chem. 2009 Oct;1(7):1333-1349. PMID: [20191092](#)

**Article Published Date** : Oct 01, 2009

**Authors** : Prakash Nagarkatti, Rupal Pandey, Sadiye Amcaoglu Rieder, Venkatesh L Hegde, Mitzi Nagarkatti

**Study Type** : Review

### Additional Links

**Substances** : Marijuana : CK(1952) : AC(456)

**Diseases** : Inflammation : CK(3240) : AC(882)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630)

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## Cannabinoids - via direct or indirect activation of CB(1) and/or CB(2) receptors exert protective effects in well-established models of intestinal inflammation and colon cancer.

**Pubmed Data** : Pharmacol Res. 2009 Aug ;60(2):117-25. Epub 2009 Mar 18. PMID: [19442536](#)

**Article Published Date** : Jul 31, 2009

**Authors** : Angelo A Izzo, Michael Camilleri

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Colon Cancer : CK(749) : AC(430), Endocannabinoid System : CK(22) : AC(12), Gastrointestinal Inflammation : CK(118) : AC(41), Inflammation : CK(3240) : AC(882), Inflammatory Bowel Diseases : CK(1052) : AC(197)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Anticarcinogenic

Agents : CK(1099) : AC(519)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

---

## Cannabinoids ameliorate disease progression in a model of multiple sclerosis in mice.

**Pubmed Data** : Neuropharmacology. 2012 Jun ;62(7):2299-308. Epub 2012 Feb 8. PMID: [22342378](#)

**Article Published Date** : May 31, 2012

**Authors** : Eva de Lago, Miguel Moreno-Martet, Ana Cabranes, José A Ramos, Javier Fernández-Ruiz

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33)

**Diseases** : Multiple Sclerosis : CK(964) : AC(184)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

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## Cannabinoids attenuate the effects of aging upon neuroinflammation and neurogenesis.

**Pubmed Data** : Neurobiol Dis. 2009 May ;34(2):300-7. PMID: [19385063](#)

**Article Published Date** : Apr 30, 2009

**Authors** : Yannick Marchalant, Holly M Brothers, Greg J Norman, Kate Karelina, A Courtney DeVries, Gary L Wenk

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Aging : CK(1658) : AC(438), Aging: Brain : CK(248) : AC(85), Brain Inflammation : CK(274) : AC(145)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Calcium Channel Blockers : CK(87) : AC(23), Neuritogenic : CK(133) : AC(59), Neuroprotective Agents : CK(2360) : AC(1099)

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## Cannabinoids exert anti-inflammatory, anti-proliferative, anti-invasive, anti-metastatic and pro-apoptotic effects in different cancer types.

**Pubmed Data** : Histol Histopathol. 2015 Jun ;30(6):629-45. Epub 2014 Dec 4. PMID: [25472761](#)

**Article Published Date** : May 31, 2015

**Authors** : Panagiotis Zogopoulos, Penelope Korkolopoulou, Efstratios Patsouris, Stamatios Theocharis

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Glioma : CK(177) : AC(86)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Anti-metastatic : CK(634) : AC(414), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

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## Cannabinoids have cyclooxygenase inhibitory properties.

**Pubmed Data** : Biol Pharm Bull. 2011;34(5):774-8. PMID: [21532172](#)

**Article Published Date** : Jan 01, 2011

**Authors** : Lucia Renee Ruhaak, Jenny Felth, Pernilla Christina Karlsson, Joseph James Rafter, Robert Verpoorte, Lars Bohlin

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310)

**Diseases** : Inflammation : CK(3240) : AC(882)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Cyclooxygenase Inhibitors : CK(71) : AC(39)

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## Cannabinoids may have therapeutic value in neurodegenerative conditions by preventing and/or reducing neuroinflammation.

**Pubmed Data** : Neuroscience. 2007 Feb 23 ;144(4):1516-22. Epub 2006 Dec 18. PMID: [17178196](#)

**Article Published Date** : Feb 22, 2007

**Authors** : Y Marchalant, S Rosi, G L Wenk

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Brain: Microglial Activation : CK(82) : AC(53), Brain Inflammation : CK(274) : AC(145), Lipopolysaccharide-Induced Toxicity : CK(380) : AC(218), Memory Disorders : CK(344) : AC(104)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217), Anti-Inflammatory Agents : CK(4861) : AC(1630), Neuroprotective Agents : CK(2360) : AC(1099)

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## Cannabinoids may have therapeutic value in treating neuroinflammation.

**Pubmed Data** : ScientificWorldJournal. 2011;11:855-65. Epub 2011 Apr 5. PMID: [21479354](#)

**Article Published Date** : Jan 01, 2011

**Authors** : Eric J Downer

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Brain Inflammation : CK(274) : AC(145)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630)

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## **Cannabinoids that activate the CB2R inhibit the ECM adhesion process, thus has potential to serve as a therapeutic agent for ablating neuroinflammation associated with HIV.**

**Pubmed Data** : Life Sci. 2014 May 28 ;104(1-2):15-23. Epub 2014 Apr 15. PMID: [24742657](#)

**Article Published Date** : May 27, 2014

**Authors** : Erinn S Raborn, Melissa Jamerson, Francine Marciano-Cabral, Guy A Cabral

**Study Type** : In Vitro Study

### **Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Brain Inflammation : CK(274) : AC(145), HIV Infections : CK(680) : AC(219)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630)

---

## **Cannabis and cannabinoids can protect the gastric mucosa against noxious challenge.**

**Pubmed Data** : Asian Pac J Trop Med. 2016 May ;9(5):413-9. Epub 2016 Apr 15. PMID: [27261847](#)

**Article Published Date** : Apr 30, 2016

**Authors** : Omar Abdel-Salam

**Study Type** : Review

### **Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Alcohol Toxicity : CK(337) : AC(125)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Antioxidants : CK(8430) : AC(3132), Gastrointestinal Agents : CK(268) : AC(41), Gastroprotective : CK(155) : AC(73)

**Additional Keywords** : Endocannabinoid System : CK(60) : AC(23)

**Problem Substances** : Non-Steroidal Anti-Inflammatory Drugs (NSAIDs) : CK(1905) : AC(215)

---

## **Cannabis extracts could be neuroprotective agents, delaying disease progression in a proinflammatory model of Huntington's disease.**

**Pubmed Data** : ACS Chem Neurosci. 2012 May 16 ;3(5):400-6. Epub 2012 Feb 9. PMID: [22860209](#)

**Article Published Date** : May 15, 2012

**Authors** : Sara Valdeolivas, Valentina Satta, Roger G Pertwee, Javier Fernández-Ruiz, Onintza Sagredo

**Study Type** : Animal Study



### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Huntington Disease : CK(91) : AC(36) , Inflammation : CK(3240) : AC(882)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630) , Neuroprotective Agents : CK(2360) : AC(1099)

**Additional Keywords** : Phytotherapy : CK(1216) : AC(221) , Plant Extracts : CK(7645) : AC(2539)

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## Cannabis has potential therapeutic value in the treatment of amyotrophic lateral sclerosis.

**Pubmed Data** : Am J Hosp Palliat Care. 2010 Aug;27(5):347-56. Epub 2010 May 3. PMID: [20439484](#)

**Article Published Date** : Aug 01, 2010

**Authors** : Gregory T Carter, Mary E Abood, Sunil K Aggarwal, Michael D Weiss

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Amyotrophic Lateral Sclerosis : CK(567) : AC(140)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630) , Antineoplastic Agents : CK(1158) : AC(639), Antioxidants : CK(8430) : AC(3132) , Neuroprotective Agents : CK(2360) : AC(1099)

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## Experimental cannabidiol treatment reduces early pancreatic inflammation in type 1 diabetes.

**Pubmed Data** : Clin Hemorheol Microcirc. 2016 Oct 18. Epub 2016 Aug 18. PMID: [27767974](#)

**Article Published Date** : Oct 17, 2016

**Authors** : Christian Lehmann, Nicholas B Fisher, Barna Tugwell, Anna Szczesniak, Mel Kelly, Juan Zhou

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Diabetes Mellitus: Type 1 : CK(1130) : AC(301)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630) , Pancreato Protective Agents : CK(40) : AC(23)

---

## Grossamide could be a potential therapeutic candidate for inhibiting neuroinflammation in neurodegenerative diseases.

**Pubmed Data** : Mol Cell Biochem. 2017 Apr ;428(1-2):129-137. Epub 2017 Feb 21. PMID: [28224333](#)

**Article Published Date** : Mar 31, 2017

**Authors** : Qian Luo, Xiaoli Yan, Larisa Bobrovskaya, Mei Ji, Huiqing Yuan, Hongxiang Lou, Peihong Fan

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Hemp Seed : CK(446) : AC(5)

**Diseases** : Brain Inflammation : CK(274) : AC(145), Neurodegenerative Diseases : CK(3582) : AC(932)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Interleukin-6 Downregulation : CK(1137) : AC(354), NF-kappaB Inhibitor : CK(1114) : AC(694), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

---

## Hemp seed and evening primrose oils with hot-nature diet have beneficial effects in improving the clinical score in multiple sclerosis patients.

**Pubmed Data** : Complement Ther Med. 2013 Oct ;21(5):473-80. Epub 2013 Jul 25. PMID: [24050582](#)

**Article Published Date** : Sep 30, 2013

**Authors** : Soheila Rezapour-Firouzi, Seyed Rafie Arefhosseini, Farhoudi Mehdi, Ebrahimi-Mamaghani Mehrangiz, Behzad Baradaran, Elyar Sadeghihokmabad, Somaiyeh Mostafaei, Seyed Mohammad Bagher Fazljou, Mohammad-ali Torbati, Sarvin Sanaie, Fatemeh Zamani

**Study Type** : Human Study

**Additional Links**

**Substances** : Evening Primrose Oil : CK(66) : AC(8), Hemp Seed : CK(446) : AC(5)

**Diseases** : Inflammation : CK(3240) : AC(882), Multiple Sclerosis: Relapsing-Remitting : CK(124) : AC(14)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Immunomodulatory : CK(1287) : AC(358)

**Additional Keywords** : Dietary Modification : CK(315) : AC(47), Phytotherapy : CK(1216) : AC(221), Plant Extracts : CK(7645) : AC(2539)

---

## In this trial cannabis induced a clinical remission in 50% of patients with long standing Crohn's disease with 80% nonresponse or intolerance to anti-TNF- $\alpha$ treatment.

**Pubmed Data** : Clin Gastroenterol Hepatol. 2013 Oct ;11(10):1276-1280.e1. Epub 2013 May 4. PMID: [23648372](#)

**Article Published Date** : Sep 30, 2013

**Authors** : Timna Naftali, Lihi Bar-Lev Schleider, Iris Dotan, Ephraim Philip Lansky, Fabiana Sklerovsky Benjaminov, Fred Meir Konikoff

**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Inflammatory Bowel Diseases : CK(1052) : AC(197)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630)

**Additional Keywords** : Natural Substances Versus Drugs : CK(1698) : AC(302), Significant Treatment Outcome : CK(3038) : AC(366)

---

## Low doses of CBD exert oligoprotective effects in oligodendrocyte progenitor cells under conditions of inflammation, oxidative and ER stress.

**Pubmed Data** : Cell Death Dis. 2012 ;3:e331. Epub 2012 Jun 28. PMID: [22739983](#)

**Article Published Date** : Dec 31, 2011

**Authors** : M Mecha, A S Torrao, L Mestre, F J Carrillo-Salinas, R Mechoulam, C Guaza

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Inflammation : CK(3240) : AC(882), Multiple Sclerosis : CK(964) : AC(184), Oxidative Stress : CK(3871) : AC(1382)

**Pharmacological Actions** : Anti-Apoptotic : CK(384) : AC(212), Anti-Inflammatory Agents : CK(4861) : AC(1630), Antioxidants : CK(8430) : AC(3132), Neuroprotective Agents : CK(2360) : AC(1099)

---

## Oral treatment with a low dose of THC inhibits atherosclerosis progression in this mouse model.

**Pubmed Data** : Nature. 2005 Apr 7 ;434(7034):782-6. PMID: [15815632](#)

**Article Published Date** : Apr 06, 2005

**Authors** : Sabine Steffens, Niels R Veillard, Claire Arnaud, Graziano Pelli, Fabienne Burger, Christian Staub, Meliha Karsak, Andreas Zimmer, Jean-Louis Frossard, François Mach

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Arteriosclerosis : CK(452) : AC(126), Inflammation : CK(3240) : AC(882)

**Pharmacological Actions** : Anti-atherogenic : CK(156) : AC(39), Anti-Inflammatory Agents : CK(4861) : AC(1630), Interferon Gamma Reducer : CK(58) : AC(24), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

---

## Our results indicate that CBD exhibits neuroprotective effects in a cerebral malaria model and might be useful as an adjunctive therapy to prevent neurological symptoms.

**Pubmed Data** : Neuroscience. 2015 Mar 19 ;289:166-80. Epub 2015 Jan 13. PMID: [25595981](#)

**Article Published Date** : Mar 18, 2015

**Authors** : A C Campos, F Brant, A S Miranda, F S Machado, A L Teixeira

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Malaria : CK(145) : AC(58)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Interleukin-6 Downregulation : CK(1137) : AC(354), Neuroprotective Agents : CK(2360) : AC(1099), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

**Additional Keywords** : Malaria Complications : CK(2) : AC(1)

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## Phytocannabinoids could be efficient and safe novel treatments in the management of cutaneous inflammations.

**Pubmed Data** : Exp Dermatol. 2016 Apr 20. Epub 2016 Apr 20. PMID: [27094344](#)

**Article Published Date** : Apr 19, 2016

**Authors** : Attila Oláh, Arnold Markovics, Judit Szabó-Papp, Pálma Tímea Szabó, Colin Stott, Christos C Zouboulis, Tamás Bíró

**Study Type** : Human In Vitro

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310)

**Diseases** : Acne : CK(327) : AC(53), Dry Skin : CK(104) : AC(17)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630)

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## Several cannabinoids may be considered candidates for development as anti-inflammatory and antifibrotic agents.

**Pubmed Data** : FASEB J. 2016 Jul 19. Epub 2016 Jul 19. PMID: [27435265](#)

**Article Published Date** : Jul 18, 2016

**Authors** : Robert B Zurier, Sumner H Burstein

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Fibrosis : CK(16) : AC(10), Inflammation : CK(3240) : AC(882)

**Pharmacological Actions** : Anti-Fibrotic : CK(46) : AC(29), Anti-Inflammatory Agents : CK(4861) : AC(1630)

---

## THC and cannabidiol may have therapeutic value in reducing damage and inflammation associated with colitis.

**Pubmed Data** : Br J Pharmacol. 2010 Jun;160(3):712-23. PMID: [20590574](#)

**Article Published Date** : Jun 01, 2010

**Authors** : J M Jamontt, A Molleman, R G Pertwee, M E Parsons

**Study Type** : Animal Study

### **Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Colitis : CK(255) : AC(111), Inflammatory Bowel Diseases : CK(1052) : AC(197)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630)

---

## **THC prevents cytokine-induced increase in airway epithelial permeability through CB2 receptor activation.**

**Pubmed Data** : Biochem Pharmacol. 2016 Sep 15. Epub 2016 Sep 15. PMID: [27641813](#)

**Article Published Date** : Sep 14, 2016

**Authors** : Valerie C M Shang, David A Kendall, Richard E Roberts

**Study Type** : In Vitro Study

### **Additional Links**

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Allergic Airway Diseases : CK(69) : AC(25), Bronchial Diseases : CK(1) : AC(1)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630)

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## **THC treatment during Delayed-type hypersensitivity response can simultaneously inhibit Th1/Th17 activation via regulation of microRNA expression.**

**Pubmed Data** : J Mol Med (Berl). 2016 Apr 1. Epub 2016 Apr 1. PMID: [27038180](#)

**Article Published Date** : Mar 31, 2016

**Authors** : Jessica M Sido, Austin R Jackson, Prakash S Nagarkatti, Mitzi Nagarkatti

**Study Type** : Animal Study

### **Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Hypersensitivity : CK(74) : AC(22)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Immunomodulatory : CK(1287) : AC(358), Immunomodulatory: Th17 downregulation : CK(30) : AC(17), MicroRNA modulator : CK(264) : AC(145)

---

## **THC treatment led to 100% survival of mice due to its potent anti-inflammatory action that suppressed SEB-induced pulmonary inflammation.**

**Pubmed Data** : Br J Pharmacol. 2015 Apr ;172(7):1792-806. Epub 2015 Feb 10. PMID: [25425209](#)

**Article Published Date** : Mar 31, 2015

**Authors** : R Rao, P S Nagarkatti, M Nagarkatti

**Study Type** : Animal Study

### **Additional Links**

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Lung Inflammation : CK(11) : AC(6) , Staphylococcus aureus infection : CK(188) : AC(125)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630) , MicroRNA modulator : CK(264) : AC(145)

**Additional Keywords** : Significant Treatment Outcome : CK(3038) : AC(366)

---

## The cannabinoid system along with other neuroimmune systems has a subtle but significant role in the regulation of immunity.

**Pubmed Data** : Pain Res Manag. 2001 ;6(2):95-101. PMID: [11854771](#)

**Article Published Date** : Dec 31, 2000

**Authors** : T W Klein, C A Newton, H Friedman

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Acquired Immunodeficiency Syndrome : CK(16) : AC(12) , Cancers: All : CK(14773) : AC(4596) , Multiple Sclerosis : CK(964) : AC(184)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630) , Apoptotic : CK(2958) : AC(2075) , Immunomodulatory : CK(1287) : AC(358) , Neuroimmunomodulation : CK(1) : AC(1)

**Additional Keywords** : Immunocannabinoid System : CK(1) : AC(1)

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## The control of oxidative stress may prevent and alleviate oral mucositis.

**Pubmed Data** : J Clin Pharm Ther. 2017 Feb 12. Epub 2017 Feb 12. PMID: [28191662](#)

**Article Published Date** : Feb 11, 2017

**Authors** : L F Cuba, F G Salum, K Cherubini, M A Z Figueiredo

**Study Type** : Review

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Oral Mucositis : CK(53) : AC(7)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217) , Anti-Inflammatory Agents : CK(4861) : AC(1630) , Antioxidants : CK(8430) : AC(3132)

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## The data from this study supports the view that inhibition of microglial activation may improve schizophrenia symptoms.

**Pubmed Data** : Schizophr Res. 2015 May ;164(1-3):155-63. Epub 2015 Feb 10. PMID: [25680767](#)

**Article Published Date** : Apr 30, 2015

**Authors** : Felipe V Gomes, Ricardo Llorente, Elaine A Del Bel, Maria-Paz Viveros, Meritxell López-

Gallardo, Francisco S Guimarães

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Brain Inflammation : CK(274) : AC(145), Schizophrenia : CK(445) : AC(70)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Antipsychotic Agents : CK(15) : AC(2), Neuroprotective Agents : CK(2360) : AC(1099)

**Additional Keywords** : Clozapine : CK(2) : AC(1), Natural Substances Versus Drugs : CK(1698) : AC(302)

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## The present study reviews current insights into the role of cannabinoids and their receptors on viral infections.

**Pubmed Data** : J Med Virol. 2016 Jan ;88(1):1-12. Epub 2015 Jun 25. PMID: [26059175](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Alireza Tahamtan, Masoumeh Tavakoli-Yaraki, Tomasz P Rygiel, Talat Mokhtari-Azad, Vahid Salimi

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Hepatitis C : CK(474) : AC(87), Herpes Simplex Virus Type 2 : CK(35) : AC(20), HIV Infections : CK(680) : AC(219), Influenza : CK(789) : AC(123)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Immunomodulatory : CK(1287) : AC(358)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

---

## The studies provide "proof of principle" that CBD and possibly CBD-THC combinations are valid candidates for novel AD therapies.

**Pubmed Data** : Front Pharmacol. 2017 ;8:20. Epub 2017 Feb 3. PMID: [28217094](#)

**Article Published Date** : Dec 31, 2016

**Authors** : Georgia Watt, Tim Karl

**Study Type** : Review

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Alzheimer's Disease : CK(1292) : AC(382)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Antioxidants : CK(8430) : AC(3132), Neurogenesis : CK(59) : AC(30), Neuroprotective Agents : CK(2360) : AC(1099)

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## These findings highlight the anti-inflammatory effects of cannabidiol in this viral model of multiple sclerosis.

**Pubmed Data** : Neurobiol Dis. 2013 Nov ;59:141-50. Epub 2013 Jul 11. PMID: [23851307](#)

**Article Published Date** : Oct 31, 2013

**Authors** : M Mecha, A Feliú, P M Iñigo, L Mestre, F J Carrillo-Salinas, C Guaza

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Inflammation : CK(3240) : AC(882), Multiple Sclerosis : CK(964) : AC(184)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Interleukin-1 beta downregulation : CK(478) : AC(205), Vascular Cell Adhesion Molecule-1 Inhibitor : CK(117) : AC(30)

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## These in vitro results testify the anti-inflammatory, antioxidative, and anti-apoptotic effects of the combination of cannabidiol and moringin.

**Pubmed Data** : Fitoterapia. 2016 May 20. Epub 2016 May 20. PMID: [27215129](#)

**Article Published Date** : May 19, 2016

**Authors** : Thangavelu Soundara Rajan, Sabrina Giacoppo, Renato Iori, Gina Rosalinda De Nicola, Gianpaolo Grassi, Federica Pollastro, Placido Bramanti, Emanuela Mazzon

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Moringa oleifera : CK(150) : AC(73)

**Diseases** : Inflammation : CK(3240) : AC(882)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Antioxidants : CK(8430) : AC(3132)

---

## These results reveal an immunosuppressive effect of cannabinoid preparations.

**Pubmed Data** : Front Mol Neurosci. 2017 ;10:14. Epub 2017 Jan 24. PMID: [28174520](#)

**Article Published Date** : Dec 31, 2016

**Authors** : Wesley K Utomo, Marjan de Vries, Henri Braat, Marco J Bruno, Kaushal Parikh, Mònica Comalada, Maikel P Peppelenbosch, Harry van Goor, Gwenny M Fuhler

**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Inflammation : CK(3240) : AC(882), Pancreatitis: Chronic : CK(4) : AC(4)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Immunosuppressive Agents : CK(37) : AC(24)

**Additional Keywords** : Immunosuppressive Agents : CK(37) : AC(24), Immunosuppressive Agents : CK(37) : AC(24), Immunosuppressive Agents : CK(37) : AC(24), Inflammation : CK(2) : AC(2), Inflammation : CK(2) : AC(2)

---

**This data suggests that CBD exerts its immunoregulatory**



## effects via induction of CD4(+)CD25(-)CD69(+)LAG3(+) cells.

**Pubmed Data** : J Neuroinflammation. 2015 ;12:52. Epub 2015 Mar 15. PMID: [25880134](#)

**Article Published Date** : Dec 31, 2014

**Authors** : Ewa Kozela, Ana Juknat, Nathali Kaushansky, Avraham Ben-Nun, Giovanni Coppola, Zvi Vogel

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Multiple Sclerosis : CK(964) : AC(184)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Immunomodulatory : CK(1287) : AC(358), Immunomodulatory: Th17 downregulation : CK(30) : AC(17)

---

## This review critically discusses the pharmacology of CB receptor activation as a novel therapeutic anticancer strategy

**Pubmed Data** : J Pharm Pharmacol. 2009 Jul ;61(7):839-53. PMID: [19589225](#)

**Article Published Date** : Jun 30, 2009

**Authors** : Susanne Oesch, Jürg Gertsch

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Endocannabinoids : CK(9) : AC(1)

**Diseases** : Cancers: All : CK(14773) : AC(4596)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Anti-Inflammatory Agents : CK(4861) : AC(1630), Anti-metastatic : CK(634) : AC(414), Anticarcinogenic Agents : CK(1099) : AC(519), Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37), Endocannabinoid System : CK(60) : AC(23)

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## This review details the mechanisms of neurodegeneration and highlights the beneficial effects of cannabinoid treatment.

**Pubmed Data** : Br J Pharmacol. 2014 Mar ;171(6):1347-60. PMID: [24172185](#)

**Article Published Date** : Feb 28, 2014

**Authors** : S G Fagan, V A Campbell

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Alzheimer's Disease : CK(1292) : AC(382), Brain Inflammation : CK(274) : AC(145),

Huntington Disease : CK(91) : AC(36), Neurodegenerative Diseases : CK(3582) : AC(932), Parkinson's Disease : CK(1021) : AC(167)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Neurogenesis : CK(59)

: AC(30), Neuroprotective Agents : CK(2360) : AC(1099)

---

## This reviews the in-vitro and in-vivo evidence for the therapeutic potential of CBD in Alzheimer's disease.

**Pubmed Data** : Behav Pharmacol. 2016 Jul 28. Epub 2016 Jul 28. PMID: [27471947](#)

**Article Published Date** : Jul 27, 2016

**Authors** : Tim Karl, Brett Garner, David Cheng

**Study Type** : Review

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Alzheimer's Disease : CK(1292) : AC(382)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Antioxidants : CK(8430) : AC(3132), Neuroprotective Agents : CK(2360) : AC(1099)

---

## This study explains the beneficial role of CBD in pathological memory T cells and in autoimmune diseases.

**Pubmed Data** : J Neuroinflammation. 2016 ;13(1):136. Epub 2016 Jun 3. PMID: [27256343](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Ewa Kozela, Ana Juknat, Fuying Gao, Nathali Kaushansky, Giovanni Coppola, Zvi Vogel

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Autoimmune Diseases : CK(6629) : AC(1128)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Antioxidants : CK(8430) : AC(3132), Immunomodulatory : CK(1287) : AC(358), Immunomodulatory: Th17 downregulation : CK(30) : AC(17), Nrf2 activation : CK(177) : AC(86)

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## This study revealed the crucial role of THC in promoting the immunomodulatory effects of MSCs and proposed a new strategy to alleviate pain.

**Pubmed Data** : Oncotarget. 2016 Jan 27. Epub 2016 Jan 27. PMID: [26824325](#)

**Article Published Date** : Jan 26, 2016

**Authors** : Junran Xie, Dongju Xiao, Yun Xu, Jinning Zhao, Li Jiang, Xuming Hu, Yaping Zhang, Lina Yu

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Inflammation : CK(3240) : AC(882), Neuropathic Pain : CK(284) : AC(69)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Antinoceptive : CK(193) : AC(51), Immunomodulatory : CK(1287) : AC(358)

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## This study's CRP evidence points toward possible anti-inflammatory effects of cannabis smoking.

**Pubmed Data** : Drug Alcohol Depend. 2015 Feb 1 ;147:203-7. Epub 2014 Nov 28. PMID: [25529540](#)

**Article Published Date** : Jan 31, 2015

**Authors** : Omayma Alshaarawy, James C Anthony

**Study Type** : Human Study

### Additional Links

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : C-Reactive Protein (CRP) : CK(20) : AC(2), Inflammation : CK(3240) : AC(882)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630)

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## Topical Cannabidiol application has therapeutic potential for relief of arthritis pain-related behaviours and inflammation without evident side-effects.

**Pubmed Data** : Eur J Pain. 2015 Oct 30. Epub 2015 Oct 30. PMID: [26517407](#)

**Article Published Date** : Oct 29, 2015

**Authors** : D C Hammell, L P Zhang, F Ma, S M Abshire, S L McIlwrath, A L Stinchcomb, K N Westlund

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Inflammation : CK(3240) : AC(882)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630)

**Additional Keywords** : Dose Response : CK(1056) : AC(408)

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## Topically applied THC can effectively attenuate contact allergic inflammation.

**Pubmed Data** : Allergy. 2013 Aug ;68(8):994-1000. Epub 2013 Jul 29. PMID: [23889474](#)

**Article Published Date** : Jul 31, 2013

**Authors** : E Gaffal, M Cron, N Glodde, T Tüting

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Dermatitis : CK(1392) : AC(137), Inflammation : CK(3240) : AC(882)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630)

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## Anti-Platelet (AC 1) (CK 2)

### Hempseed prevents cholesterol-induced stimulation of platelet aggregation.

**Pubmed Data** : Can J Physiol Pharmacol. 2008 Apr;86(4):153-9. PMID: [18418423](#)

**Article Published Date** : Apr 01, 2008

**Authors** : M A Prociuk, A L Edel, M N Richard, N T Gavel, B P Ander, C M C Dupasquier, G N Pierce

**Study Type** : Animal Study

**Additional Links**

**Substances** : [Hemp Seed](#) : CK(446) : AC(5)

**Diseases** : [High Cholesterol](#) : CK(1774) : AC(271)

**Pharmacological Actions** : [Anti-Platelet](#) : CK(125) : AC(38), [Platelet Aggregation Inhibitors](#) : CK(186) : AC(40)

## Anti-Proliferative (AC 1) (CK 1)

### Cannabidiol is cytotoxic to human glioma cells.

**Pubmed Data** : Cell Mol Life Sci. 2006 Sep;63(17):2057-66. PMID: [16909207](#)

**Article Published Date** : Sep 01, 2006

**Authors** : P Massi, A Vaccani, S Bianchessi, B Costa, P Macchi, D Parolaro

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Glioma](#) : CK(177) : AC(86)

**Pharmacological Actions** : [Anti-Proliferative](#) : CK(59) : AC(52), [Caspase-3 Activation](#) : CK(91) : AC(66)

## Anti-Psychotic (AC 1) (CK 1)

## Cannabidiol may have therapeutic value as an antipsychotic drug.

**Pubmed Data** : Braz J Med Biol Res. 2006 Apr;39(4):421-9. Epub 2006 Apr 3. PMID: [16612464](#)

**Article Published Date** : Apr 01, 2006

**Authors** : A W Zuardi, J A S Crippa, J E C Hallak, F A Moreira, F S Guimarães

**Study Type** : Review

**Additional Links**

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Psychoses](#) : CK(39) : AC(9)

**Pharmacological Actions** : [Anti-Psychotic](#) : CK(1) : AC(1)

## Anti-Tumor (AC 9) (CK 12)

### A cannabinoid quinone has anti-angiogenic and anticancer activity.

**Pubmed Data** : Mol Pharmacol. 2006 Jul;70(1):51-9. Epub 2006 Mar 29. PMID: [16571653](#)

**Article Published Date** : Jul 01, 2006

**Authors** : Natalya M Kogan, Cristina Blázquez, Luis Alvarez, Ruth Gallily, Michael Schlesinger, Manuel Guzmán, Raphael Mechoulam

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : [Marijuana](#) : CK(1952) : AC(456)

**Diseases** : [Cancer Metastasis](#) : CK(442) : AC(206), [Cancers: All](#) : CK(14773) : AC(4596)

**Pharmacological Actions** : [Anti-Angiogenic](#) : CK(197) : AC(137), [Anti-Tumor](#) : CK(146) : AC(73)

### CBD caused concentration-related inhibition of glioma cell migration.

**Pubmed Data** : Br J Pharmacol. 2005 Apr ;144(8):1032-6. PMID: [15700028](#)

**Article Published Date** : Mar 31, 2005

**Authors** : Angelo Vaccani, Paola Massi, Arianna Colombo, Tiziana Rubino, Daniela Parolaro

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Glioma](#) : CK(177) : AC(86)

**Pharmacological Actions** : [Anti-metastatic](#) : CK(634) : AC(414), [Anti-Tumor](#) : CK(146) : AC(73),

Antiproliferative : CK(2546) : AC(1685)

**Additional Keywords** : Dose Response : CK(1056) : AC(408)

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## **Cannabidiol, a non-psychoactive component from Cannabis sativa, is a potent inhibitor of breast and thyroid cancer cells.**

**Pubmed Data** : J Pharmacol Exp Ther. 2006 Sep;318(3):1375-87. Epub 2006 May 25. PMID: [16728591](#)

**Article Published Date** : Sep 01, 2006

**Authors** : Alessia Ligresti, Aniello Schiano Moriello, Katarzyna Starowicz, Isabel Matias, Simona Pisanti, Luciano De Petrocellis, Chiara Laezza, Giuseppe Portella, Maurizio Bifulco, Vincenzo Di Marzo

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Marijuana : CK(1952) : AC(456)

**Diseases** : Breast Cancer : CK(3592) : AC(1064), Thyroid Cancer : CK(237) : AC(55)

**Pharmacological Actions** : Anti-Tumor : CK(146) : AC(73), Apoptotic : CK(2958) : AC(2075)

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## **Cannabinoids are potent inhibitors of Tu183 cellular respiration and are toxic to this highly malignant tumor.**

**Pubmed Data** : Pharmacology. 2010 ;85(6):328-35. Epub 2010 Jun 2. PMID: [20516734](#)

**Article Published Date** : Dec 31, 2009

**Authors** : Donna A Whyte, Suleiman Al-Hammadi, Ghazala Balhaj, Oliver M Brown, Harvey S Penefsky, Abdul-Kader Souid

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Oral Cancer : CK(223) : AC(86)

**Pharmacological Actions** : Anti-Tumor : CK(146) : AC(73), Antiproliferative : CK(2546) : AC(1685)

**Additional Keywords** : Dose Response : CK(1056) : AC(408)

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## **Cannabinoids have anti-tumoral action against liver cancer.**

**Pubmed Data** : Iran J Allergy Asthma Immunol. 2010 Sep;9(3):157-62. PMID: [21475304](#)

**Article Published Date** : Sep 01, 2010

**Authors** : D Vara, M Salazar, N Olea-Herrero, M Guzmán, G Velasco, I Díaz-Laviada

**Study Type** : Transgenic Animal Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Liver Cancer : CK(1235) : AC(462)

**Pharmacological Actions** : Anti-Tumor : CK(146) : AC(73), Autophagy Up-regulation : CK(108) : AC(65)

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## Cannabinoids inhibit glioma (brain cancer) cell growth in vitro.

**Pubmed Data** : Cancer Res. 2008 Mar 15;68(6):1945-52. PMID: [18339876](#)

**Article Published Date** : Mar 15, 2008

**Authors** : Cristina Blázquez, María Salazar, Arkaitz Carracedo, Mar Lorente, Ainara Egia, Luis González-Feria, Amador Haro, Guillermo Velasco, Manuel Guzmán

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Marijuana : CK(1952) : AC(456)

**Diseases** : Brain Cancer : CK(450) : AC(179), Glioma : CK(177) : AC(86)

**Pharmacological Actions** : Anti-Tumor : CK(146) : AC(73)

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## Cannabinoids were effective in reducing the tumor load, prolonging the mean survival time as well as curing a significant proportion of mice in this study.

**Pubmed Data** : Blood. 2002 Jul 15 ;100(2):627-34. PMID: [12091357](#)

**Article Published Date** : Jul 14, 2002

**Authors** : Robert J McKallip, Catherine Lombard, Michael Fisher, Billy R Martin, Seongho Ryu, Steven Grant, Prakash S Nagarkatti, Mitzi Nagarkatti

**Study Type** : Animal Study

### Additional Links

**Substances** : Anandamide : CK(2) : AC(2), Cannabinoids: Synthetic : CK(78) : AC(33), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Acute lymphoblastic leukemia (ALL) : CK(130) : AC(39)

**Pharmacological Actions** : Anti-Tumor : CK(146) : AC(73), Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37), Significant Treatment Outcome : CK(3038) : AC(366)

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## This study demonstrated cannabinoid induced upregulation of ICAM-1 on lung cancer cells to be responsible for increased cancer cell lysis by LAK cells.

**Pubmed Data** : Biochem Pharmacol. 2014 Nov 15 ;92(2):312-25. Epub 2014 Jul 25. PMID: [25069049](#)

**Article Published Date** : Nov 14, 2014

**Authors** : Maria Haustein, Robert Ramer, Michael Linnebacher, Katrin Manda, Burkhard Hinz

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Lung Cancer : CK(1043) : AC(393)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414), Anti-Tumor : CK(146) : AC(73), Apoptotic : CK(2958) : AC(2075)

**Additional Keywords** : Lymphokine-activated Killer Cells : CK(1) : AC(1)

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## cannabidiol was able to produce a significant antitumor activity both in vitro and in vivo.

**Pubmed Data** : J Pharmacol Exp Ther. 2004 Mar ;308(3):838-45. Epub 2003 Nov 14. PMID: [14617682](#)

**Article Published Date** : Feb 29, 2004

**Authors** : Paola Massi, Angelo Vaccani, Stefania Ceruti, Arianna Colombo, Maria P Abbracchio, Daniela Parolaro

**Study Type** : Animal Study, In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310)

**Diseases** : Glioma : CK(177) : AC(86)

**Pharmacological Actions** : Anti-Tumor : CK(146) : AC(73), Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

## Anti-atherogenic (AC 1) (CK 2)

### Oral treatment with a low dose of THC inhibits atherosclerosis progression in this mouse model.

**Pubmed Data** : Nature. 2005 Apr 7 ;434(7034):782-6. PMID: [15815632](#)

**Article Published Date** : Apr 06, 2005

**Authors** : Sabine Steffens, Niels R Veillard, Claire Arnaud, Graziano Pelli, Fabienne Burger, Christian Staub, Meliha Karsak, Andreas Zimmer, Jean-Louis Frossard, François Mach

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Arteriosclerosis : CK(452) : AC(126), Inflammation : CK(3240) : AC(882)

**Pharmacological Actions** : Anti-atherogenic : CK(156) : AC(39), Anti-Inflammatory Agents :



CK(4861) : AC(1630), Interferon Gamma Reducer : CK(58) : AC(24) , Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

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## Anti-metastatic (AC 23) (CK 38)

### A growing amount of experimental data imply possible exploitation of cannabinoids in cancer therapy.

**Pubmed Data** : Onco Targets Ther. 2016 ;9:4323-36. Epub 2016 Jul 18. PMID: [27486335](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Maria Pyszniak, Jacek Tabarkiewicz, Jarogniew J Łuszczki

**Study Type** : Review

#### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Cancers: All : CK(14773) : AC(4596)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Anti-metastatic : CK(634) : AC(414), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Autophagy Up-regulation : CK(108) : AC(65), Cell cycle arrest : CK(810) : AC(612)

**Additional Keywords** : Endocannabinoid System : CK(60) : AC(23)

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### A synthetic cannabinoid inhibited CXCL12-induced migration and invasive properties of breast cancer cells.

**Pubmed Data** : PLoS One. 2011 ;6(9):e23901. Epub 2011 Sep 7. PMID: [21915267](#)

**Article Published Date** : Dec 31, 2010

**Authors** : Mohd W Nasser, Zahida Qamri, Yadwinder S Deol, Diane Smith, Konstantin Shilo, Xianghong Zou, Ramesh K Ganju

**Study Type** : Animal Study, In Vitro Study

#### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Breast Cancer : CK(3592) : AC(1064), Breast Cancer: Metastatic : CK(123) : AC(52)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414), Antiproliferative : CK(2546) : AC(1685)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37), Synthetic Cannabinoids : CK(2) : AC(1)

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### Anti-migratory effects were confirmed for cannabinoid-

## treated lung cancer cell lines (H460 and H358).

**Pubmed Data** : Biochem Pharmacol. 2014 Sep 15 ;91(2):202-16. Epub 2014 Jun 26. PMID: [24976505](#)

**Article Published Date** : Sep 14, 2014

**Authors** : Robert Ramer, Sascha Fischer, Maria Haustein, Katrin Manda, Burkhard Hinz

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Lung Cancer : CK(1043) : AC(393)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Anti-metastatic : CK(634) : AC(414), Matrix metalloproteinase-1 (MMP-1) inhibitor : CK(32) : AC(16)

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## CBD can be used as a novel therapeutic option to inhibit growth and metastasis of highly aggressive breast cancer subtypes including TNBC.

**Pubmed Data** : Mol Oncol. 2015 Apr ;9(4):906-19. Epub 2015 Jan 19. PMID: [25660577](#)

**Article Published Date** : Mar 31, 2015

**Authors** : Mohamad Elbaz, Mohd W Nasser, Janani Ravi, Nissar A Wani, Dinesh K Ahirwar, Helong Zhao, Steve Oghumu, Abhay R Satoskar, Konstantin Shilo, William E Carson, Ramesh K Ganju

**Study Type** : Animal Study, In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Breast Cancer : CK(3592) : AC(1064), Breast Cancer: Triple Negative : CK(262) : AC(144)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414), Antiproliferative : CK(2546) : AC(1685), Epidermal growth factor receptor (EGFR) inhibitor : CK(65) : AC(41), Matrix metalloproteinase-2 (MMP-2) inhibitor : CK(287) : AC(147), Matrix metalloproteinase-9 (MMP-9) inhibitor : CK(212) : AC(128), NF-kappaB Inhibitor : CK(1114) : AC(694)

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## CBD caused concentration-related inhibition of glioma cell migration.

**Pubmed Data** : Br J Pharmacol. 2005 Apr ;144(8):1032-6. PMID: [15700028](#)

**Article Published Date** : Mar 31, 2005

**Authors** : Angelo Vaccani, Paola Massi, Arianna Colombo, Tiziana Rubino, Daniela Parolaro

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Glioma : CK(177) : AC(86)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414), Anti-Tumor : CK(146) : AC(73), Antiproliferative : CK(2546) : AC(1685)

**Additional Keywords** : Dose Response : CK(1056) : AC(408)

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## Cannabidiol enhanced the ability of THC to inhibit cell proliferation, induce cell cycle arrest and apoptosis.

**Pubmed Data** : Mol Cancer Ther. 2010 Jan ;9(1):180-9. Epub 2010 Jan 6. PMID: [20053780](#)

**Article Published Date** : Dec 31, 2009

**Authors** : Jahan P Marcu, Rigel T Christian, Darryl Lau, Anne J Zielinski, Maxx P Horowitz, Jasmine Lee, Arash Pakdel, Juanita Allison, Chandani Limbad, Dan H Moore, Garret L Yount, Pierre-Yves Desprez, Sean D McAllister

**Study Type** : Animal Study, In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Cancer Metastasis : CK(442) : AC(206), Glioblastoma : CK(200) : AC(88)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Cell cycle arrest : CK(810) : AC(612)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37), Natural Substance Synergy : CK(540) : AC(249)

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## Cannabidiol exhibits anti-invasive action on human lung cancer cells.

**Pubmed Data** : Pharm Res. 2010 Oct;27(10):2162-74. Epub 2010 Jul 29. PMID: [20668920](#)

**Article Published Date** : Oct 01, 2010

**Authors** : Robert Ramer, Anja Rohde, Jutta Merkord, Helga Rohde, Burkhard Hinz

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408)

**Diseases** : Cancer Metastasis : CK(442) : AC(206), Lung Cancer : CK(1043) : AC(393)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414)

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## Cannabidiol inhibits lung cancer cell invasion and metastasis via intercellular adhesion molecule-1.

**Pubmed Data** : FASEB J. 2012 Apr ;26(4):1535-48. Epub 2011 Dec 23. PMID: [22198381](#)

**Article Published Date** : Apr 01, 2012

**Authors** : Robert Ramer, Katharina Bublitz, Nadine Freimuth, Jutta Merkord, Helga Rohde, Maria Haustein, Philipp Borchert, Ellen Schmuhl, Michael Linnebacher, Burkhard Hinz

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Cancer Metastasis : CK(442) : AC(206), Lung Cancer : CK(1043) : AC(393)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414), Intracellular adhesion molecule-1 (ICAM-1) : CK(4) : AC(3)

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## Cannabidiolic acid abrogates the expression of COX-2 via the selective down-regulation of c-fos.

**Pubmed Data** : J Nat Med. 2016 Aug 16. Epub 2016 Aug 16. PMID: [27530354](#)

**Article Published Date** : Aug 15, 2016

**Authors** : Shuso Takeda, Taichi Himeno, Kazuhiro Kakizoe, Hiroyuki Okazaki, Tomoko Okada, Kazuhito Watanabe, Hironori Aramaki

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Breast Cancer: Triple Negative : CK(262) : AC(144)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414), Cyclooxygenase 2 Inhibitors : CK(464) : AC(272)

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## Cannabidiolic acid an active component in the cannabis plant offers potential therapeutic modality in the abrogation of cancer cell migration.

**Pubmed Data** : Toxicol Lett. 2012 Nov 15 ;214(3):314-9. Epub 2012 Sep 8. PMID: [22963825](#)

**Article Published Date** : Nov 14, 2012

**Authors** : Shuso Takeda, Shunsuke Okajima, Hiroko Miyoshi, Kazutaka Yoshida, Yoshiko Okamoto, Tomoko Okada, Toshiaki Amamoto, Kazuhito Watanabe, Curtis J Omiecinski, Hironori Aramaki

**Study Type** : Human In Vitro

### Additional Links

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Breast Cancer : CK(3592) : AC(1064), Breast Cancer: Triple Negative : CK(262) : AC(144)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414), Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Cyclooxygenase 2 Inhibitors : CK(464) : AC(272), Enzyme Inhibitors : CK(473) : AC(251)

---

## Cannabidiolic acid had dual inhibitory effects on COX-2 through down-regulation and enzyme inhibition, and may suppress genes that are positively involved in the metastasis of cancer cells in vitro.

**Pubmed Data** : J Toxicol Sci. 2014 ;39(5):711-6. PMID: [25242400](#)

**Article Published Date** : Dec 31, 2013

**Authors** : Shuso Takeda, Hiroyuki Okazaki, Eriko Ikeda, Satomi Abe, Yasushi Yoshioka, Kazuhito Watanabe, Hironori Aramaki

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Breast Cancer : CK(3592) : AC(1064) , Breast Cancer: Metastatic : CK(123) : AC(52) , Breast Cancer: Triple Negative : CK(262) : AC(144)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414) , Cyclooxygenase 2 Inhibitors : CK(464) : AC(272) , Enzyme Inhibitors : CK(473) : AC(251)

**Additional Keywords** : Gene Expression Regulation : CK(431) : AC(214)

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## Cannabinoids exert anti-inflammatory, anti-proliferative, anti-invasive, anti-metastatic and pro-apoptotic effects in different cancer types.

**Pubmed Data** : Histol Histopathol. 2015 Jun ;30(6):629-45. Epub 2014 Dec 4. PMID: [25472761](#)

**Article Published Date** : May 31, 2015

**Authors** : Panagiotis Zogopoulos, Penelope Korkolopoulou, Efstratios Patsouris, Stamatios Theocharis

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Glioma : CK(177) : AC(86)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630) , Anti-metastatic : CK(634) : AC(414) , Antiproliferative : CK(2546) : AC(1685) , Apoptotic : CK(2958) : AC(2075)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

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## Cannabinoids inhibit the growth of melanoma cells but not of normal melanocytes.

**Pubmed Data** : FASEB J. 2006 Dec ;20(14):2633-5. Epub 2006 Oct 25. PMID: [17065222](#)

**Article Published Date** : Nov 30, 2006

**Authors** : Cristina Blázquez, Arkaitz Carracedo, Lucía Barrado, Pedro José Real, José Luis Fernández-Luna, Guillermo Velasco, Marcos Malumbres, Manuel Guzmán

**Study Type** : Animal Study, In Vitro Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310) , Cannabinoids: Synthetic : CK(78) : AC(33)

**Diseases** : Melanoma : CK(285) : AC(149)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62) , Anti-metastatic : CK(634) : AC(414) , Antineoplastic Agents : CK(1158) : AC(639) , Antiproliferative : CK(2546) : AC(1685) , Apoptotic : CK(2958) : AC(2075) , Cell cycle arrest : CK(810) : AC(612) , Chemotherapeutic : CK(397) : AC(152)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37) , Selective Cytotoxicity : CK(158) : AC(112)

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## Cannabinoids were shown to be of potential use for therapeutic approaches of glioblastoma.

**Pubmed Data** : Cell Adh Migr. 2016 May 5:0. Epub 2016 May 5. PMID: [27149140](#)

**Article Published Date** : May 04, 2016

**Authors** : Tim Hohmann, Urszula Grabiec, Chalid Ghadban, Kerstin Feese, Faramarz Dehghani

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : [Cannabinoids](#) : CK(816) : AC(310)

**Diseases** : [Glioblastoma](#) : CK(200) : AC(88)

**Pharmacological Actions** : [Anti-metastatic](#) : CK(634) : AC(414)

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## New insights into antimetastatic and antiangiogenic effects of cannabinoids.

**Pubmed Data** : Int Rev Cell Mol Biol. 2015 ;314:43-116. Epub 2014 Dec 18. PMID: [25619715](#)

**Article Published Date** : Dec 31, 2014

**Authors** : Robert Ramer, Burkhard Hinz

**Study Type** : Review

**Additional Links**

**Substances** : [Cannabinoids](#) : CK(816) : AC(310)

**Diseases** : [Cancers: All](#) : CK(14773) : AC(4596)

**Pharmacological Actions** : [Anti-Angiogenic](#) : CK(197) : AC(137), [Anti-metastatic](#) : CK(634) : AC(414), [Antineoplastic Agents](#) : CK(1158) : AC(639)

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## THC inhibited cell proliferation, migration and invasion, and induced cell apoptosis in cholangiocarcinoma cells.

**Pubmed Data** : Cancer Invest. 2010 May ;28(4):357-63. PMID: [19916793](#).

**Article Published Date** : Apr 30, 2010

**Authors** : Surang Leelawat, Kawin Leelawat, Siriluck Narong, Oraphan Matangkasombut

**Study Type** : Human In Vitro

**Additional Links**

**Substances** : [Delta-tetrahydrocannabinol \(THC\)](#) : CK(1135) : AC(342)

**Diseases** : [Cancer Metastasis](#) : CK(442) : AC(206), [Cholangiocarcinoma](#) : CK(96) : AC(21)

**Pharmacological Actions** : [Anti-metastatic](#) : CK(634) : AC(414), [Antiproliferative](#) : CK(2546) : AC(1685), [Apoptotic](#) : CK(2958) : AC(2075)

**Additional Keywords** : [Dose Response](#) : CK(1056) : AC(408)

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## The endocannabinoid system controls the growth and metastasis of malignant cells.

**Pubmed Data** : Recent Prog Med. 2003 May ;94(5):194-8. PMID: [12723496](#)

**Article Published Date** : Apr 30, 2003

**Authors** : Maurizio Bifulco, Vincenzo Di Marzo

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342), Endocannabinoids : CK(9) : AC(1)

**Diseases** : Cancer Metastasis : CK(442) : AC(206), Cancers: All : CK(14773) : AC(4596), Endocannabinoid System : CK(22) : AC(12)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

---

## The present investigation confirms the antiproliferative and antiinvasive effects of CBD in U87-MG cells.

**Pubmed Data** : PLoS One. 2013 ;8(10):e76918. Epub 2013 Oct 21. PMID: [24204703](#)

**Article Published Date** : Dec 31, 2012

**Authors** : Marta Solinas, Paola Massi, Valentina Cinquina, Marta Valenti, Daniele Bolognini, Marzia Gariboldi, Elena Monti, Tiziana Rubino, Daniela Parolaro

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Cancer Metastasis : CK(442) : AC(206), Glioma : CK(177) : AC(86)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Anti-metastatic : CK(634) : AC(414), Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Hypoxia inducible factor-1 alpha (HIF-1 $\alpha$ ) inhibitor : CK(22) : AC(15)

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## The results of this study demonstrate the anti-tumourigenic action of cannabidiol on Neuroblastoma cells.

**Pubmed Data** : Curr Oncol. 2016 Mar ;23(2):S15-22. Epub 2016 Mar 16. PMID: [27022310](#)

**Article Published Date** : Feb 29, 2016

**Authors** : T Fisher, H Golan, G Schiby, S PriChen, R Smoum, I Moshe, N Peshes-Yaloz, A Castiel, D Waldman, R Gallily, R Mechoulam, A Toren

**Study Type** : Animal Study, In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Neuroblastoma : CK(86) : AC(53)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

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## This review critically discusses the pharmacology of CB receptor activation as a novel therapeutic anticancer strategy

**Pubmed Data** : J Pharm Pharmacol. 2009 Jul ;61(7):839-53. PMID: [19589225](#)

**Article Published Date** : Jun 30, 2009

**Authors** : Susanne Oesch, Jürg Gertsch

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Endocannabinoids : CK(9) : AC(1)

**Diseases** : Cancers: All : CK(14773) : AC(4596)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Anti-Inflammatory Agents : CK(4861) : AC(1630), Anti-metastatic : CK(634) : AC(414), Anticarcinogenic Agents : CK(1099) : AC(519), Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37), Endocannabinoid System : CK(60) : AC(23)

---

**This review will center on mechanisms by which CBD, and other plant-derived cannabinoids inefficient at activating cannabinoid receptors, inhibit tumor cell viability, invasion, metastasis, angiogenesis.**

**Pubmed Data** : J Neuroimmune Pharmacol. 2015 Jun ;10(2):255-67. Epub 2015 Apr 28. PMID: [25916739](#)

**Article Published Date** : May 31, 2015

**Authors** : Sean D McAllister, Liliana Soroceanu, Pierre-Yves Desprez

**Study Type** : Review

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Cancers: All : CK(14773) : AC(4596)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Anti-metastatic : CK(634) : AC(414), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Autophagy Up-regulation : CK(108) : AC(65)

**Additional Keywords** : Cancer Stem Cells : CK(135) : AC(88)

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**This study demonstrated cannabinoid induced upregulation of ICAM-1 on lung cancer cells to be responsible for increased cancer cell lysis by LAK cells.**

**Pubmed Data** : Biochem Pharmacol. 2014 Nov 15 ;92(2):312-25. Epub 2014 Jul 25. PMID: [25069049](#)

**Article Published Date** : Nov 14, 2014

**Authors** : Maria Haustein, Robert Ramer, Michael Linnebacher, Katrin Manda, Burkhard Hinz

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310), Delta-



tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Lung Cancer : CK(1043) : AC(393)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414), Anti-Tumor : CK(146) : AC(73), Apoptotic : CK(2958) : AC(2075)

**Additional Keywords** : Lymphokine-activated Killer Cells : CK(1) : AC(1)

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## Treatment with cannabidiol significantly reduces primary mammary tumor mass as well as the size and number of lung metastatic foci in animals.

**Pubmed Data** : Breast Cancer Res Treat. 2010 Sep 22. Epub 2010 Sep 22. PMID: [20859676](#)

**Article Published Date** : Sep 22, 2010

**Authors** : Sean D McAllister, Ryuichi Murase, Rigel T Christian, Darryl Lau, Anne J Zielinski, Juanita Allison, Carolina Almanza, Arash Pakdel, Jasmine Lee, Chandani Limbad, Yong Liu, Robert J Debs, Dan H Moore, Pierre-Yves Desprez

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408)

**Diseases** : Breast Cancer : CK(3592) : AC(1064), Breast Cancer: Lung Metastasis : CK(23) : AC(14), Breast Cancer: Prevention : CK(552) : AC(82), Cancer Metastasis : CK(442) : AC(206)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414), Antiproliferative : CK(2546) : AC(1685)

---

## Anticarcinogenic Agents (AC 7) (CK 10)

### CBD induced a robust increase in ROS, which led to the inhibition of cell survival, phosphorylated (p)-AKT, self-renewal and a significant increase in the survival of GSC bearing mice.

**Pubmed Data** : Cell Death Dis. 2015 ;6:e1601. Epub 2015 Jan 15. PMID: [25590811](#)

**Article Published Date** : Dec 31, 2014

**Authors** : E Singer, J Judkins, N Salomonis, L Matlaf, P Soteropoulos, S McAllister, L Soroceanu

**Study Type** : Animal Study, In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Glioblastoma : CK(200) : AC(88)

**Pharmacological Actions** : Anticarcinogenic Agents : CK(1099) : AC(519), Apoptotic : CK(2958) :

AC(2075), Redox Modulator : CK(5) : AC(3)

**Additional Keywords** : Cancer Stem Cells : CK(135) : AC(88), Significant Treatment Outcome : CK(3038) : AC(366)

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## **Cannabidiol protected DNA from oxidative damage, increased endocannabinoid levels and reduced cell proliferation.**

**Pubmed Data** : J Mol Med (Berl). 2012 Aug ;90(8):925-34. Epub 2012 Jan 10. PMID: [22231745](#)

**Article Published Date** : Jul 31, 2012

**Authors** : Gabriella Aviello, Barbara Romano, Francesca Borrelli, Raffaele Capasso, Laura Gallo, Fabiana Piscitelli, Vincenzo Di Marzo, Angelo A Izzo

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Colon Cancer : CK(749) : AC(430)

**Pharmacological Actions** : Anticarcinogenic Agents : CK(1099) : AC(519) , Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Chemopreventive : CK(2835) : AC(787)

**Additional Keywords** : Endocannabinoid System : CK(60) : AC(23)

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## **Cannabigerol hampers colon cancer progression in vivo and selectively inhibits the growth of colorectal cancer cells.**

**Pubmed Data** : Carcinogenesis. 2014 Dec ;35(12):2787-97. Epub 2014 Sep 30. PMID: [25269802](#)

**Article Published Date** : Nov 30, 2014

**Authors** : Francesca Borrelli, Ester Pagano, Barbara Romano, Stefania Panzera, Francesco Maiello, Diana Coppola, Luciano De Petrocellis, Lorena Buono, Pierangelo Orlando, Angelo A Izzo

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Colon Cancer : CK(749) : AC(430) , Colon Cancer: Prevention : CK(178) : AC(57)

**Pharmacological Actions** : Anticarcinogenic Agents : CK(1099) : AC(519) , Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

**Additional Keywords** : Selective Antiproliferation : CK(4) : AC(4)

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## **Cannabinoids - via direct or indirect activation of CB(1) and/or CB(2) receptors exert protective effects in well-established models of intestinal inflammation and colon cancer.**

**Pubmed Data** : Pharmacol Res. 2009 Aug ;60(2):117-25. Epub 2009 Mar 18. PMID: [19442536](#)

**Article Published Date** : Jul 31, 2009

**Authors** : Angelo A Izzo, Michael Camilleri

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Colon Cancer : CK(749) : AC(430), Endocannabinoid System : CK(22) : AC(12), Gastrointestinal Inflammation : CK(118) : AC(41), Inflammation : CK(3240) : AC(882), Inflammatory Bowel Diseases : CK(1052) : AC(197)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Anticarcinogenic Agents : CK(1099) : AC(519)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

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## Cannabinoids appear to be selective antitumoral agents as they kill glioma cells without affecting the viability of nontransformed counterparts.

**Pubmed Data** : Expert Rev Neurother. 2008 Jan ;8(1):37-49. PMID: [18088200](#)

**Article Published Date** : Dec 31, 2007

**Authors** : Daniela Parolaro, Paola Massi

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Glioblastoma Multiforme : CK(200) : AC(88), Gliomas : CK(5) : AC(3)

**Pharmacological Actions** : Anticarcinogenic Agents : CK(1099) : AC(519)

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## Preclinical and clinical assessment of cannabinoids as anti-cancer agents.

**Pubmed Data** : Front Pharmacol. 2016 ;7:361. Epub 2016 Oct 7. PMID: [27774065](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Daniel A Ladin, Eman Soliman, LaToya Griffin, Rukiyah Van Dross

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33), Cannabis : CK(1776) : AC(408)

**Diseases** : Breast Cancer : CK(3592) : AC(1064), Colorectal Cancer : CK(1646) : AC(619), Glioma : CK(177) : AC(86), Liver Cancer : CK(1235) : AC(462), Lung Cancer : CK(1043) : AC(393), Melanoma : CK(285) : AC(149), Pancreatic Cancer : CK(890) : AC(260), Prostate Cancer : CK(1586) : AC(463), Skin Cancer : CK(736) : AC(293), Thyroid Cancer : CK(237) : AC(55)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Anticarcinogenic Agents : CK(1099) : AC(519), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

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**This review critically discusses the pharmacology of CB**

## receptor activation as a novel therapeutic anticancer strategy

**Pubmed Data** : J Pharm Pharmacol. 2009 Jul ;61(7):839-53. PMID: [19589225](#)

**Article Published Date** : Jun 30, 2009

**Authors** : Susanne Oesch, Jürg Gertsch

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Endocannabinoids : CK(9) : AC(1)

**Diseases** : Cancers: All : CK(14773) : AC(4596)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Anti-Inflammatory Agents : CK(4861) : AC(1630), Anti-metastatic : CK(634) : AC(414), Anticarcinogenic Agents : CK(1099) : AC(519), Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37), Endocannabinoid System : CK(60) : AC(23)

## Anticonvulsants (AC 16) (CK 68)

**A 10-month-old boy with malignant migrating partial seizures in infancy made developmental gains and sustained seizure reduction with the addition of cannabidiol to his antiepileptic regimen.**

**Pubmed Data** : Pediatr Neurol. 2015 May ;52(5):544-7. Epub 2015 Feb 19. PMID: [25882081](#)

**Article Published Date** : Apr 30, 2015

**Authors** : Dimah Saade, Charuta Joshi

**Study Type** : Human: Case Report

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Epilepsy: Infant : CK(26) : AC(4), Epilepsy: Malignant Migrating Partial Seizures : CK(3) : AC(1)

**Pharmacological Actions** : Anticonvulsants : CK(238) : AC(67)

**A review of the therapeutic effects of cannabinoids in animal models of seizures, epilepsy, epileptogenesis.**

**Pubmed Data** : Epilepsy Behav. 2017 Feb 9. Epub 2017 Feb 9. PMID: [28190698](#)

**Article Published Date** : Feb 08, 2017

**Authors** : Evan C Rosenberg, Pabitra H Patra, Benjamin J Whalley

**Study Type** : Review

**Additional Links**

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338), [Cannabinoids](#) : CK(816) : AC(310)

**Diseases** : [Epilepsy](#) : CK(255) : AC(66), [Seizures](#) : CK(208) : AC(60)

**Pharmacological Actions** : [Anticonvulsants](#) : CK(238) : AC(67), [Neuroprotective Agents](#) : CK(2360) : AC(1099)

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## Aberrant epilepsy-associated mutant Nav1.6 sodium channel activity can be targeted with cannabidiol.

**Pubmed Data** : Brain. 2016 Jun 5. Epub 2016 Jun 5. PMID: [27267376](#)

**Article Published Date** : Jun 04, 2016

**Authors** : Reesha R Patel, Cindy Barbosa, Tatiana Brustovetsky, Nickolay Brustovetsky, Theodore R Cummins

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Epilepsy](#) : CK(255) : AC(66)

**Pharmacological Actions** : [Anticonvulsants](#) : CK(238) : AC(67)

---

## Cannabidiol could enhance the induction of autophagy pathway and antioxidant defense in the chronic phase of epilepsy,

**Pubmed Data** : J Mol Neurosci. 2016 Jan 6. Epub 2016 Jan 6. PMID: [26738731](#)

**Article Published Date** : Jan 05, 2016

**Authors** : Mahshid Hosseinzadeh, Sara Nikseresht, Fariba Khodagholi, Nima Naderi, Nader Maghsoudi

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Epilepsy](#) : CK(255) : AC(66)

**Pharmacological Actions** : [Anticonvulsants](#) : CK(238) : AC(67), [Antioxidants](#) : CK(8430) : AC(3132), [Autophagy Up-regulation](#) : CK(108) : AC(65)

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## Cannabidiol exhibits an anticonvulsive effect in the rats with chronic epilepsy.

**Pubmed Data** : Int J Clin Exp Med. 2015 ;8(6):8820-7. Epub 2015 Jun 15. PMID: [26309534](#)

**Article Published Date** : Dec 31, 2014

**Authors** : Ke Mao, Chao You, Ding Lei, Heng Zhang

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Epilepsy : CK(255) : AC(66) , Epilepsy: Drug-Induced : CK(20) : AC(6)

**Pharmacological Actions** : Anticonvulsants : CK(238) : AC(67) , Neuroprotective Agents : CK(2360) : AC(1099)

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## **Cannabidiol may be an effective and well-tolerated treatment option for patients with refractory seizures in Tuberous sclerosis complex.**

**Pubmed Data** : Epilepsia. 2016 Oct ;57(10):1617-1624. Epub 2016 Aug 3. PMID: [27696387](#)

**Article Published Date** : Sep 30, 2016

**Authors** : Evan J Hess, Kirsten A Moody, Alexandra L Geffrey, Sarah F Pollack, Lauren A Skirvin, Patricia L Bruno, Jan L Paolini, Elizabeth A Thiele

**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Tuberous Sclerosis : CK(30) : AC(3)

**Pharmacological Actions** : Anticonvulsants : CK(238) : AC(67)

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## **Cannabidiol might reduce seizure frequency and might have an adequate safety profile in children and young adults with treatment-resistant epilepsy.**

**Pubmed Data** : Lancet Neurol. 2015 Dec 23. Epub 2015 Dec 23. PMID: [26724101](#)

**Article Published Date** : Dec 22, 2015

**Authors** : Orrin Devinsky, Eric Marsh, Daniel Friedman, Elizabeth Thiele, Linda Laux, Joseph Sullivan, Ian Miller, Robert Flamini, Angus Wilfong, Francis Filloux, Matthew Wong, Nicole Tilton, Patricia Bruno, Judith Bluvstein, Julie Hedlund, Rebecca Kamens, Jane Maclean, Srishti Nangia, Nilika Shah Singhal, Carey A Wilson, Anup Patel, Maria Roberta Cilio

**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Epilepsy : CK(255) : AC(66) , Epilepsy: Childhood : CK(120) : AC(12)

**Pharmacological Actions** : Anticonvulsants : CK(238) : AC(67)

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## **Cannabidiol treatment in children with treatment resistant epilepsies led to 42% of children reporting a greater than 80% reduction in seizure frequency and 32% reporting a 25-60% seizure reduction.**

**Pubmed Data** : Epilepsy Behav. 2013 Dec ;29(3):574-7. PMID: [24237632](#)

**Article Published Date** : Nov 30, 2013

**Authors** : Brenda E Porter, Catherine Jacobson

**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Epilepsy : CK(255) : AC(66), Epilepsy: Childhood : CK(120) : AC(12), Epileptic Seizures : CK(192) : AC(10)

**Pharmacological Actions** : Anticonvulsants : CK(238) : AC(67)

**Additional Keywords** : Treatment Resistant : CK(31) : AC(4)

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## Cannabidiol treatment yielded a significant positive effect on seizure load in patients with intractable epilepsy.

**Pubmed Data** : Seizure. 2016 Jan 6 ;35:41-44. Epub 2016 Jan 6. PMID: [26800377](#)

**Article Published Date** : Jan 05, 2016

**Authors** : Michal Tzadok, Shimrit Uliel-Siboni, Ilan Linder, Uri Kramer, Orna Epstein, Shay Menascu, Andrea Nissenkorn, Omer Bar Yosef, Eli Hyman, Dorit Granot, Michael Dor, Tali Lerman-Sagie, Bruria Ben-Zeev

**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408)

**Diseases** : Epilepsy : CK(255) : AC(66), Epilepsy: Childhood : CK(120) : AC(12)

**Pharmacological Actions** : Anticonvulsants : CK(238) : AC(67)

**Additional Keywords** : Plant Extracts : CK(7645) : AC(2539), Significant Treatment Outcome : CK(3038) : AC(366)

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## Cannabidivarin-rich cannabis extracts exerted significant anticonvulsant effects in three rat models of seizure.

**Pubmed Data** : Br J Pharmacol. 2013 Oct ;170(3):679-92. PMID: [23902406](#)

**Article Published Date** : Sep 30, 2013

**Authors** : T D M Hill, M-G Cascio, B Romano, M Duncan, R G Pertwee, C M Williams, B J Whalley, A J Hill

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Epilepsy : CK(255) : AC(66), Seizures : CK(208) : AC(60)

**Pharmacological Actions** : Anticonvulsants : CK(238) : AC(67)

**Additional Keywords** : Plant Extracts : CK(7645) : AC(2539)

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## Cannabis and epilepsy: An ancient treatment returns to the fore.

**Pubmed Data** : Epilepsy Behav. 2016 Dec 15. Epub 2016 Dec 15. PMID: [27989385](#)

**Article Published Date** : Dec 14, 2016

**Authors** : Ethan B Russo

**Study Type** : Review

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Epilepsy : CK(255) : AC(66)

**Pharmacological Actions** : Anticonvulsants : CK(238) : AC(67)

**Additional Keywords** : Plant Extracts : CK(7645) : AC(2539)

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## Eighty five percent of all parents reported a reduction in seizure frequency and 14% reported complete seizure freedom.

**Pubmed Data** : Epilepsy Behav. 2015 Apr 29. Epub 2015 Apr 29. PMID: [25935511](#)

**Article Published Date** : Apr 28, 2015

**Authors** : Shaun A Hussain, Raymond Zhou, Catherine Jacobson, Julius Weng, Emily Cheng, Johnson Lay, Phoebe Hung, Jason T Lerner, Raman Sankar

**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408)

**Diseases** : Epilepsy : CK(255) : AC(66), Epilepsy: Childhood : CK(120) : AC(12)

**Pharmacological Actions** : Anticonvulsants : CK(238) : AC(67)

**Additional Keywords** : Plant Extracts : CK(7645) : AC(2539)

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## Phytocannabinoids produce anticonvulsant effects through the endocannabinoid system, with few adverse effects.

**Pubmed Data** : J Clin Pharm Ther. 2015 Apr ;40(2):135-43. Epub 2014 Dec 4. PMID: [25475762](#)

**Article Published Date** : Mar 31, 2015

**Authors** : R G dos Santos, J E C Hallak, J P Leite, A W Zuardi, J A S Crippa

**Study Type** : Review

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310)

**Diseases** : Epilepsy : CK(255) : AC(66), Epileptic Seizures : CK(192) : AC(10)

**Pharmacological Actions** : Anticonvulsants : CK(238) : AC(67)

**Additional Keywords** : Natural Substance/Drug Synergy : CK(352) : AC(142), Natural Substances Versus Drugs : CK(1698) : AC(302)



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## There is preliminary evidence that non-psychoactive cannabinoids may be useful as anticonvulsants.

**Pubmed Data** : Expert Opin Pharmacother. 2015 ;16(13):1911-4. Epub 2015 Aug 3. PMID: [26234319](#)

**Article Published Date** : Dec 31, 2014

**Authors** : Robert E Blair, Laxmikant S Deshpande, Robert J DeLorenzo

**Study Type** : Commentary

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Epilepsy : CK(255) : AC(66)

**Pharmacological Actions** : Anticonvulsants : CK(238) : AC(67)

---

## These cases support pre-clinical and preliminary clinical evidence suggesting that CBD may be effective for some patients with epilepsy.

**Pubmed Data** : Front Pharmacol. 2016 ;7:359. Epub 2016 Aug 30. PMID: [27746737](#)

**Article Published Date** : Dec 31, 2015

**Authors** : José A S Crippa, Ana C S Crippa, Jaime E C Hallak, Rocio Martín-Santos, Antonio W Zuardi

**Study Type** : Human: Case Report

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Epilepsy: Childhood : CK(120) : AC(12)

**Pharmacological Actions** : Anticonvulsants : CK(238) : AC(67)

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## These results reinforce the potential role of CBD in the treatment of epileptic disorders.

**Pubmed Data** : Front Pharmacol. 2017 ;8:131. Epub 2017 Mar 17. PMID: [28367124](#)

**Article Published Date** : Dec 31, 2016

**Authors** : Raquel A Do Val-da Silva, Jose E Peixoto-Santos, Ludmyla Kandratavicius, Jana B De Ross, Ingrid Esteves, Bruno S De Martinis, Marcela N R Alves, Renata C Scandiuizzi, Jaime E C Hallak, Antonio W Zuardi, Jose A Crippa, Joao P Leite

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Epilepsy : CK(255) : AC(66)

**Pharmacological Actions** : Anticonvulsants : CK(238) : AC(67), Neuroprotective Agents : CK(2360) : AC(1099)

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# Antidepressive Agents (AC 4) (CK 16)

## CBD may be beneficial for the treatment of clinical depression and other states with prominent anhedonia.

**Pubmed Data** : Neuropsychobiology. 2016 ;73(2):123-9. Epub 2016 Mar 25. PMID: [27010632](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Gal Shoval, Liat Shbiro, Liron HersHKovitz, Noa Hazut, Gil Zalsman, Raphael Mechoulam, Aron Weller

**Study Type** : Animal Study

### Additional Links

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Depression](#) : CK(2043) : AC(290)

**Pharmacological Actions** : [Antidepressive Agents](#) : CK(1115) : AC(168)

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## Cannabidiol could represent a novel fast antidepressant drug, via enhancing both serotonergic and glutamate cortical signalling.

**Pubmed Data** : Neuropharmacology. 2015 Dec 19. Epub 2015 Dec 19. PMID: [26711860](#)

**Article Published Date** : Dec 18, 2015

**Authors** : Raquel Linge, Laura Jiménez-Sánchez, Leticia Campa, Fuencisla Pilar-Cuéllar, Rebeca Vidal, Angel Pazos, Albert Adell, Álvaro Díaz

**Study Type** : Animal Study

### Additional Links

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Depression](#) : CK(2043) : AC(290)

**Pharmacological Actions** : [Antidepressive Agents](#) : CK(1115) : AC(168)

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## Delta-tetrahydrocannabinol, cannabidiol, and cannabichromene exert antidepressant-like actions in animal models.

**Pubmed Data** : Pharmacol Biochem Behav. 2010 Jun ;95(4):434-42. Epub 2010 Mar 21. PMID: [20332000](#)

**Article Published Date** : May 31, 2010

**Authors** : Abir T El-Alfy, Kelly Ivey, Keisha Robinson, Safwat Ahmed, Mohamed Radwan, Desmond Slade, Ikhlas Khan, Mahmoud ElSohly, Samir Ross

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Depression : CK(2043) : AC(290)

**Pharmacological Actions** : Antidepressive Agents : CK(1115) : AC(168)

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## THC appears therapeutic for anorexia and disturbed behavior in patients with Alzheimer's disease.

**Pubmed Data** : Int J Geriatr Psychiatry. 1997 Sep ;12(9):913-9. PMID: [9309469](#)

**Article Published Date** : Aug 31, 1997

**Authors** : L Volicer, M Stelly, J Morris, J McLaughlin, B J Volicer

**Study Type** : Human Study

### Additional Links

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Anorexia: Dementia-Associated : CK(10) : AC(1)

**Pharmacological Actions** : Antidepressive Agents : CK(1115) : AC(168)

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## Antiemetics (AC 1) (CK 10)

### Cannabis extract is safe and efficacious in reducing chemotherapy-induced nausea and vomiting.

**Pubmed Data** : Br J Clin Pharmacol. 2010 Nov;70(5):656-63. PMID: [21039759](#)

**Article Published Date** : Nov 01, 2010

**Authors** : Marta Duran, Eulàlia Pérez, Sergio Abanades, Xavier Vidal, Cristina Saura, Margarita Majem, Edurne Arriola, Manel Rabanal, Antoni Pastor, Magí Farré, Neus Rams, Joan-Ramon Laporte, Dolors Capellà

**Study Type** : Human Study

### Additional Links

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Chemotherapy : CK(83) : AC(17), Chemotherapy-Induced Toxicity : CK(1033) : AC(327), Nausea: Chemotherapy-Induced : CK(173) : AC(19)

**Pharmacological Actions** : Antiemetics : CK(40) : AC(4)

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## Antifungal Agents (AC 2) (CK 2)

### Biologically active cannabinoids from high-potency Cannabis sativa displayed significant antibacterial and antifungal activities.

**Pubmed Data** : J Nat Prod. 2009 May 22 ;72(5):906-11. PMID: [19344127](#)

**Article Published Date** : May 21, 2009

**Authors** : Mohamed M Radwan, Mahmoud A Elsohly, Desmond Slade, Safwat A Ahmed, Ikhlas A Khan, Samir A Ross

**Study Type** : In Vitro Study

#### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Candida Infection : CK(241) : AC(112), Leishmaniasis : CK(53) : AC(36), Pseudomonas aeruginosa : CK(115) : AC(73), Staphylococcus aureus: Methicillin-resistant (MRSA) : CK(257) : AC(103)

**Pharmacological Actions** : Anti-Bacterial Agents : CK(1367) : AC(475), Antifungal Agents : CK(234) : AC(146)

### These results showed that essential oils of industrial hemp can significantly inhibit the microbial growth.

**Pubmed Data** : Fitoterapia. 2010 Jul ;81(5):413-9. Epub 2009 Dec 4. PMID: [19969046](#)

**Article Published Date** : Jun 30, 2010

**Authors** : Lorenzo Nissen, Alessandro Zatta, Ilaria Stefanini, Silvia Grandi, Barbara Sgorbati, Bruno Biavati, Andrea Monti

**Study Type** : In Vitro Study

#### Additional Links

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Gram-Negative Bacterial Infections : CK(46) : AC(33), Gram-Positive Bacterial Infections : CK(35) : AC(29)

**Pharmacological Actions** : Anti-Bacterial Agents : CK(1367) : AC(475), Antifungal Agents : CK(234) : AC(146)

**Additional Keywords** : Essential Oils : CK(181) : AC(69)

## Antihypertensive Agents (AC 2) (CK 3)

## A hemp seed meal protein hydrolysate had strong hypotensive effects in spontaneously hypertensive rats.

**Pubmed Data** : Eur J Nutr. 2014 Aug ;53(5):1237-46. Epub 2013 Nov 29. PMID: [24292743](#)

**Article Published Date** : Jul 31, 2014

**Authors** : Abraham T Girgih, Adeola Alashi, Rong He, Sunday Malomo, Rotimi E Aluko

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabis : CK(1776) : AC(408), Hemp Seed : CK(446) : AC(5)

**Diseases** : Hypertension : CK(2984) : AC(406)

**Pharmacological Actions** : Antihypertensive Agents : CK(1178) : AC(164)

## Cannabis could be an effective ocular hypotensive agent.

**Pubmed Data** : Curr Opin Ophthalmol. 2016 Mar ;27(2):146-50. PMID: [26840343](#)

**Article Published Date** : Feb 29, 2016

**Authors** : Gary D Novack

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Glaucoma : CK(164) : AC(26)

**Pharmacological Actions** : Antihypertensive Agents : CK(1178) : AC(164)

## Antineoplastic Agents (AC 26) (CK 37)

### A review of the antiproliferative effects of cannabinoids on cancer cells.

**Pubmed Data** : Mini Rev Med Chem. 2005 Oct ;5(10):941-52. PMID: [16250836](#)

**Article Published Date** : Sep 30, 2005

**Authors** : Natalya M Kogan

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Breast Cancer : CK(3592) : AC(1064), Glioma : CK(177) : AC(86), Lung Cancer : CK(1043) : AC(393)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639) , Antiproliferative : CK(2546) : AC(1685)

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## Activation of cannabinoid receptors could be a new therapeutic approach for the treatment of skin tumors.

**Pubmed Data** : J Clin Invest. 2003 Jan ;111(1):43-50. PMID: [12511587](#)

**Article Published Date** : Dec 31, 2002

**Authors** : M Llanos Casanova, Cristina Blázquez, Jesús Martínez-Palacio, Concepción Villanueva, M Jesús Fernández-Aceñero, John W Huffman, José L Jorcano, Manuel Guzmán

**Study Type** : Animal Study, In Vitro Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Skin Cancer : CK(736) : AC(293)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62) , Antineoplastic Agents : CK(1158) : AC(639) , Apoptotic : CK(2958) : AC(2075) , Vascular Endothelial Growth Factor A Inhibitor : CK(132) : AC(71) , Vascular Endothelial Growth Factor Regulator : CK(31) : AC(14)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

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## Amphirregulin is a factor for resistance of glioma cells to THC-induced apoptosis.

**Pubmed Data** : Glia. 2009 Oct ;57(13):1374-85. PMID: [19229996](#)

**Article Published Date** : Sep 30, 2009

**Authors** : Mar Lorente, Arkaitz Carracedo, Sofía Torres, Francesco Natali, Ainara Egia, Sonia Hernández-Tiedra, María Salazar, Cristina Blázquez, Manuel Guzmán, Guillermo Velasco

**Study Type** : Animal Study, In Vitro Study

### Additional Links

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Gliomas : CK(5) : AC(3)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639) , Apoptotic : CK(2958) : AC(2075)

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## Cannabidiol by itself or in synergy with bortezomib strongly inhibited growth, arrested cell cycle progression and induced multiple myeloma cell death.

**Pubmed Data** : Int J Cancer. 2014 Jun 1 ;134(11):2534-46. Epub 2013 Dec 2. PMID: [24293211](#)

**Article Published Date** : May 31, 2014

**Authors** : Maria Beatrice Morelli, Massimo Offidani, Francesco Alesiani, Giancarlo Discepoli, Sonia Liberati, Attilio Olivieri, Matteo Santoni, Giorgio Santoni, Pietro Leoni, Massimo Nabissi

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Multiple Myeloma : CK(227) : AC(75)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Cell cycle arrest : CK(810) : AC(612), NF-kappaB Inhibitor : CK(1114) : AC(694)

**Additional Keywords** : Natural Substance/Drug Synergy : CK(352) : AC(142)

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## Cannabidiol inhibits cancer cell invasion via upregulation of tissue inhibitor of matrix metalloproteinases-1.

**Pubmed Data** : Biochem Pharmacol. 2010 Apr 1;79(7):955-66. Epub 2009 Nov 13. PMID: [19914218](#)

**Article Published Date** : Apr 01, 2010

**Authors** : Robert Ramer, Jutta Merkord, Helga Rohde, Burkhard Hinz

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408)

**Diseases** : Cancer Metastasis : CK(442) : AC(206), Lung Cancer : CK(1043) : AC(393)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639), Matrix metalloproteinase-1 (MMP-1) inhibitor : CK(32) : AC(16)

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## Cannabidiol is a novel inhibitor of a gene associated with aggressive breast cancer.

**Pubmed Data** : Mol Cancer Ther. 2007 Nov;6(11):2921-7. PMID: [18025276](#)

**Article Published Date** : Nov 01, 2007

**Authors** : Sean D McAllister, Rigel T Christian, Maxx P Horowitz, Amaia Garcia, Pierre-Yves Desprez

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Breast Cancer : CK(3592) : AC(1064), Cancer Metastasis : CK(442) : AC(206)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685)

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## Cannabidiol protected DNA from oxidative damage, increased endocannabinoid levels and reduced cell proliferation.

**Pubmed Data** : J Mol Med (Berl). 2012 Aug ;90(8):925-34. Epub 2012 Jan 10. PMID: [22231745](#)

**Article Published Date** : Jul 31, 2012

**Authors** : Gabriella Aviello, Barbara Romano, Francesca Borrelli, Raffaele Capasso, Laura Gallo, Fabiana Piscitelli, Vincenzo Di Marzo, Angelo A Izzo

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Colon Cancer : CK(749) : AC(430)

**Pharmacological Actions** : Anticarcinogenic Agents : CK(1099) : AC(519) , Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Chemopreventive : CK(2835) : AC(787)

**Additional Keywords** : Endocannabinoid System : CK(60) : AC(23)

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## **Cannabidiolic acid an active component in the cannabis plant offers potential therapeutic modality in the abrogation of cancer cell migration.**

**Pubmed Data** : Toxicol Lett. 2012 Nov 15 ;214(3):314-9. Epub 2012 Sep 8. PMID: [22963825](#)

**Article Published Date** : Nov 14, 2012

**Authors** : Shuso Takeda, Shunsuke Okajima, Hiroko Miyoshi, Kazutaka Yoshida, Yoshiko Okamoto, Tomoko Okada, Toshiaki Amamoto, Kazuhito Watanabe, Curtis J Omiecinski, Hironori Aramaki

**Study Type** : Human In Vitro

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Breast Cancer : CK(3592) : AC(1064) , Breast Cancer: Triple Negative : CK(262) : AC(144)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414), Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Cyclooxygenase 2 Inhibitors : CK(464) : AC(272) , Enzyme Inhibitors : CK(473) : AC(251)

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## **Cannabinoid use showed no significant association between increased cancer incidence and cannabinoids use and it does not depend on the amount of used cannabis.**

**Pubmed Data** : Cas Lek Cesk. 2006 ;145(6):453-7; discussion 458-9. PMID: [16835997](#)

**Article Published Date** : Dec 31, 2005

**Authors** : B Vidinský, P Gál, J Mojzis

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Cancers: All : CK(14773) : AC(4596) , Endocannabinoid System : CK(22) : AC(12)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639)

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## **Cannabinoids inhibit the growth of melanoma cells but not of normal melanocytes.**

**Pubmed Data** : FASEB J. 2006 Dec ;20(14):2633-5. Epub 2006 Oct 25. PMID: [17065222](#)



**Article Published Date** : Nov 30, 2006

**Authors** : Cristina Blázquez, Arkaitz Carracedo, Lucía Barrado, Pedro José Real, José Luis Fernández-Luna, Guillermo Velasco, Marcos Malumbres, Manuel Guzmán

**Study Type** : Animal Study, In Vitro Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33)

**Diseases** : Melanoma : CK(285) : AC(149)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Anti-metastatic : CK(634) : AC(414), Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Cell cycle arrest : CK(810) : AC(612), Chemotherapeutic : CK(397) : AC(152)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37), Selective Cytotoxicity : CK(158) : AC(112)

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## Cannabinoids reduce multidrug resistance in a human T lymphoblastoid leukaemia cell line.

**Pubmed Data** : Biochem Pharmacol. 2006 Apr 14;71(8):1146-54. Epub 2006 Feb 2. PMID: [16458258](#)

**Article Published Date** : Apr 14, 2006

**Authors** : M L Holland, J A Panetta, J M Hoskins, M Bebawy, B D Roufogalis, J D Allen, J C Arnold

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Cancers: Drug Resistant : CK(352) : AC(223), Cancers: Multi-Drug Resistant : CK(121) : AC(94), Leukemia: T-cell acute Lymphoblastic : CK(21) : AC(11)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639)

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## Cannabinoids were effective in reducing the tumor load, prolonging the mean survival time as well as curing a significant proportion of mice in this study.

**Pubmed Data** : Blood. 2002 Jul 15 ;100(2):627-34. PMID: [12091357](#)

**Article Published Date** : Jul 14, 2002

**Authors** : Robert J McKallip, Catherine Lombard, Michael Fisher, Billy R Martin, Seongho Ryu, Steven Grant, Prakash S Nagarkatti, Mitzi Nagarkatti

**Study Type** : Animal Study

**Additional Links**

**Substances** : Anandamide : CK(2) : AC(2), Cannabinoids: Synthetic : CK(78) : AC(33), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Acute lymphoblastic leukemia (ALL) : CK(130) : AC(39)

**Pharmacological Actions** : Anti-Tumor : CK(146) : AC(73), Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37), Significant Treatment Outcome : CK(3038) : AC(366)

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## Cannabis has potential therapeutic value in the treatment of amyotrophic lateral sclerosis.

**Pubmed Data** : Am J Hosp Palliat Care. 2010 Aug;27(5):347-56. Epub 2010 May 3. PMID: [20439484](#)

**Article Published Date** : Aug 01, 2010

**Authors** : Gregory T Carter, Mary E Abood, Sunil K Aggarwal, Michael D Weiss

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Amyotrophic Lateral Sclerosis : CK(567) : AC(140)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Antineoplastic Agents : CK(1158) : AC(639), Antioxidants : CK(8430) : AC(3132), Neuroprotective Agents : CK(2360) : AC(1099)

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## Delta 9-tetrahydrocannabinol inhibits glioblastoma multiforme cells.

**Pubmed Data** : Acta Oncol. 2008;47(6):1062-70. PMID: [17934890](#)

**Article Published Date** : Jan 01, 2008

**Authors** : Gil Galanti, Tamar Fisher, Iris Kventsel, Jacob Shoham, Ruth Gallily, Raphael Mechoulam, Gad Lavie, Ninette Amariglio, Gideon Rechavi, Amos Toren

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Glioblastoma : CK(200) : AC(88), Glioblastoma Multiforme : CK(200) : AC(88)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Cell cycle arrest : CK(810) : AC(612)

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## New insights into antimetastatic and antiangiogenic effects of cannabinoids.

**Pubmed Data** : Int Rev Cell Mol Biol. 2015 ;314:43-116. Epub 2014 Dec 18. PMID: [25619715](#)

**Article Published Date** : Dec 31, 2014

**Authors** : Robert Ramer, Burkhard Hinz

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Cancers: All : CK(14773) : AC(4596)

**Pharmacological Actions** : Anti-Angiogenic : CK(197) : AC(137), Anti-metastatic : CK(634) : AC(414), Antineoplastic Agents : CK(1158) : AC(639)

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## The cannabinoid quinone HU-331 is a highly specific inhibitor of topoisomerase II.

**Pubmed Data** : Mol Cancer Ther. 2007 Jan ;6(1):173-83. PMID: [17237277](#)

**Article Published Date** : Dec 31, 2006

**Authors** : Natalya M Kogan, Michael Schlesinger, Esther Priel, Ruth Rabinowitz, Eduard Berenshtein, Mordechai Chevion, Raphael Mechoulam

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids: Synthetic : CK(78) : AC(33)

**Diseases** : Colorectal Cancer : CK(1646) : AC(619)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639), Cell cycle arrest : CK(810) : AC(612), Chemotherapeutic : CK(397) : AC(152), Paraptosis : CK(1) : AC(1), Topoisomerase II Inhibitor : CK(3) : AC(3)

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## The evidences in favour of both proapoptotic, pronecrotic and protective, antiapoptotic effects of cannabinoids and, especially N-acylethanolamines, are evaluated.

**Pubmed Data** : Exp Oncol. 2008 Mar ;30(1):6-21. PMID: [18438336](#)

**Article Published Date** : Feb 29, 2008

**Authors** : V M Pushkarev, O I Kovzun, M D Tronko

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Cancers: All : CK(14773) : AC(4596)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639), Apoptotic : CK(2958) : AC(2075)

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## The potential therapeutic applications of cannabinoids are discussed.

**Pubmed Data** : Pharmacol Ther. 2002 Aug ;95(2):175-84. PMID: [12182964](#)

**Article Published Date** : Jul 31, 2002

**Authors** : Manuel Guzmán, Cristina Sánchez, Ismael Galve-Roperh

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Cancers: All : CK(14773) : AC(4596)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Immunomodulatory : CK(1287) : AC(358), Neuroprotective Agents : CK(2360) : AC(1099)

---

## The present investigation confirms the antiproliferative and antiinvasive effects of CBD in U87-MG cells.

**Pubmed Data** : PLoS One. 2013 ;8(10):e76918. Epub 2013 Oct 21. PMID: [24204703](#)

**Article Published Date** : Dec 31, 2012

**Authors** : Marta Solinas, Paola Massi, Valentina Cinquina, Marta Valenti, Daniele Bolognini, Marzia Gariboldi, Elena Monti, Tiziana Rubino, Daniela Parolaro

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Cancer Metastasis : CK(442) : AC(206), Glioma : CK(177) : AC(86)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Anti-metastatic : CK(634) : AC(414), Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Hypoxia inducible factor-1 alpha (HIF-1 $\alpha$ ) inhibitor : CK(22) : AC(15)

---

## The present study demonstrates in vitro anticancer activity of CB derivatives on the poorly differentiated pancreatic cancer cell line MIA PaCa-2.

**Pubmed Data** : FEBS Lett. 2006 Mar 20 ;580(7):1733-9. Epub 2006 Feb 20. PMID: [16500647](#)

**Article Published Date** : Mar 19, 2006

**Authors** : Stefano Fogli, Paola Nieri, Andrea Chicca, Barbara Adinolfi, Veronica Mariotti, Paola Iacopetti, Maria Cristina Breschi, Silvia Pellegrini

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Pancreatic Cancer : CK(890) : AC(260)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Cell cycle arrest : CK(810) : AC(612)

**Additional Keywords** : Gene Expression Regulation : CK(431) : AC(214), Natural Substance/Drug Synergy : CK(352) : AC(142)

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## This is the first report to provide an inhibitor-proven tumor-regressive mechanism of Cannabidiol.

**Pubmed Data** : Mol Cancer Ther. 2013 Jan ;12(1):69-82. Epub 2012 Dec 7. PMID: [23220503](#)

**Article Published Date** : Dec 31, 2012

**Authors** : Robert Ramer, Katharina Heinemann, Jutta Merkord, Helga Rohde, Achim Salamon, Michael Linnebacher, Burkhard Hinz

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Lung Cancer : CK(1043) : AC(393)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639) , Apoptotic : CK(2958) : AC(2075)

---

## This review critically discusses the pharmacology of CB receptor activation as a novel therapeutic anticancer strategy

**Pubmed Data** : J Pharm Pharmacol. 2009 Jul ;61(7):839-53. PMID: [19589225](#)

**Article Published Date** : Jun 30, 2009

**Authors** : Susanne Oesch, Jürg Gertsch

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Endocannabinoids : CK(9) : AC(1)

**Diseases** : Cancers: All : CK(14773) : AC(4596)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Anti-Inflammatory Agents : CK(4861) : AC(1630), Anti-metastatic : CK(634) : AC(414), Anticarcinogenic Agents : CK(1099) : AC(519), Antineoplastic Agents : CK(1158) : AC(639) , Antiproliferative : CK(2546) : AC(1685)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37) , Endocannabinoid System : CK(60) : AC(23)

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## This review discusses the current understanding of cannabinoids as antitumour agents.

**Pubmed Data** : Handb Exp Pharmacol. 2015 ;231:449-72. PMID: [26408171](#)

**Article Published Date** : Dec 31, 2014

**Authors** : Guillermo Velasco, Cristina Sánchez, Manuel Guzmán

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Cancers: All : CK(14773) : AC(4596)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

---

## This reviews the basis for the use of cannabinoids in the treatment of cancers and neurodegenerative diseases.

**Pubmed Data** : Handb Exp Pharmacol. 2005(168):627-42. PMID: [16596790](#)

**Article Published Date** : Dec 31, 2004

**Authors** : M Guzmán

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Cancers: All : CK(14773) : AC(4596) , Neurodegenerative Diseases : CK(3582) : AC(932)

**Pharmacological Actions** : Anti-Angiogenic : CK(197) : AC(137), Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Neuroprotective Agents : CK(2360) : AC(1099)

---

## cannabidiol was able to produce a significant antitumor activity both in vitro and in vivo.

**Pubmed Data** : J Pharmacol Exp Ther. 2004 Mar ;308(3):838-45. Epub 2003 Nov 14. PMID: [14617682](#)

**Article Published Date** : Feb 29, 2004

**Authors** : Paola Massi, Angelo Vaccani, Stefania Ceruti, Arianna Colombo, Maria P Abbracchio, Daniela Parolaro

**Study Type** : Animal Study, In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310)

**Diseases** : Glioma : CK(177) : AC(86)

**Pharmacological Actions** : Anti-Tumor : CK(146) : AC(73), Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

---

## data suggest that the intrinsic pathway plays a more critical role in THC-induced apoptosis while the extrinsic pathway may facilitate apoptosis via cross-talk with the intrinsic pathway.

**Pubmed Data** : Leuk Res. 2005 Aug ;29(8):915-22. Epub 2005 Mar 2. PMID: [15978942](#)

**Article Published Date** : Jul 31, 2005

**Authors** : Catherine Lombard, Mitzi Nagarkatti, Prakash S Nagarkatti

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Leukemia : CK(1005) : AC(398)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639), Apoptotic : CK(2958) : AC(2075)

---

## Antinoceptive (AC 2) (CK 3)

THC can enhance the antinociception and tolerance and

## some of the dependence effects of morphine.

**Pubmed Data** : J Pharmacol Exp Ther. 2016 May ;357(2):357-66. Epub 2016 Mar 2. PMID: [26937020](#)

**Article Published Date** : Apr 30, 2016

**Authors** : L R Gerak, C P France

**Study Type** : Animal Study

### Additional Links

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Morphine Tolerance/Dependence : CK(89) : AC(34)

**Pharmacological Actions** : Antinoceptive : CK(193) : AC(51)

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## This study revealed the crucial role of THC in promoting the immunomodulatory effects of MSCs and proposed a new strategy to alleviate pain.

**Pubmed Data** : Oncotarget. 2016 Jan 27. Epub 2016 Jan 27. PMID: [26824325](#)

**Article Published Date** : Jan 26, 2016

**Authors** : Junran Xie, Dongju Xiao, Yun Xu, Jinning Zhao, Li Jiang, Xuming Hu, Yaping Zhang, Lina Yu

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Inflammation : CK(3240) : AC(882), Neuropathic Pain : CK(284) : AC(69)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Antinoceptive : CK(193) : AC(51), Immunomodulatory : CK(1287) : AC(358)

---

## Antioxidants (AC 23) (CK 32)

### A hemp seed meal protein hydrolysate contained antioxidant peptides that reduced the rate of lipid peroxidation in spontaneously hypertensive rats.

**Pubmed Data** : Nutrients. 2014 Dec ;6(12):5652-66. PMID: [25493943](#)

**Article Published Date** : Nov 30, 2014

**Authors** : Abraham T Girgih, Adeola M Alashi, Rong He, Sunday A Malomo, Pema Raj, Thomas Netticadan, Rotimi E Aluko

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabis : CK(1776) : AC(408), Hemp Seed : CK(446) : AC(5)

**Diseases** : Hypertension : CK(2984) : AC(406), Lipid Peroxidation : CK(695) : AC(255), Oxidative Stress : CK(3871) : AC(1382)

**Pharmacological Actions** : Antioxidants : CK(8430) : AC(3132), Catalase Up-Regulation : CK(118) : AC(42), Superoxide Dismutase Up-regulation : CK(530) : AC(174)

---

## Cannabidiol and (-)Delta9-tetrahydrocannabinol are neuroprotective antioxidants.

**Pubmed Data** : Proc Natl Acad Sci U S A. 1998 Jul 7 ;95(14):8268-73. PMID: [9653176](#)

**Article Published Date** : Jul 06, 1998

**Authors** : A J Hampson, M Grimaldi, J Axelrod, D Wink

**Study Type** : Review

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Brain Inflammation : CK(274) : AC(145), Cerebral Ischemia : CK(229) : AC(77), Oxidative Stress : CK(3871) : AC(1382)

**Pharmacological Actions** : Antioxidants : CK(8430) : AC(3132), Neuroprotective Agents : CK(2360) : AC(1099)

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## Cannabidiol could enhance the induction of autophagy pathway and antioxidant defense in the chronic phase of epilepsy,

**Pubmed Data** : J Mol Neurosci. 2016 Jan 6. Epub 2016 Jan 6. PMID: [26738731](#)

**Article Published Date** : Jan 05, 2016

**Authors** : Mahshid Hosseinzadeh, Sara Nikseresht, Fariba Khodagholi, Nima Naderi, Nader Maghsoudi

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Epilepsy : CK(255) : AC(66)

**Pharmacological Actions** : Anticonvulsants : CK(238) : AC(67), Antioxidants : CK(8430) : AC(3132), Autophagy Up-regulation : CK(108) : AC(65)

---

## Cannabidiol has a protective effect on hydrogen peroxide induced apoptosis, inflammation and oxidative stress in nucleus pulposus cells.

**Pubmed Data** : Mol Med Rep. 2016 Sep ;14(3):2321-7. Epub 2016 Jul 13. PMID: [27430346](#)

**Article Published Date** : Aug 31, 2016



**Authors** : Jie Chen, Chen Hou, Xin Chen, Dong Wang, Pinglin Yang, Xijing He, Jinsong Zhou, Haopeng Li

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Hydrogen Peroxide Induced Toxicity : CK(26) : AC(18)

**Pharmacological Actions** : Anti-Apoptotic : CK(384) : AC(212), Anti-Inflammatory Agents : CK(4861) : AC(1630), Antioxidants : CK(8430) : AC(3132)

---

## Cannabidiol may have potential as a preventative treatment for Alzheimer's disease.

**Pubmed Data** : J Alzheimers Dis. 2014 ;42(4):1383-96. PMID: [25024347](#)

**Article Published Date** : Dec 31, 2013

**Authors** : David Cheng, Adena S Spiro, Andrew M Jenner, Brett Garner, Tim Karl

**Study Type** : Transgenic Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Brain: Oxidative Stress : CK(79) : AC(46), Brain Inflammation : CK(274) : AC(145), Memory Disorders : CK(344) : AC(104)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Antioxidants : CK(8430) : AC(3132), Neuroprotective Agents : CK(2360) : AC(1099)

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## Cannabidiol protects mouse liver from acute alcohol-induced steatosis through multiple mechanisms.

**Pubmed Data** : Free Radic Biol Med. 2014 Mar ;68:260-7. Epub 2014 Jan 4. PMID: [24398069](#)

**Article Published Date** : Feb 28, 2014

**Authors** : Lili Yang, Raphael Rozenfeld, Defeng Wu, Lakshmi A Devi, Zhenfeng Zhang, Arthur Cederbaum

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Alcohol Toxicity : CK(337) : AC(125), Fatty Liver : CK(887) : AC(204), Oxidative Stress : CK(3871) : AC(1382)

**Pharmacological Actions** : Antioxidants : CK(8430) : AC(3132), Autophagy Up-regulation : CK(108) : AC(65), Autophagy Up-regulation : CK(108) : AC(65)

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## Cannabidiol represents a potential protective agent against doxorubicin cardiac injury.

**Pubmed Data** : Environ Toxicol Pharmacol. 2013 Sep ;36(2):347-57. Epub 2013 May 10. PMID: [23721741](#)

**Article Published Date** : Aug 31, 2013

**Authors** : Amr A Fouad, Waleed H Albuali, Abdulruhman S Al-Mulhim, Iyad Jresat

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Chemotherapy-Induced Toxicity: Doxorubicin : CK(132) : AC(56) , Oxidative Stress : CK(3871) : AC(1382)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630) , Antioxidants : CK(8430) : AC(3132) , Cardioprotective : CK(1596) : AC(409) , Malondialdehyde Down-regulation : CK(554) : AC(152) , NF-kappaB Inhibitor : CK(1114) : AC(694) , Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

---

## **Cannabidiol treatment had a protective effect against inflammation and oxidative damage in the kidney ischemia/reperfusion model.**

**Pubmed Data** : Rev Bras Ter Intensiva. 2015 Dec ;27(4):383-389. PMID: [26761477](#)

**Article Published Date** : Nov 30, 2015

**Authors** : Rodrigo Zon Soares, Francieli Vuolo, Dhébora Mozena Dall'Igna, Monique Michels, José Alexandre de Souza Crippa, Jaime Eduardo Cecílio Hallak, Antonio Waldo Zuardi, Felipe Dal-Pizzol

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Ischemia : CK(76) : AC(38)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630) , Antioxidants : CK(8430) : AC(3132) , Renoprotective : CK(572) : AC(254)

---

## **Cannabidiol, a non-psychoactive component from Cannabis sativa, exhibits neuroprotective, antioxidant and anti-apoptotic effect against beta-amyloid peptide toxicity.**

**Pubmed Data** : Fitoterapia. 2011 Jan 26. Epub 2011 Jan 26. PMID: [15030397](#)

**Article Published Date** : Jan 26, 2011

**Authors** : Teresa Iuvone, Giuseppe Esposito, Ramona Esposito, Rita Santamaria, Massimo Di Rosa, Angelo A Izzo

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Marijuana : CK(1952) : AC(456)

**Diseases** : Alzheimer's Disease : CK(1292) : AC(382) , Neurodegenerative Diseases : CK(3582) : AC(932)

**Pharmacological Actions** : Antioxidants : CK(8430) : AC(3132) , Neuroprotective Agents : CK(2360) : AC(1099)

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## Cannabidiol, a nonpsychoactive compound from cannabis, exhibits neuroprotective properties in binge ethanol-induced brain injury.

**Pubmed Data** : J Pharmacol Exp Ther. 2005 Aug;314(2):780-8. Epub 2005 May 5. PMID: [15878999](#)

**Article Published Date** : Aug 01, 2005

**Authors** : Carol Hamelink, Aidan Hampson, David A Wink, Lee E Eiden, Robert L Eskay

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Alcohol Toxicity : CK(337) : AC(125), Neurodegenerative Diseases : CK(3582) : AC(932)

**Pharmacological Actions** : Antioxidants : CK(8430) : AC(3132), Neuroprotective Agents : CK(2360) : AC(1099)

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## Cannabis and cannabinoids can protect the gastric mucosa against noxious challenge.

**Pubmed Data** : Asian Pac J Trop Med. 2016 May ;9(5):413-9. Epub 2016 Apr 15. PMID: [27261847](#)

**Article Published Date** : Apr 30, 2016

**Authors** : Omar Abdel-Salam

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Alcohol Toxicity : CK(337) : AC(125)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Antioxidants : CK(8430) : AC(3132), Gastrointestinal Agents : CK(268) : AC(41), Gastroprotective : CK(155) : AC(73)

**Additional Keywords** : Endocannabinoid System : CK(60) : AC(23)

**Problem Substances** : Non-Steroidal Anti-Inflammatory Drugs (NSAIDs) : CK(1905) : AC(215)

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## Cannabis has potential therapeutic value in the treatment of amyotrophic lateral sclerosis.

**Pubmed Data** : Am J Hosp Palliat Care. 2010 Aug;27(5):347-56. Epub 2010 May 3. PMID: [20439484](#)

**Article Published Date** : Aug 01, 2010

**Authors** : Gregory T Carter, Mary E Abood, Sunil K Aggarwal, Michael D Weiss

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Amyotrophic Lateral Sclerosis : CK(567) : AC(140)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Antineoplastic Agents : CK(1158) : AC(639), Antioxidants : CK(8430) : AC(3132), Neuroprotective Agents : CK(2360) : AC(1099)

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## Finola hempseed oil has significant antioxidant properties.

**Pubmed Data** : Phytother Res. 2016 Apr 14. Epub 2016 Apr 14. PMID: [27076277](#)

**Article Published Date** : Apr 13, 2016

**Authors** : Antonella Smeriglio, Enza M Galati, Maria T Monforte, Francesco Lanuzza, Valeria D'Angelo, Clara Circosta

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Flavonoids : CK(1215) : AC(379), Hemp Seed : CK(446) : AC(5), Quercetin : CK(568) : AC(250)

**Pharmacological Actions** : Antioxidants : CK(8430) : AC(3132)

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## Low doses of CBD exert oligoprotective effects in oligodendrocyte progenitor cells under conditions of inflammation, oxidative and ER stress.

**Pubmed Data** : Cell Death Dis. 2012 ;3:e331. Epub 2012 Jun 28. PMID: [22739983](#)

**Article Published Date** : Dec 31, 2011

**Authors** : M Mecha, A S Torrao, L Mestre, F J Carrillo-Salinas, R Mechoulam, C Guaza

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Inflammation : CK(3240) : AC(882), Multiple Sclerosis : CK(964) : AC(184), Oxidative Stress : CK(3871) : AC(1382)

**Pharmacological Actions** : Anti-Apoptotic : CK(384) : AC(212), Anti-Inflammatory Agents : CK(4861) : AC(1630), Antioxidants : CK(8430) : AC(3132), Neuroprotective Agents : CK(2360) : AC(1099)

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## THC and other cannabinoids are potent antioxidants, with cannabidiol been superior to both alpha-tocopherol and ascorbate in protective capacity.

**Pubmed Data** : Ann N Y Acad Sci. 2000 ;899:274-82. PMID: [10863546](#)

**Article Published Date** : Dec 31, 1999

**Authors** : A J Hampson, M Grimaldi, M Lolic, D Wink, R Rosenthal, J Axelrod

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Brain: Oxidative Stress : CK(79) : AC(46)

**Pharmacological Actions** : Antioxidants : CK(8430) : AC(3132), Neuroprotective Agents : CK(2360)

## THC treatment may attenuate slightly the oxidative stress in diabetic rats.

**Pubmed Data** : Iran J Basic Med Sci. 2016 Feb ;19(2):154-8. PMID: [27081459](#)

**Article Published Date** : Jan 31, 2016

**Authors** : Zeynep Mine Coskun, Sema Bolkent

**Study Type** : Animal Study

### Additional Links

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Diabetes: Oxidative Stress : CK(131) : AC(40) , Diabetes Mellitus: Type 2 : CK(3572) : AC(624)

**Pharmacological Actions** : Antioxidants : CK(8430) : AC(3132) , Superoxide Dismutase Up-regulation : CK(530) : AC(174)

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## Tetrahydrocannabivarin could be used for delaying disease progression in PD and also for ameliorating parkinsonian symptoms.

**Pubmed Data** : Br J Pharmacol. 2011 Aug ;163(7):1495-506. PMID: [21323909](#)

**Article Published Date** : Jul 31, 2011

**Authors** : C García, C Palomo-Garo, M García-Arencibia, Ja Ramos, Rg Pertwee, J Fernández-Ruiz

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Parkinson's Disease : CK(1021) : AC(167)

**Pharmacological Actions** : Antioxidants : CK(8430) : AC(3132) , Neuroprotective Agents : CK(2360) : AC(1099)

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## The control of oxidative stress may prevent and alleviate oral mucositis.

**Pubmed Data** : J Clin Pharm Ther. 2017 Feb 12. Epub 2017 Feb 12. PMID: [28191662](#)

**Article Published Date** : Feb 11, 2017

**Authors** : L F Cuba, F G Salum, K Cherubini, M A Z Figueiredo

**Study Type** : Review

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Oral Mucositis : CK(53) : AC(7)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217) , Anti-Inflammatory Agents : CK(4861) : AC(1630) , Antioxidants : CK(8430) : AC(3132)

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## The studies provide "proof of principle" that CBD and possibly CBD-THC combinations are valid candidates for novel AD therapies.

**Pubmed Data** : Front Pharmacol. 2017 ;8:20. Epub 2017 Feb 3. PMID: [28217094](#)

**Article Published Date** : Dec 31, 2016

**Authors** : Georgia Watt, Tim Karl

**Study Type** : Review

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Alzheimer's Disease : CK(1292) : AC(382)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Antioxidants : CK(8430) : AC(3132), Neurogenesis : CK(59) : AC(30), Neuroprotective Agents : CK(2360) : AC(1099)

## These in vitro results testify the anti-inflammatory, antioxidative, and anti-apoptotic effects of the combination of cannabidiol and moringin.

**Pubmed Data** : Fitoterapia. 2016 May 20. Epub 2016 May 20. PMID: [27215129](#)

**Article Published Date** : May 19, 2016

**Authors** : Thangavelu Soundara Rajan, Sabrina Giacoppo, Renato Iori, Gina Rosalinda De Nicola, Gianpaolo Grassi, Federica Pollastro, Placido Bramanti, Emanuela Mazzon

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Moringa oleifera : CK(150) : AC(73)

**Diseases** : Inflammation : CK(3240) : AC(882)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Antioxidants : CK(8430) : AC(3132)

## These results support the view of a potential neuroprotective action of cannabinoids against the in vivo and in vitro toxicity of 6-hydroxydopamine.

**Pubmed Data** : Neurobiol Dis. 2005 Jun-Jul;19(1-2):96-107. PMID: [15837565](#)

**Article Published Date** : May 31, 2005

**Authors** : Isabel Lastres-Becker, Francisco Molina-Holgado, José A Ramos, Raphael Mechoulam, Javier Fernández-Ruiz

**Study Type** : Animal Study, In Vitro Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Neurodegenerative Diseases : CK(3582) : AC(932), Parkinson's Disease : CK(1021) : AC(167)

**Pharmacological Actions** : Antioxidants : CK(8430) : AC(3132), Neuroprotective Agents : CK(2360) : AC(1099)

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## This reviews the in-vitro and in-vivo evidence for the therapeutic potential of CBD in Alzheimer's disease.

**Pubmed Data** : Behav Pharmacol. 2016 Jul 28. Epub 2016 Jul 28. PMID: [27471947](#)

**Article Published Date** : Jul 27, 2016

**Authors** : Tim Karl, Brett Garner, David Cheng

**Study Type** : Review

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Alzheimer's Disease : CK(1292) : AC(382)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Antioxidants : CK(8430) : AC(3132), Neuroprotective Agents : CK(2360) : AC(1099)

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## This study explains the beneficial role of CBD in pathological memory T cells and in autoimmune diseases.

**Pubmed Data** : J Neuroinflammation. 2016 ;13(1):136. Epub 2016 Jun 3. PMID: [27256343](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Ewa Kozela, Ana Juknat, Fuying Gao, Nathali Kaushansky, Giovanni Coppola, Zvi Vogel

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Autoimmune Diseases : CK(6629) : AC(1128)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Antioxidants : CK(8430) : AC(3132), Immunomodulatory : CK(1287) : AC(358), Immunomodulatory: Th17 downregulation : CK(30) : AC(17), Nrf2 activation : CK(177) : AC(86)

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## Antiproliferative (AC 53) (CK 84)

### A growing amount of experimental data imply possible exploitation of cannabinoids in cancer therapy.

**Pubmed Data** : Onco Targets Ther. 2016 ;9:4323-36. Epub 2016 Jul 18. PMID: [27486335](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Maria Pyszniak, Jacek Tabarkiewicz, Jarogniew J Łuszczki

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Cancers: All : CK(14773) : AC(4596)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Anti-metastatic : CK(634) : AC(414), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Autophagy Up-regulation : CK(108) : AC(65), Cell cycle arrest : CK(810) : AC(612)

**Additional Keywords** : Endocannabinoid System : CK(60) : AC(23)

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## A review of cannabis and cannabinoids and their benefits in many health conditions.

**Pubmed Data** : Clin Pharmacol Ther. 2015 Jun ;97(6):575-86. Epub 2015 Apr 17. PMID: [25777363](#)

**Article Published Date** : May 31, 2015

**Authors** : D I Abrams, M Guzman

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : AIDS : CK(79) : AC(13), Cachexia: Cancer : CK(50) : AC(15), Cancer: Pain : CK(55) : AC(8), Cancers: All : CK(14773) : AC(4596), Peripheral Neuropathies : CK(218) : AC(37)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Appetite Stimulants : CK(10) : AC(1), Chemopreventive : CK(2835) : AC(787)

**Additional Keywords** : Natural Substance/Drug Synergy : CK(352) : AC(142)

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## A review of the antiproliferative effects of cannabinoids on cancer cells.

**Pubmed Data** : Mini Rev Med Chem. 2005 Oct ;5(10):941-52. PMID: [16250836](#)

**Article Published Date** : Sep 30, 2005

**Authors** : Natalya M Kogan

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Breast Cancer : CK(3592) : AC(1064), Glioma : CK(177) : AC(86), Lung Cancer : CK(1043) : AC(393)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685)

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## A synthetic cannabinoid inhibited CXCL12-induced



## migration and invasive properties of breast cancer cells.

**Pubmed Data** : PLoS One. 2011 ;6(9):e23901. Epub 2011 Sep 7. PMID: [21915267](#)

**Article Published Date** : Dec 31, 2010

**Authors** : Mohd W Nasser, Zahida Qamri, Yadwinder S Deol, Diane Smith, Konstantin Shilo, Xianghong Zou, Ramesh K Ganju

**Study Type** : Animal Study, In Vitro Study

### Additional Links

**Substances** : [Cannabinoids](#) : CK(816) : AC(310)

**Diseases** : [Breast Cancer](#) : CK(3592) : AC(1064), [Breast Cancer: Metastatic](#) : CK(123) : AC(52)

**Pharmacological Actions** : [Anti-metastatic](#) : CK(634) : AC(414), [Antiproliferative](#) : CK(2546) : AC(1685)

**Additional Keywords** : [Cannabinoid Receptors](#) : CK(67) : AC(37), [Synthetic Cannabinoids](#) : CK(2) : AC(1)

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## Anandamide is a potent and selective inhibitor of the proliferation of breast cancer cells.

**Pubmed Data** : Proc Natl Acad Sci U S A. 1998 Jul 7 ;95(14):8375-80. PMID: [9653194](#)

**Article Published Date** : Jul 06, 1998

**Authors** : L De Petrocellis, D Melck, A Palmisano, T Bisogno, C Laezza, M Bifulco, V Di Marzo

**Study Type** : Human In Vitro

### Additional Links

**Substances** : [Anandamide](#) : CK(2) : AC(2), [Cannabinoids](#) : CK(816) : AC(310)

**Diseases** : [Breast Cancer](#) : CK(3592) : AC(1064)

**Pharmacological Actions** : [Antiproliferative](#) : CK(2546) : AC(1685)

**Additional Keywords** : [Cannabinoid Receptors](#) : CK(67) : AC(37), [Dose Response](#) : CK(1056) : AC(408)

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## CBD can be used as a novel therapeutic option to inhibit growth and metastasis of highly aggressive breast cancer subtypes including TNBC.

**Pubmed Data** : Mol Oncol. 2015 Apr ;9(4):906-19. Epub 2015 Jan 19. PMID: [25660577](#)

**Article Published Date** : Mar 31, 2015

**Authors** : Mohamad Elbaz, Mohd W Nasser, Janani Ravi, Nissar A Wani, Dinesh K Ahirwar, Helong Zhao, Steve Oghumu, Abhay R Satoskar, Konstantin Shilo, William E Carson, Ramesh K Ganju

**Study Type** : Animal Study, In Vitro Study

### Additional Links

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Breast Cancer](#) : CK(3592) : AC(1064), [Breast Cancer: Triple Negative](#) : CK(262) : AC(144)

**Pharmacological Actions** : [Anti-metastatic](#) : CK(634) : AC(414), [Antiproliferative](#) : CK(2546) : AC(1685), [Epidermal growth factor receptor \(EGFR\) inhibitor](#) : CK(65) : AC(41), [Matrix metalloproteinase-2 \(MMP-2\) inhibitor](#) : CK(287) : AC(147), [Matrix metalloproteinase-9 \(MMP-9\)](#)

inhibitor : CK(212) : AC(128), NF-kappaB Inhibitor : CK(1114) : AC(694)

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## CBD caused concentration-related inhibition of glioma cell migration.

**Pubmed Data** : Br J Pharmacol. 2005 Apr ;144(8):1032-6. PMID: [15700028](#)

**Article Published Date** : Mar 31, 2005

**Authors** : Angelo Vaccani, Paola Massi, Arianna Colombo, Tiziana Rubino, Daniela Parolaro

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Glioma : CK(177) : AC(86)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414), Anti-Tumor : CK(146) : AC(73), Antiproliferative : CK(2546) : AC(1685)

**Additional Keywords** : Dose Response : CK(1056) : AC(408)

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## CBD could preferentially induce apoptosis and attenuate the proliferation of KSHV-infected HMVECs.

**Pubmed Data** : Genes Cancer. 2012 Jul ;3(7-8):512-20. PMID: [23264851](#)

**Article Published Date** : Jun 30, 2012

**Authors** : Yehoshua Maor, Jinlong Yu, Paula M Kuzontkoski, Bruce J Dezube, Xuefeng Zhang, Jerome E Groopman

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Herpes: Kaposi-Associated : CK(1) : AC(1), Kaposi Disease : CK(2) : AC(4)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

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## Cannabidiol by itself or in synergy with bortezomib strongly inhibited growth, arrested cell cycle progression and induced multiple myeloma cell death.

**Pubmed Data** : Int J Cancer. 2014 Jun 1 ;134(11):2534-46. Epub 2013 Dec 2. PMID: [24293211](#)

**Article Published Date** : May 31, 2014

**Authors** : Maria Beatrice Morelli, Massimo Offidani, Francesco Alesiani, Giancarlo Discepoli, Sonia Liberati, Attilio Olivieri, Matteo Santoni, Giorgio Santoni, Pietro Leoni, Massimo Nabissi

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Multiple Myeloma : CK(227) : AC(75)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Cell cycle arrest : CK(810) : AC(612), NF-kappaB

Inhibitor : CK(1114) : AC(694)

**Additional Keywords** : Natural Substance/Drug Synergy : CK(352) : AC(142)

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## Cannabidiol enhanced the ability of THC to inhibit cell proliferation, induce cell cycle arrest and apoptosis.

**Pubmed Data** : Mol Cancer Ther. 2010 Jan ;9(1):180-9. Epub 2010 Jan 6. PMID: [20053780](#)

**Article Published Date** : Dec 31, 2009

**Authors** : Jahan P Marcu, Rigel T Christian, Darryl Lau, Anne J Zielinski, Maxx P Horowitz, Jasmine Lee, Arash Pakdel, Juanita Allison, Chandani Limbad, Dan H Moore, Garret L Yount, Pierre-Yves Desprez, Sean D McAllister

**Study Type** : Animal Study, In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Cancer Metastasis : CK(442) : AC(206), Glioblastoma : CK(200) : AC(88)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Cell cycle arrest : CK(810) : AC(612)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37), Natural Substance Synergy : CK(540) : AC(249)

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## Cannabidiol is a novel inhibitor of a gene associated with aggressive breast cancer.

**Pubmed Data** : Mol Cancer Ther. 2007 Nov;6(11):2921-7. PMID: [18025276](#)

**Article Published Date** : Nov 01, 2007

**Authors** : Sean D McAllister, Rigel T Christian, Maxx P Horowitz, Amaia Garcia, Pierre-Yves Desprez

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Breast Cancer : CK(3592) : AC(1064), Cancer Metastasis : CK(442) : AC(206)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685)

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## Cannabidiol protected DNA from oxidative damage, increased endocannabinoid levels and reduced cell proliferation.

**Pubmed Data** : J Mol Med (Berl). 2012 Aug ;90(8):925-34. Epub 2012 Jan 10. PMID: [22231745](#)

**Article Published Date** : Jul 31, 2012

**Authors** : Gabriella Aviello, Barbara Romano, Francesca Borrelli, Raffaele Capasso, Laura Gallo, Fabiana Piscitelli, Vincenzo Di Marzo, Angelo A Izzo

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Colon Cancer : CK(749) : AC(430)

**Pharmacological Actions** : Anticarcinogenic Agents : CK(1099) : AC(519) , Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Chemopreventive : CK(2835) : AC(787)

**Additional Keywords** : Endocannabinoid System : CK(60) : AC(23)

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## Cannabidiol stimulates Aml-1a-dependent glial differentiation and inhibits glioma stem-like cells proliferation.

**Pubmed Data** : Int J Cancer. 2015 Oct 15 ;137(8):1855-69. Epub 2015 May 8. PMID: [25903924](#)

**Article Published Date** : Oct 14, 2015

**Authors** : Massimo Nabissi, Maria Beatrice Morelli, Consuelo Amantini, Sonia Liberati, Matteo Santoni, Lucia Ricci-Vitiani, Roberto Pallini, Giorgio Santoni

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Glioblastoma Multiforme : CK(200) : AC(88)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685)

**Additional Keywords** : Cancer Stem Cells : CK(135) : AC(88)

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## Cannabidiolic acid an active component in the cannabis plant offers potential therapeutic modality in the abrogation of cancer cell migration.

**Pubmed Data** : Toxicol Lett. 2012 Nov 15 ;214(3):314-9. Epub 2012 Sep 8. PMID: [22963825](#)

**Article Published Date** : Nov 14, 2012

**Authors** : Shuso Takeda, Shunsuke Okajima, Hiroko Miyoshi, Kazutaka Yoshida, Yoshiko Okamoto, Tomoko Okada, Toshiaki Amamoto, Kazuhito Watanabe, Curtis J Omiecinski, Hironori Aramaki

**Study Type** : Human In Vitro

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Breast Cancer : CK(3592) : AC(1064) , Breast Cancer: Triple Negative : CK(262) : AC(144)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414), Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Cyclooxygenase 2 Inhibitors : CK(464) : AC(272) , Enzyme Inhibitors : CK(473) : AC(251)

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## Cannabigerol hampers colon cancer progression in vivo and selectively inhibits the growth of colorectal cancer cells.

**Pubmed Data** : Carcinogenesis. 2014 Dec ;35(12):2787-97. Epub 2014 Sep 30. PMID: [25269802](#)

**Article Published Date** : Nov 30, 2014

**Authors** : Francesca Borrelli, Ester Pagano, Barbara Romano, Stefania Panzera, Francesco Maiello, Diana Coppola, Luciano De Petrocellis, Lorena Buono, Pierangelo Orlando, Angelo A Izzo

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Colon Cancer : CK(749) : AC(430), Colon Cancer: Prevention : CK(178) : AC(57)

**Pharmacological Actions** : Anticarcinogenic Agents : CK(1099) : AC(519), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

**Additional Keywords** : Selective Antiproliferation : CK(4) : AC(4)

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## Cannabinoid receptor agonists HU210 and Delta(9)-tetrahydrocannabinol lowers the viability of translocation-positive rhabdomyosarcoma cells through the induction of apoptosis.

**Pubmed Data** : Mol Cancer Ther. 2009 Jul ;8(7):1838-45. Epub 2009 Jun 9. PMID: [19509271](#)

**Article Published Date** : Jun 30, 2009

**Authors** : Susanne Oesch, Dagmar Walter, Marco Wachtel, Kathya Pretre, Maria Salazar, Manuel Guzmán, Guillermo Velasco, Beat W Schäfer

**Study Type** : Animal Study, In Vitro Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Rhabdomyosarcoma : CK(8) : AC(5)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Cannabinoid Receptor Antagonist/Inverse Agonist : CK(1) : AC(1), Glycogen synthase kinase-3beta (GSK-3beta) Inhibitor : CK(14) : AC(4)

**Additional Keywords** : Chemotherapeutic Synergy: Cisplatin : CK(80) : AC(57), Chemotherapeutic Synergy: Doxorubicin : CK(44) : AC(32)

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## Cannabinoid receptor ligands induce decreased viability, growth suppression and cell death by apoptosis in MCL cells.

**Pubmed Data** : FEBS Lett. 2005 Dec 19 ;579(30):6885-9. PMID: [16337199](#)

**Article Published Date** : Dec 18, 2005

**Authors** : Jenny Flygare, Kristin Gustafsson, Eva Kimby, Birger Christensson, Birgitta Sander

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Anandamide : CK(2) : AC(2), Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33)

**Diseases** : Breast Cancer : CK(3592) : AC(1064), Lymphoma : CK(253) : AC(83)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

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## Cannabinoid-induced cytotoxic autophagy as an effective strategy to drive melanoma cell death.

**Pubmed Data** : J Invest Dermatol. 2015 Jun ;135(6):1629-37. Epub 2015 Feb 10. PMID: [25674907](#)

**Article Published Date** : May 31, 2015

**Authors** : Jane L Armstrong, David S Hill, Christopher S McKee, Sonia Hernandez-Tiedra, Mar Lorente, Israel Lopez-Valero, Maria Eleni Anagnostou, Fiyinfoluwa Babatunde, Marco Corazzari, Christopher P F Redfern, Guillermo Velasco, Penny E Lovat

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Melanoma : CK(285) : AC(149), Skin Cancer : CK(736) : AC(293)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

**Additional Keywords** : Plant Extracts : CK(7645) : AC(2539)

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## Cannabinoids are potent inhibitors of Tu183 cellular respiration and are toxic to this highly malignant tumor.

**Pubmed Data** : Pharmacology. 2010 ;85(6):328-35. Epub 2010 Jun 2. PMID: [20516734](#)

**Article Published Date** : Dec 31, 2009

**Authors** : Donna A Whyte, Suleiman Al-Hammadi, Ghazala Balhaj, Oliver M Brown, Harvey S Penefsky, Abdul-Kader Souid

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Oral Cancer : CK(223) : AC(86)

**Pharmacological Actions** : Anti-Tumor : CK(146) : AC(73), Antiproliferative : CK(2546) : AC(1685)

**Additional Keywords** : Dose Response : CK(1056) : AC(408)

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## Cannabinoids could be used for the inhibition of tumor growth in a clinical setting.

**Pubmed Data** : Cancer Res. 2008 Jan 15 ;68(2):339-42. PMID: [18199524](#)

**Article Published Date** : Jan 14, 2008

**Authors** : Sami Sarfaraz, Vaqar M Adhami, Deeba N Syed, Farrukh Afaq, Hasan Mukhtar

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Breast Cancer : CK(3592) : AC(1064), Cancers: All : CK(14773) : AC(4596), Glioblastoma Multiforme : CK(200) : AC(88), Lung Cancer : CK(1043) : AC(393), Lymphoma : CK(253) : AC(83), Pancreatic Cancer : CK(890) : AC(260), Prostate Cancer : CK(1586) : AC(463), Skin Cancer : CK(736) : AC(293)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

**Additional Keywords** : Higher Dose Better Than Lower Dose : CK(2) : AC(2)

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## Cannabinoids exert anti-inflammatory, anti-proliferative, anti-invasive, anti-metastatic and pro-apoptotic effects in different cancer types.

**Pubmed Data** : Histol Histopathol. 2015 Jun ;30(6):629-45. Epub 2014 Dec 4. PMID: [25472761](#)

**Article Published Date** : May 31, 2015

**Authors** : Panagiotis Zogopoulos, Penelope Korkolopoulou, Efstratios Patsouris, Stamatios Theocharis

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Glioma : CK(177) : AC(86)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Anti-metastatic : CK(634) : AC(414), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

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## Cannabinoids inhibit the growth of melanoma cells but not of normal melanocytes.

**Pubmed Data** : FASEB J. 2006 Dec ;20(14):2633-5. Epub 2006 Oct 25. PMID: [17065222](#)

**Article Published Date** : Nov 30, 2006

**Authors** : Cristina Blázquez, Arkaitz Carracedo, Lucía Barrado, Pedro José Real, José Luis Fernández-Luna, Guillermo Velasco, Marcos Malumbres, Manuel Guzmán

**Study Type** : Animal Study, In Vitro Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33)

**Diseases** : Melanoma : CK(285) : AC(149)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Anti-metastatic : CK(634) : AC(414), Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Cell cycle arrest : CK(810) : AC(612), Chemotherapeutic : CK(397) : AC(152)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37), Selective Cytotoxicity : CK(158) : AC(112)

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## Cannabinoids may therapeutic value in

## neurodegenerative conditions and cancer.

**Pubmed Data** : J Mol Med. 2001;78(11):613-25. PMID: [11269508](#)

**Article Published Date** : Jan 01, 2001

**Authors** : M Guzmán, C Sánchez, I Galve-Roperh

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Cancers: All : CK(14773) : AC(4596) , Neurodegenerative Diseases : CK(3582) : AC(932)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Neuroprotective Agents : CK(2360) : AC(1099)

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## Cannabinoids prevent proliferation and cause apoptosis via a combination of cannabinoid receptor-independent, cellular and molecular mechanisms.

**Pubmed Data** : Br J Pharmacol. 2013 Jan ;168(1):79-102. PMID: [22594963](#)

**Article Published Date** : Dec 31, 2012

**Authors** : Luciano De Petrocellis, Alessia Ligresti, Aniello Schiano Moriello, Mariagrazia Iappelli, Roberta Verde, Colin G Stott, Luigia Cristino, Pierangelo Orlando, Vincenzo Di Marzo

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310)

**Diseases** : Prostate Cancer : CK(1586) : AC(463)

**Pharmacological Actions** : Anti-Androgen : CK(60) : AC(18), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Cell cycle arrest : CK(810) : AC(612)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

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## Cannabinoids reduce ErbB2-positive breast cancer cell progression.

**Pubmed Data** : Mol Cancer. 2010;9:196. Epub 2010 Jul 22. PMID: [20649976](#)

**Article Published Date** : Jan 01, 2010

**Authors** : María M Caffarel, Clara Andradas, Emilia Mira, Eduardo Pérez-Gómez, Camilla Cerutti, Gema Moreno-Bueno, Juana M Flores, Isabel García-Real, José Palacios, Santos Mañes, Manuel Guzmán, Cristina Sánchez

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Breast Cancer : CK(3592) : AC(1064)

**Pharmacological Actions** : Anti-Angiogenic : CK(197) : AC(137), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

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## Cannabinoids were effective in reducing the tumor load, prolonging the mean survival time as well as curing a significant proportion of mice in this study.

**Pubmed Data** : Blood. 2002 Jul 15 ;100(2):627-34. PMID: [12091357](#)

**Article Published Date** : Jul 14, 2002

**Authors** : Robert J McKallip, Catherine Lombard, Michael Fisher, Billy R Martin, Seongho Ryu, Steven Grant, Prakash S Nagarkatti, Mitzi Nagarkatti

**Study Type** : Animal Study

### Additional Links

**Substances** : Anandamide : CK(2) : AC(2), Cannabinoids: Synthetic : CK(78) : AC(33), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Acute lymphoblastic leukemia (ALL) : CK(130) : AC(39)

**Pharmacological Actions** : Anti-Tumor : CK(146) : AC(73), Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37), Significant Treatment Outcome : CK(3038) : AC(366)

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## Cannabinoids work synergistically with paclitaxel in gastric cancer cell lines.

**Pubmed Data** : J Surg Res. 2009 Jul;155(1):40-7. Epub 2008 Aug 9. PMID: [19394652](#)

**Article Published Date** : Jul 01, 2009

**Authors** : Hideyo Miyato, Joji Kitayama, Hiroharu Yamashita, Daisuke Souma, Masahiro Asakage, Jun Yamada, Hirokazu Nagawa

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Gastric Cancer : CK(622) : AC(198)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Cell cycle arrest : CK(810) : AC(612), Chemosensitizer : CK(394) : AC(286)

**Additional Keywords** : Drug: Paclitaxel : CK(36) : AC(13), Drug Synergy : CK(351) : AC(156)

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## Cannabisin B, a bioactive compound from hempseed hull, possesses antiproliferative activity in human hepatocarcinoma HepG2 cells.

**Pubmed Data** : Food Chem. 2013 Jun 1 ;138(2-3):1034-41. Epub 2012 Dec 5. PMID: [23411211](#)

**Article Published Date** : May 31, 2013

**Authors** : Tianpeng Chen, Jianxiong Hao, Jinfeng He, Jianchun Zhang, Yingcong Li, Rui Liu, Lite Li

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabis : CK(1776) : AC(408), Hemp Seed : CK(446) : AC(5)

**Diseases** : Liver Cancer : CK(1235) : AC(462)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Cell cycle arrest : CK(810) : AC(612), Chemopreventive : CK(2835) : AC(787)

**Additional Keywords** : Dose Response : CK(1056) : AC(408), Plant Extracts : CK(7645) : AC(2539)

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## Delta 9-tetrahydrocannabinol inhibits glioblastoma multiforme cells.

**Pubmed Data** : Acta Oncol. 2008;47(6):1062-70. PMID: [17934890](#)

**Article Published Date** : Jan 01, 2008

**Authors** : Gil Galanti, Tamar Fisher, Iris Kventsel, Jacob Shoham, Ruth Gallily, Raphael Mechoulam, Gad Lavie, Ninette Amariglio, Gideon Rechavi, Amos Toren

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Glioblastoma : CK(200) : AC(88), Glioblastoma Multiforme : CK(200) : AC(88)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Cell cycle arrest : CK(810) : AC(612)

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## Delta(9)-tetrahydrocannabinol inhibits 17beta-estradiol-induced proliferation.

**Pubmed Data** : Anticancer Res. 2008 Jan-Feb;28(1A):85-9. PMID: [18383828](#)

**Article Published Date** : Jan 01, 2008

**Authors** : A O von Bueren, M Schlumpf, W Lichtensteiger

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Breast Cancer : CK(3592) : AC(1064)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685)

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## Induction of apoptosis by cannabinoids in prostate and colon cancer cells is phosphatase dependent.

**Pubmed Data** : Anticancer Res. 2011 Nov ;31(11):3799-807. PMID: [22110202](#)

**Article Published Date** : Oct 31, 2011

**Authors** : Sandeep Sreevalsan, Sonia Joseph, Indira Jutooru, Gayathri Chadalapaka, Stephen H Safe

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids: Synthetic : CK(78) : AC(33)

**Diseases** : Colon Cancer : CK(749) : AC(430), Prostate Cancer : CK(1586) : AC(463)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

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## Preclinical and clinical assessment of cannabinoids as anti-cancer agents.

**Pubmed Data** : Front Pharmacol. 2016 ;7:361. Epub 2016 Oct 7. PMID: [27774065](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Daniel A Ladin, Eman Soliman, LaToya Griffin, Rukiyah Van Dross

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33) , Cannabis : CK(1776) : AC(408)

**Diseases** : Breast Cancer : CK(3592) : AC(1064) , Colorectal Cancer : CK(1646) : AC(619) , Glioma : CK(177) : AC(86), Liver Cancer : CK(1235) : AC(462), Lung Cancer : CK(1043) : AC(393), Melanoma : CK(285) : AC(149), Pancreatic Cancer : CK(890) : AC(260), Prostate Cancer : CK(1586) : AC(463) , Skin Cancer : CK(736) : AC(293), Thyroid Cancer : CK(237) : AC(55)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Anticarcinogenic Agents : CK(1099) : AC(519), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

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## THC inhibited cell proliferation, migration and invasion, and induced cell apoptosis in cholangiocarcinoma cells.

**Pubmed Data** : Cancer Invest. 2010 May ;28(4):357-63. PMID: [19916793](#).

**Article Published Date** : Apr 30, 2010

**Authors** : Surang Leelawat, Kawin Leelawat, Siriluck Narong, Oraphan Matangkasombut

**Study Type** : Human In Vitro

**Additional Links**

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Cancer Metastasis : CK(442) : AC(206), Cholangiocarcinoma : CK(96) : AC(21)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

**Additional Keywords** : Dose Response : CK(1056) : AC(408)

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## The antitumorigenic effects of O-1602 are multiple in that it reduces viability and proliferation of cancer cells and further promotes their apoptosis.

**Pubmed Data** : J Mol Med (Berl). 2013 Apr ;91(4):449-58. Epub 2012 Sep 11. PMID: [22965195](#)

**Article Published Date** : Mar 31, 2013

**Authors** : Julia Kargl, Johannes Haybaeck, Angela Stančić, Liisa Andersen, Gunther Marsche, Akos Heinemann, Rudolf Schicho

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Colitis : CK(255) : AC(111), Colon Cancer : CK(749) : AC(430)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Chemopreventive : CK(2835) : AC(787), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

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## The endocannabinoid system controls the growth and metastasis of malignant cells.

**Pubmed Data** : Recent Prog Med. 2003 May ;94(5):194-8. PMID: [12723496](#)

**Article Published Date** : Apr 30, 2003

**Authors** : Maurizio Bifulco, Vincenzo Di Marzo

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342), Endocannabinoids : CK(9) : AC(1)

**Diseases** : Cancer Metastasis : CK(442) : AC(206), Cancers: All : CK(14773) : AC(4596), Endocannabinoid System : CK(22) : AC(12)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

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## The experimental evidence reviewed in this article argues in favor of the therapeutic potential of these compounds in immune disorders and cancer.

**Pubmed Data** : Prostaglandins Leukot Essent Fatty Acids. 2002 Feb-Mar;66(2-3):319-32. PMID: [12052046](#)

**Article Published Date** : Jan 31, 2002

**Authors** : Daniela Parolaro, P Massi, T Rubino, E Monti

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Endocannabinoids : CK(9) : AC(1)

**Diseases** : Cancers: All : CK(14773) : AC(4596), Endocannabinoid System : CK(22) : AC(12), Immune Disorders : CK(28) : AC(8)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Immunosuppressive Agents : CK(37) : AC(24)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

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## The in vivo administration of microencapsulated cannabinoids efficiently reduces tumor growth.

**Pubmed Data** : PLoS One. 2013 ;8(1):e54795. Epub 2013 Jan 22. PMID: [23349970](#)

**Article Published Date** : Dec 31, 2012

**Authors** : Dolores Hernán Pérez de la Ossa, Mar Lorente, Maria Esther Gil-Alegre, Sofía Torres, Elena García-Taboada, María Del Rosario Aberturas, Jesús Molpeceres, Guillermo Velasco, Ana Isabel Torres-Suárez

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Glioblastoma Multiforme : CK(200) : AC(88)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

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## The in vivo assessment of the role of CB receptors in inflammation and cancer might be instrumental in broadening the understanding about bladder cancer biology.

**Pubmed Data** : Life Sci. 2015 Oct 1 ;138:41-51. Epub 2014 Oct 15. PMID: [25445433](#)

**Article Published Date** : Sep 30, 2015

**Authors** : Valeria Gasperi, Daniela Evangelista, Sergio Oddi, Fulvio Florenzano, Valerio Chiurchiù, Luciana Avigliano, M Valeria Catani, Mauro Maccarrone

**Study Type** : Animal Study, In Vitro Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Endocannabinoids : CK(9) : AC(1)

**Diseases** : Bladder Cancer : CK(349) : AC(100), Inflammation : CK(3240) : AC(882)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

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## The potential therapeutic applications of cannabinoids are discussed.

**Pubmed Data** : Pharmacol Ther. 2002 Aug ;95(2):175-84. PMID: [12182964](#)

**Article Published Date** : Jul 31, 2002

**Authors** : Manuel Guzmán, Cristina Sánchez, Ismael Galve-Roperh

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Cancers: All : CK(14773) : AC(4596)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Immunomodulatory : CK(1287) : AC(358), Neuroprotective Agents : CK(2360) : AC(1099)

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## The present investigation confirms the antiproliferative and antiinvasive effects of CBD in U87-MG cells.

**Pubmed Data** : PLoS One. 2013 ;8(10):e76918. Epub 2013 Oct 21. PMID: [24204703](#)

**Article Published Date** : Dec 31, 2012

**Authors** : Marta Solinas, Paola Massi, Valentina Cinquina, Marta Valenti, Daniele Bolognini, Marzia Gariboldi, Elena Monti, Tiziana Rubino, Daniela Parolaro

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Cancer Metastasis : CK(442) : AC(206), Glioma : CK(177) : AC(86)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Anti-metastatic : CK(634) : AC(414), Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Hypoxia inducible factor-1 alpha (HIF-1 $\alpha$ ) inhibitor : CK(22) : AC(15)

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## The present study demonstrates in vitro anticancer activity of CB derivatives on the poorly differentiated pancreatic cancer cell line MIA PaCa-2.

**Pubmed Data** : FEBS Lett. 2006 Mar 20 ;580(7):1733-9. Epub 2006 Feb 20. PMID: [16500647](#)

**Article Published Date** : Mar 19, 2006

**Authors** : Stefano Fogli, Paola Nieri, Andrea Chicca, Barbara Adinolfi, Veronica Mariotti, Paola Iacopetti, Maria Cristina Breschi, Silvia Pellegrini

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Pancreatic Cancer : CK(890) : AC(260)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Cell cycle arrest : CK(810) : AC(612)

**Additional Keywords** : Gene Expression Regulation : CK(431) : AC(214), Natural Substance/Drug Synergy : CK(352) : AC(142)

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## The proapoptotic effect of cannabinoids on tumor cells is mediated by a ceramide dependent upregulation of the stress protein p8.

**Pubmed Data** : Cancer Cell. 2006 Apr ;9(4):301-12. PMID: [16616335](#)

**Article Published Date** : Mar 31, 2006

**Authors** : Arkaitz Carracedo, Mar Lorente, Ainara Egia, Cristina Blázquez, Stephane García, Valentin Giroux, Cedric Malicet, Raquel Villuendas, Meritxell Gironella, Luis González-Feria, Miguel Angel Piris, Juan L Iovanna, Manuel Guzmán, Guillermo Velasco

**Study Type** : Animal Study, Human In Vitro

### **Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Astrocytoma : CK(12) : AC(6), Cancers: All : CK(14773) : AC(4596), Glioblastoma : CK(200) : AC(88)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

**Additional Keywords** : Altered Protein Expression : CK(6) : AC(2), Gene Expression Regulation : CK(431) : AC(214)

---

## **The results of this study demonstrate the anti-tumourigenic action of cannabidiol on Neuroblastoma cells.**

**Pubmed Data** : Curr Oncol. 2016 Mar ;23(2):S15-22. Epub 2016 Mar 16. PMID: [27022310](#)

**Article Published Date** : Feb 29, 2016

**Authors** : T Fisher, H Golan, G Schiby, S PriChen, R Smoum, I Moshe, N Peshes-Yaloz, A Castiel, D Waldman, R Gallily, R Mechoulam, A Toren

**Study Type** : Animal Study, In Vitro Study

### **Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Neuroblastoma : CK(86) : AC(53)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

---

## **These results confirm the value of exogenous cannabinoids for the treatment of melanomas.**

**Pubmed Data** : Life Sci. 2015 Oct 1 ;138:35-40. Epub 2015 Apr 25. PMID: [25921771](#)

**Article Published Date** : Sep 30, 2015

**Authors** : Nicole Glodde, Mira Jakobs, Tobias Bald, Thomas Tüting, Evelyn Gaffal

**Study Type** : Animal Study

### **Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Skin Cancer : CK(736) : AC(293)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

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## **This further demonstrates the ability of Cannabis sativa to induce apoptosis with or without cell cycle arrest and via mitochondrial pathway.**

**Pubmed Data** : BMC Complement Altern Med. 2016 ;16(1):335. Epub 2016 Sep 1. PMID: [27586579](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Sindiswa T Lukhele, Lesetja R Motadi

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408)

**Diseases** : Cervical Cancer : CK(345) : AC(144)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

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## This review critically discusses the pharmacology of CB receptor activation as a novel therapeutic anticancer strategy

**Pubmed Data** : J Pharm Pharmacol. 2009 Jul ;61(7):839-53. PMID: [19589225](#)

**Article Published Date** : Jun 30, 2009

**Authors** : Susanne Oesch, Jürg Gertsch

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Endocannabinoids : CK(9) : AC(1)

**Diseases** : Cancers: All : CK(14773) : AC(4596)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Anti-Inflammatory Agents : CK(4861) : AC(1630), Anti-metastatic : CK(634) : AC(414), Anticarcinogenic Agents : CK(1099) : AC(519), Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37), Endocannabinoid System : CK(60) : AC(23)

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## This review discusses the current understanding of cannabinoids as antitumour agents.

**Pubmed Data** : Handb Exp Pharmacol. 2015 ;231:449-72. PMID: [26408171](#)

**Article Published Date** : Dec 31, 2014

**Authors** : Guillermo Velasco, Cristina Sánchez, Manuel Guzmán

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Cancers: All : CK(14773) : AC(4596)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

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## This review focuses on the mechanisms of cannabinoid induced apoptosis and potential therapeutic applications.

**Pubmed Data** : Mini Rev Med Chem. 2005 Jan ;5(1):97-106. PMID: [15638794](#)

**Article Published Date** : Dec 31, 2004



**Authors** : María L López-Rodríguez, Alma Viso, Silvia Ortega-Gutiérrez, Inés Díaz-Laviada

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Cancers: All : CK(14773) : AC(4596)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Antiproliferative : CK(2546) : AC(1685)

**Additional Keywords** : Endogenous Canabinoid System : CK(1) : AC(1)

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## **This review summarizes the anti-cancer properties of the cannabinoids and their potential mechanisms of action.**

**Pubmed Data** : Cancer Lett. 2009 Nov 18 ;285(1):6-12. Epub 2009 May 12. PMID: [19442435](#)

**Article Published Date** : Nov 17, 2009

**Authors** : Amy Alexander, Paul F Smith, Rhonda J Rosengren

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Breast Cancer: Triple Negative : CK(262) : AC(144)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685)

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## **This review will center on mechanisms by which CBD, and other plant-derived cannabinoids inefficient at activating cannabinoid receptors, inhibit tumor cell viability, invasion, metastasis, angiogenesis.**

**Pubmed Data** : J Neuroimmune Pharmacol. 2015 Jun ;10(2):255-67. Epub 2015 Apr 28. PMID: [25916739](#)

**Article Published Date** : May 31, 2015

**Authors** : Sean D McAllister, Liliana Soroceanu, Pierre-Yves Desprez

**Study Type** : Review

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Cancers: All : CK(14773) : AC(4596)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Anti-metastatic : CK(634) : AC(414), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Autophagy Up-regulation : CK(108) : AC(65)

**Additional Keywords** : Cancer Stem Cells : CK(135) : AC(88)

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## **This reviews the basis for the use of cannabinoids in the treatment of cancers and neurodegenerative diseases.**

**Pubmed Data** : Handb Exp Pharmacol. 2005(168):627-42. PMID: [16596790](#)

**Article Published Date** : Dec 31, 2004

**Authors** : M Guzmán

**Study Type** : Review

**Additional Links**

**Substances** : [Cannabinoids](#) : CK(816) : AC(310)

**Diseases** : [Cancers: All](#) : CK(14773) : AC(4596) , [Neurodegenerative Diseases](#) : CK(3582) : AC(932)

**Pharmacological Actions** : [Anti-Angiogenic](#) : CK(197) : AC(137) , [Antineoplastic Agents](#) : CK(1158) : AC(639) , [Antiproliferative](#) : CK(2546) : AC(1685) , [Apoptotic](#) : CK(2958) : AC(2075) , [Neuroprotective Agents](#) : CK(2360) : AC(1099)

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## Treatment with cannabidiol significantly reduces primary mammary tumor mass as well as the size and number of lung metastatic foci in animals.

**Pubmed Data** : Breast Cancer Res Treat. 2010 Sep 22. Epub 2010 Sep 22. PMID: [20859676](#)

**Article Published Date** : Sep 22, 2010

**Authors** : Sean D McAllister, Ryuichi Murase, Rigel T Christian, Darryl Lau, Anne J Zielinski, Juanita Allison, Carolina Almanza, Arash Pakdel, Jasmine Lee, Chandani Limbad, Yong Liu, Robert J Debs, Dan H Moore, Pierre-Yves Desprez

**Study Type** : Animal Study

**Additional Links**

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338) , [Cannabis](#) : CK(1776) : AC(408)

**Diseases** : [Breast Cancer](#) : CK(3592) : AC(1064) , [Breast Cancer: Lung Metastasis](#) : CK(23) : AC(14) , [Breast Cancer: Prevention](#) : CK(552) : AC(82) , [Cancer Metastasis](#) : CK(442) : AC(206)

**Pharmacological Actions** : [Anti-metastatic](#) : CK(634) : AC(414) , [Antiproliferative](#) : CK(2546) : AC(1685)

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## cannabidiol was able to produce a significant antitumor activity both in vitro and in vivo.

**Pubmed Data** : J Pharmacol Exp Ther. 2004 Mar ;308(3):838-45. Epub 2003 Nov 14. PMID: [14617682](#)

**Article Published Date** : Feb 29, 2004

**Authors** : Paola Massi, Angelo Vaccani, Stefania Ceruti, Arianna Colombo, Maria P Abbracchio, Daniela Parolaro

**Study Type** : Animal Study, In Vitro Study

**Additional Links**

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338) , [Cannabinoids](#) : CK(816) : AC(310)

**Diseases** : [Glioma](#) : CK(177) : AC(86)

**Pharmacological Actions** : [Anti-Tumor](#) : CK(146) : AC(73) , [Antineoplastic Agents](#) : CK(1158) : AC(639) , [Antiproliferative](#) : CK(2546) : AC(1685) , [Apoptotic](#) : CK(2958) : AC(2075)

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# Antipsychotic Agents (AC 5) (CK 7)

**Cannabidiol acts in pathways associated with psychotic symptoms and may be important in the management of psychotic states and psychosis.**

**Pubmed Data** : CNS Neurol Disord Drug Targets. 2015 ;14(8):970-8. PMID: [26350340](#)

**Article Published Date** : Dec 31, 2014

**Authors** : Jose Alexandre Crippa, Jaime Eduardo Cecilio Hallak, Vanessa Costhek Abilio, Acioly Luiz Tavares de Lacerda, Antonio Waldo Zuardi

**Study Type** : Review

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Psychotic Disorders : CK(12) : AC(3), Schizophrenia : CK(445) : AC(70)

**Pharmacological Actions** : Antipsychotic Agents : CK(15) : AC(2)

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**Cannabidiol seems to represent a mechanistically different and less side-effect prone antipsychotic compound for the treatment of schizophrenia.**

**Pubmed Data** : Front Pharmacol. 2016 ;7:422. Epub 2016 Nov 8. PMID: [27877130](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Cathrin Rohleder, Juliane K Müller, Bettina Lange, F M Leweke

**Study Type** : Review

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Schizophrenia : CK(445) : AC(70)

**Pharmacological Actions** : Antipsychotic Agents : CK(15) : AC(2)

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**Pretreatment of mice with cannabidiol attenuated the amphetamine induced disruptive effects on prepulse inhibition (PPI).**

**Pubmed Data** : Psychopharmacology (Berl). 2015 May 6. Epub 2015 May 6. PMID: [25943166](#)

**Article Published Date** : May 05, 2015

**Authors** : J F C Pedrazzi, A C Issy, F V Gomes, F S Guimarães, E A Del-Bel

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Schizophrenia : CK(445) : AC(70)

**Pharmacological Actions** : Antipsychotic Agents : CK(15) : AC(2)

**Problem Substances** : Amphetamine : CK(12) : AC(3)

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## The data from this study supports the view that inhibition of microglial activation may improve schizophrenia symptoms.

**Pubmed Data** : Schizophr Res. 2015 May ;164(1-3):155-63. Epub 2015 Feb 10. PMID: [25680767](#)

**Article Published Date** : Apr 30, 2015

**Authors** : Felipe V Gomes, Ricardo Llorente, Elaine A Del Bel, Maria-Paz Viveros, Meritxell López-Gallardo, Francisco S Guimarães

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Brain Inflammation : CK(274) : AC(145), Schizophrenia : CK(445) : AC(70)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Antipsychotic Agents : CK(15) : AC(2), Neuroprotective Agents : CK(2360) : AC(1099)

**Additional Keywords** : Clozapine : CK(2) : AC(1), Natural Substances Versus Drugs : CK(1698) : AC(302)

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## This review further confirms the potential of CBD as an effective, safe and well tolerated antipsychotic compound.

**Pubmed Data** : Schizophr Res. 2015 Mar ;162(1-3):153-161. Epub 2015 Feb 7. PMID: [25667194](#)

**Article Published Date** : Feb 28, 2015

**Authors** : Tabitha A Iseger, Matthijs G Bossong

**Study Type** : Review

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Psychoses : CK(39) : AC(9), Schizophrenia : CK(445) : AC(70)

**Pharmacological Actions** : Antipsychotic Agents : CK(15) : AC(2)

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**Antispasmodic (AC 2) (CK 12)**

## Cannabinoids control spasticity and tremor in a multiple sclerosis model.

**Pubmed Data** : Nature. 2000 Mar 2;404(6773):84-7. PMID: [10716447](#)

**Article Published Date** : Mar 02, 2000

**Authors** : D Baker, G Pryce, J L Croxford, P Brown, R G Pertwee, J W Huffman, L Layward

**Study Type** : Animal Study

### Additional Links

**Substances** : [Cannabinoids](#) : CK(816) : AC(310), [Cannabis](#) : CK(1776) : AC(408)

**Diseases** : [Multiple Sclerosis](#) : CK(964) : AC(184), [Muscle Spasticity](#) : CK(34) : AC(5), [Tremor](#) : CK(44) : AC(10)

**Pharmacological Actions** : [Antispasmodic](#) : CK(132) : AC(32)

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## Delta-tetrahydrocannabinol (THC) and cannabidiol have therapeutic value in the management of spasticity associated with multiple sclerosis.

**Pubmed Data** : J Nutr Sci Vitaminol (Tokyo). 1996 Aug;42(4):325-37. PMID: [21456949](#)

**Article Published Date** : Aug 01, 1996

**Authors** : Jaume Sastre-Garriga, Carlos Vila, Stephen Clissold, Xavier Montalban

**Study Type** : Human Study

### Additional Links

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338), [Delta-tetrahydrocannabinol \(THC\)](#) : CK(1135) : AC(342)

**Diseases** : [Multiple Sclerosis](#) : CK(964) : AC(184), [Muscle Spasticity](#) : CK(34) : AC(5)

**Pharmacological Actions** : [Antispasmodic](#) : CK(132) : AC(32)

---

## Antiviral Agents (AC 3) (CK 4)

## Cannabinoids may have immunomodulatory or antiviral effects among individuals living with HIV/AIDS.

**Pubmed Data** : Drug Alcohol Rev. 2015 Mar ;34(2):135-40. Epub 2014 Nov 11. PMID: [25389027](#)

**Article Published Date** : Feb 28, 2015

**Authors** : M-J Milloy, Brandon Marshall, Thomas Kerr, Lindsey Richardson, Robert Hogg, Silvia Guillemi, Julio S G Montaner, Evan Wood

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : AIDS : CK(79) : AC(13) , HIV Infections : CK(680) : AC(219)

**Pharmacological Actions** : Antiviral Agents : CK(938) : AC(433) , Immunomodulatory : CK(1287) : AC(358)

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## In vitro studies to demonstrate the antiviral activity of cannabidiol against hepatitis C.

**Pubmed Data** : Pharmacognosy Res. 2017 Jan-Mar;9(1):116-118. PMID: [28250664](#)

**Article Published Date** : Dec 31, 2016

**Authors** : Henry I C Lowe, Ngeh J Toyang, Wayne McLaughlin

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Hepatitis C : CK(474) : AC(87)

**Pharmacological Actions** : Antiviral Agents : CK(938) : AC(433)

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## THC, the compound in cannabis, inhibits replication of Epstein-Barr and Kaposi's Sarcoma Associated Herpesvirus in vitro.

**Pubmed Data** : BMC Med. 2004 Sep 15;2:34. Epub 2004 Sep 15. PMID: [15369590](#)

**Article Published Date** : Sep 15, 2004

**Authors** : Maria M Medveczky, Tracy A Sherwood, Thomas W Klein, Herman Friedman, Peter G Medveczky

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Epstein-Barr Virus Infections : CK(132) : AC(47) , Herpes family viruses : CK(1152) : AC(219) , Kaposi's Sarcoma : CK(2) : AC(2) , Oncovirus : CK(4) : AC(4)

**Pharmacological Actions** : Antiviral Agents : CK(938) : AC(433)

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## Anxiolytic (AC 2) (CK 11)

**Cannabidiol reduces anxiety in social anxiety disorder through modulating the limbic and paralimbic brain**

## areas.

**Pubmed Data** : J Psychopharmacol. 2010 Sep 9. Epub 2010 Sep 9. PMID: [20829306](#)

**Article Published Date** : Sep 09, 2010

**Authors** : José Alexandre S Crippa, Guilherme Nogueira Derenusson, Thiago Borduqui Ferrari, Lauro Wichert-Ana, Fábio L S Duran, Rocio Martin-Santos, Marcus Vinícius Simões, Sagnik Bhattacharyya, Paolo Fusar-Poli, Zerrin Atakan, Alaor Santos Filho, Maria Cecília Freitas-Ferrari, Philip K McGuire, Antonio Waldo Zuardi, Geraldo F Busatto, Jaime Eduardo Cecílio Hallak

**Study Type** : Human Study

### Additional Links

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338), [Cannabis](#) : CK(1776) : AC(408)

**Diseases** : [Anxiety Disorders](#) : CK(1225) : AC(180), [Social Anxiety Disorder \(SAD\)](#) : CK(10) : AC(1)

**Pharmacological Actions** : [Anxiolytic](#) : CK(379) : AC(57)

---

## Studies assessed in the present chapter clearly suggest an anxiolytic-like effect of CBD in both animal models and healthy volunteers.

**Pubmed Data** : Curr Neuropharmacol. 2016 May 9. Epub 2016 May 9. PMID: [27157263](#)

**Article Published Date** : May 08, 2016

**Authors** : Vanessa P Soares, Alline C Campos

**Study Type** : Review

### Additional Links

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Anxiety Disorders](#) : CK(1225) : AC(180)

**Pharmacological Actions** : [Anti-Anxiety Agents](#) : CK(356) : AC(59), [Anxiolytic](#) : CK(379) : AC(57)

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## Apoptotic (AC 70) (CK 102)

### A growing amount of experimental data imply possible exploitation of cannabinoids in cancer therapy.

**Pubmed Data** : Onco Targets Ther. 2016 ;9:4323-36. Epub 2016 Jul 18. PMID: [27486335](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Maria Pysznik, Jacek Tabarkiewicz, Jarogniew J Łuszczki

**Study Type** : Review

### Additional Links

**Substances** : [Cannabinoids](#) : CK(816) : AC(310), [Delta-tetrahydrocannabinol \(THC\)](#) : CK(1135) :

AC(342)

**Diseases** : Cancers: All : CK(14773) : AC(4596)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Anti-metastatic : CK(634) : AC(414), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Autophagy Up-regulation : CK(108) : AC(65), Cell cycle arrest : CK(810) : AC(612)

**Additional Keywords** : Endocannabinoid System : CK(60) : AC(23)

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## A review of cannabis and cannabinoids and their benefits in many health conditions.

**Pubmed Data** : Clin Pharmacol Ther. 2015 Jun ;97(6):575-86. Epub 2015 Apr 17. PMID: [25777363](#)

**Article Published Date** : May 31, 2015

**Authors** : D I Abrams, M Guzman

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : AIDS : CK(79) : AC(13), Cachexia: Cancer : CK(50) : AC(15), Cancer: Pain : CK(55) : AC(8), Cancers: All : CK(14773) : AC(4596), Peripheral Neuropathies : CK(218) : AC(37)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Appetite Stimulants : CK(10) : AC(1), Chemopreventive : CK(2835) : AC(787)

**Additional Keywords** : Natural Substance/Drug Synergy : CK(352) : AC(142)

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## A review of the pharmacokinetics and pharmacodynamics of cannabinoids.

**Pubmed Data** : Clin Pharmacokinet. 2003 ;42(4):327-60. PMID: [12648025](#)

**Article Published Date** : Dec 31, 2002

**Authors** : Franjo Grotenhermen

**Study Type** : Review

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Cancers: All : CK(14773) : AC(4596)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217), Apoptotic : CK(2958) : AC(2075), Immunosuppressive Agents : CK(37) : AC(24), Neuroprotective Agents : CK(2360) : AC(1099)

**Additional Keywords** : Phytotherapy : CK(1216) : AC(221)

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## Activation of cannabinoid receptors could be a new therapeutic approach for the treatment of skin tumors.

**Pubmed Data** : J Clin Invest. 2003 Jan ;111(1):43-50. PMID: [12511587](#)

**Article Published Date** : Dec 31, 2002

**Authors** : M Llanos Casanova, Cristina Blázquez, Jesús Martínez-Palacio, Concepción Villanueva, M



Jesús Fernández-Aceñero, John W Huffman, José L Jorcano, Manuel Guzmán

**Study Type** : Animal Study, In Vitro Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Skin Cancer : CK(736) : AC(293)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Antineoplastic Agents : CK(1158) : AC(639), Apoptotic : CK(2958) : AC(2075), Vascular Endothelial Growth Factor A Inhibitor : CK(132) : AC(71), Vascular Endothelial Growth Factor Regulator : CK(31) : AC(14)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

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## Amphirregulin is a factor for resistance of glioma cells to THC-induced apoptosis.

**Pubmed Data** : Glia. 2009 Oct ;57(13):1374-85. PMID: [19229996](#)

**Article Published Date** : Sep 30, 2009

**Authors** : Mar Lorente, Arkaitz Carracedo, Sofía Torres, Francesco Natali, Ainara Egia, Sonia Hernández-Tiedra, María Salazar, Cristina Blázquez, Manuel Guzmán, Guillermo Velasco

**Study Type** : Animal Study, In Vitro Study

**Additional Links**

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Gliomas : CK(5) : AC(3)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639), Apoptotic : CK(2958) : AC(2075)

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## CB2 receptor activation signals apoptosis via a ceramide-dependent stimulation of the mitochondrial intrinsic pathway.

**Pubmed Data** : Exp Cell Res. 2006 Jul 1 ;312(11):2121-31. Epub 2006 Apr 19. PMID: [16624285](#)

**Article Published Date** : Jun 30, 2006

**Authors** : Blanca Herrera, Arkaitz Carracedo, María Diez-Zaera, Teresa Gómez del Pulgar, Manuel Guzmán, Guillermo Velasco

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Acute T cell Leukemias : CK(18) : AC(16)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

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## CBD could preferentially induce apoptosis and attenuate the proliferation of KSHV-infected HMVECs.

**Pubmed Data** : Genes Cancer. 2012 Jul ;3(7-8):512-20. PMID: [23264851](#)

**Article Published Date** : Jun 30, 2012

**Authors** : Yehoshua Maor, Jinlong Yu, Paula M Kuzontkoski, Bruce J Dezube, Xuefeng Zhang, Jerome E Groopman

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Herpes: Kaposi-Associated : CK(1) : AC(1), Kaposi Disease : CK(2) : AC(4)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

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## **CBD induced a robust increase in ROS, which led to the inhibition of cell survival, phosphorylated (p)-AKT, self-renewal and a significant increase in the survival of GSC bearing mice.**

**Pubmed Data** : Cell Death Dis. 2015 ;6:e1601. Epub 2015 Jan 15. PMID: [25590811](#)

**Article Published Date** : Dec 31, 2014

**Authors** : E Singer, J Judkins, N Salomonis, L Matlaf, P Soteropoulos, S McAllister, L Soroceanu

**Study Type** : Animal Study, In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Glioblastoma : CK(200) : AC(88)

**Pharmacological Actions** : Anticarcinogenic Agents : CK(1099) : AC(519), Apoptotic : CK(2958) : AC(2075), Redox Modulator : CK(5) : AC(3)

**Additional Keywords** : Cancer Stem Cells : CK(135) : AC(88), Significant Treatment Outcome : CK(3038) : AC(366)

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## **Cannabidiol and cannabidiol-dimethylheptyl and exposure of the cells to gamma irradiation markedly enhanced apoptosis, reaching values of 93 and 95%.**

**Pubmed Data** : Leuk Lymphoma. 2003 Oct ;44(10):1767-73. PMID: [14692532](#)

**Article Published Date** : Sep 30, 2003

**Authors** : Ruth Gallily, Tal Even-Chena, Galia Katzavian, Dan Lehmann, Arie Dagan, Raphael Mechoulam

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310)

**Diseases** : Acute Myeloid Leukemia : CK(95) : AC(47)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075), Caspase-3 Activation : CK(91) : AC(66)

**Additional Keywords** : Dose Response : CK(1056) : AC(408), Gamma Irradiation : CK(9) : AC(6), Radiation Synergy : CK(12) : AC(2)

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## Cannabidiol by itself or in synergy with bortezomib strongly inhibited growth, arrested cell cycle progression and induced multiple myeloma cell death.

**Pubmed Data** : Int J Cancer. 2014 Jun 1 ;134(11):2534-46. Epub 2013 Dec 2. PMID: [24293211](#)

**Article Published Date** : May 31, 2014

**Authors** : Maria Beatrice Morelli, Massimo Offidani, Francesco Alesiani, Giancarlo Discepoli, Sonia Liberati, Attilio Olivieri, Matteo Santoni, Giorgio Santoni, Pietro Leoni, Massimo Nabissi

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Multiple Myeloma : CK(227) : AC(75)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639) , Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075) , Cell cycle arrest : CK(810) : AC(612) , NF-kappaB Inhibitor : CK(1114) : AC(694)

**Additional Keywords** : Natural Substance/Drug Synergy : CK(352) : AC(142)

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## Cannabidiol could induce apoptosis in bladder cancer cells by TRPV2 activation.

**Pubmed Data** : Urology. 2010 Aug ;76(2):509.e1-7. Epub 2010 May 23. PMID: [20546877](#)

**Article Published Date** : Jul 31, 2010

**Authors** : Takahiro Yamada, Takashi Ueda, Yasuhiro Shibata, Yosuke Ikegami, Masaki Saito, Yusuke Ishida, Shinya Ugawa, Kenjiro Kohri, Shoichi Shimada

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Bladder Cancer : CK(349) : AC(100)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075)

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## Cannabidiol enhanced the ability of THC to inhibit cell proliferation, induce cell cycle arrest and apoptosis.

**Pubmed Data** : Mol Cancer Ther. 2010 Jan ;9(1):180-9. Epub 2010 Jan 6. PMID: [20053780](#)

**Article Published Date** : Dec 31, 2009

**Authors** : Jahan P Marcu, Rigel T Christian, Darryl Lau, Anne J Zielinski, Maxx P Horowitz, Jasmine Lee, Arash Pakdel, Juanita Allison, Chandani Limbad, Dan H Moore, Garret L Yount, Pierre-Yves Desprez, Sean D McAllister

**Study Type** : Animal Study, In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Cancer Metastasis : CK(442) : AC(206), Glioblastoma : CK(200) : AC(88)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414), Antiproliferative : CK(2546) :

AC(1685), Apoptotic : CK(2958) : AC(2075), Cell cycle arrest : CK(810) : AC(612)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37), Natural Substance Synergy : CK(540) : AC(249)

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## Cannabidiol has a potential therapeutic agent for the treatment of liver fibrosis.

**Pubmed Data** : Cell Death Dis. 2011 ;2:e170. Epub 2011 Jun 9. PMID: [21654828](#)

**Article Published Date** : Jan 01, 2011

**Authors** : M P Lim, L A Devi, R Rozenfeld

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Liver Fibrosis : CK(246) : AC(104)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075)

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## Cannabidiol induces programmed cell death in breast cancer cells.

**Pubmed Data** : Antiviral Res. 2005 Nov;68(2):66-74. Epub 2005 Aug 9. PMID: [21566064](#)

**Article Published Date** : Nov 01, 2005

**Authors** : Ashutosh Shrivastava, Paula M Kuzontkoski, Jerome E Groopman, Anil Prasad

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Breast Cancer : CK(3592) : AC(1064)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075), Autophagy Up-regulation : CK(108) : AC(65)

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## Cannabidiol, a non-psychoactive component from Cannabis sativa, is a potent inhibitor of breast and thyroid cancer cells.

**Pubmed Data** : J Pharmacol Exp Ther. 2006 Sep;318(3):1375-87. Epub 2006 May 25. PMID: [16728591](#)

**Article Published Date** : Sep 01, 2006

**Authors** : Alessia Ligresti, Aniello Schiano Moriello, Katarzyna Starowicz, Isabel Matias, Simona Pisanti, Luciano De Petrocellis, Chiara Laezza, Giuseppe Portella, Maurizio Bifulco, Vincenzo Di Marzo

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Marijuana : CK(1952) : AC(456)

**Diseases** : Breast Cancer : CK(3592) : AC(1064), Thyroid Cancer : CK(237) : AC(55)

**Pharmacological Actions** : Anti-Tumor : CK(146) : AC(73), Apoptotic : CK(2958) : AC(2075)

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## **Cannabigerol hampers colon cancer progression in vivo and selectively inhibits the growth of colorectal cancer cells.**

**Pubmed Data** : Carcinogenesis. 2014 Dec ;35(12):2787-97. Epub 2014 Sep 30. PMID: [25269802](#)

**Article Published Date** : Nov 30, 2014

**Authors** : Francesca Borrelli, Ester Pagano, Barbara Romano, Stefania Panzera, Francesco Maiello, Diana Coppola, Luciano De Petrocellis, Lorena Buono, Pierangelo Orlando, Angelo A Izzo

**Study Type** : Animal Study

### **Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Colon Cancer : CK(749) : AC(430), Colon Cancer: Prevention : CK(178) : AC(57)

**Pharmacological Actions** : Anticarcinogenic Agents : CK(1099) : AC(519), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

**Additional Keywords** : Selective Antiproliferation : CK(4) : AC(4)

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## **Cannabinoid receptor agonists HU210 and Delta(9)-tetrahydrocannabinol lowers the viability of translocation-positive rhabdomyosarcoma cells through the induction of apoptosis.**

**Pubmed Data** : Mol Cancer Ther. 2009 Jul ;8(7):1838-45. Epub 2009 Jun 9. PMID: [19509271](#)

**Article Published Date** : Jun 30, 2009

**Authors** : Susanne Oesch, Dagmar Walter, Marco Wachtel, Kathya Pretre, Maria Salazar, Manuel Guzmán, Guillermo Velasco, Beat W Schäfer

**Study Type** : Animal Study, In Vitro Study

### **Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Rhabdomyosarcoma : CK(8) : AC(5)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Cannabinoid Receptor Antagonist/Inverse Agonist : CK(1) : AC(1), Glycogen synthase kinase-3beta (GSK-3beta) Inhibitor : CK(14) : AC(4)

**Additional Keywords** : Chemotherapeutic Synergy: Cisplatin : CK(80) : AC(57), Chemotherapeutic Synergy: Doxorubicin : CK(44) : AC(32)

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## **Cannabinoid receptor ligands induce decreased viability, growth suppression and cell death by apoptosis in MCL cells.**

**Pubmed Data** : FEBS Lett. 2005 Dec 19 ;579(30):6885-9. PMID: [16337199](#)

**Article Published Date** : Dec 18, 2005

**Authors** : Jenny Flygare, Kristin Gustafsson, Eva Kimby, Birger Christensson, Birgitta Sander

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Anandamide : CK(2) : AC(2), Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33)

**Diseases** : Breast Cancer : CK(3592) : AC(1064), Lymphoma : CK(253) : AC(83)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

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## Cannabinoid-induced cytotoxic autophagy as an effective strategy to drive melanoma cell death.

**Pubmed Data** : J Invest Dermatol. 2015 Jun ;135(6):1629-37. Epub 2015 Feb 10. PMID: [25674907](#)

**Article Published Date** : May 31, 2015

**Authors** : Jane L Armstrong, David S Hill, Christopher S McKee, Sonia Hernandez-Tiedra, Mar Lorente, Israel Lopez-Valero, Maria Eleni Anagnostou, Fiyinfoluwa Babatunde, Marco Corazzari, Christopher P F Redfern, Guillermo Velasco, Penny E Lovat

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Melanoma : CK(285) : AC(149), Skin Cancer : CK(736) : AC(293)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

**Additional Keywords** : Plant Extracts : CK(7645) : AC(2539)

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## Cannabinoids could be used for the inhibition of tumor growth in a clinical setting.

**Pubmed Data** : Cancer Res. 2008 Jan 15 ;68(2):339-42. PMID: [18199524](#)

**Article Published Date** : Jan 14, 2008

**Authors** : Sami Sarfaraz, Vaqar M Adhami, Deeba N Syed, Farrukh Afaq, Hasan Mukhtar

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Breast Cancer : CK(3592) : AC(1064), Cancers: All : CK(14773) : AC(4596), Glioblastoma Multiforme : CK(200) : AC(88), Lung Cancer : CK(1043) : AC(393), Lymphoma : CK(253) : AC(83), Pancreatic Cancer : CK(890) : AC(260), Prostate Cancer : CK(1586) : AC(463), Skin Cancer : CK(736) : AC(293)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

**Additional Keywords** : Higher Dose Better Than Lower Dose : CK(2) : AC(2)

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## Cannabinoids exert anti-inflammatory, anti-proliferative, anti-invasive, anti-metastatic and pro-apoptotic effects in different cancer types.

**Pubmed Data** : Histol Histopathol. 2015 Jun ;30(6):629-45. Epub 2014 Dec 4. PMID: [25472761](#)

**Article Published Date** : May 31, 2015

**Authors** : Panagiotis Zogopoulos, Penelope Korkolopoulou, Efstratios Patsouris, Stamatios Theocharis

**Study Type** : Review

### Additional Links

**Substances** : [Cannabinoids](#) : CK(816) : AC(310)

**Diseases** : [Glioma](#) : CK(177) : AC(86)

**Pharmacological Actions** : [Anti-Inflammatory Agents](#) : CK(4861) : AC(1630), [Anti-metastatic](#) : CK(634) : AC(414), [Antiproliferative](#) : CK(2546) : AC(1685), [Apoptotic](#) : CK(2958) : AC(2075)

**Additional Keywords** : [Cannabinoid Receptors](#) : CK(67) : AC(37)

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## Cannabinoids induce apoptosis of pancreatic tumor cells.

**Pubmed Data** : Cancer Res. 2006 Jul 1;66(13):6748-55. PMID: [16818650](#)

**Article Published Date** : Jul 01, 2006

**Authors** : Arkaitz Carracedo, Meritxell Gironella, Mar Lorente, Stephane Garcia, Manuel Guzmán, Guillermo Velasco, Juan L Iovanna

**Study Type** : In Vitro Study

### Additional Links

**Substances** : [Cannabis](#) : CK(1776) : AC(408)

**Diseases** : [Pancreatic Cancer](#) : CK(890) : AC(260)

**Pharmacological Actions** : [Apoptotic](#) : CK(2958) : AC(2075)

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## Cannabinoids inhibit the growth of melanoma cells but not of normal melanocytes.

**Pubmed Data** : FASEB J. 2006 Dec ;20(14):2633-5. Epub 2006 Oct 25. PMID: [17065222](#)

**Article Published Date** : Nov 30, 2006

**Authors** : Cristina Blázquez, Arkaitz Carracedo, Lucía Barrado, Pedro José Real, José Luis Fernández-Luna, Guillermo Velasco, Marcos Malumbres, Manuel Guzmán

**Study Type** : Animal Study, In Vitro Study

### Additional Links

**Substances** : [Cannabinoids](#) : CK(816) : AC(310), [Cannabinoids: Synthetic](#) : CK(78) : AC(33)

**Diseases** : [Melanoma](#) : CK(285) : AC(149)

**Pharmacological Actions** : [Angiogenesis Inhibitors](#) : CK(114) : AC(62), [Anti-metastatic](#) : CK(634) : AC(414), [Antineoplastic Agents](#) : CK(1158) : AC(639), [Antiproliferative](#) : CK(2546) : AC(1685), [Apoptotic](#) : CK(2958) : AC(2075), [Cell cycle arrest](#) : CK(810) : AC(612), [Chemotherapeutic](#) : CK(397) : AC(152)

**Additional Keywords** : [Cannabinoid Receptors](#) : CK(67) : AC(37), [Selective Cytotoxicity](#) : CK(158) :

## Cannabinoids may be ideal candidates for the treatment of gliomas.

**Pubmed Data** : Neuropharmacology. 2004 Sep;47(3):315-23. PMID: [15275820](#)

**Article Published Date** : Sep 01, 2004

**Authors** : Guillermo Velasco, Ismael Galve-Roperh, Cristina Sánchez, Cristina Blázquez, Manuel Guzmán

**Study Type** : Review

### Additional Links

**Substances** : [Cannabinoids](#) : CK(816) : AC(310)

**Diseases** : [Glioma](#) : CK(177) : AC(86)

**Pharmacological Actions** : [Apoptotic](#) : CK(2958) : AC(2075)

**Additional Keywords** : [Selective Cytotoxicity](#) : CK(158) : AC(112)

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## Cannabinoids may have a therapeutic role to play in treating thyoma.

**Pubmed Data** : Int Immunopharmacol. 2008 May;8(5):732-40. Epub 2008 Feb 14. PMID: [18387516](#)

**Article Published Date** : May 01, 2008

**Authors** : Chi-Ya Lee, Shiaw-Pyng Wey, Mei-Hsiu Liao, Wei-Lun Hsu, Hsin-Ying Wu, Tong-Rong Jan

**Study Type** : In Vitro Study

### Additional Links

**Substances** : [Cannabis](#) : CK(1776) : AC(408)

**Diseases** : [Thymoma](#) : CK(1) : AC(1)

**Pharmacological Actions** : [Apoptotic](#) : CK(2958) : AC(2075)

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## Cannabinoids may therapeutic value in neurodegenerative conditions and cancer.

**Pubmed Data** : J Mol Med. 2001;78(11):613-25. PMID: [11269508](#)

**Article Published Date** : Jan 01, 2001

**Authors** : M Guzmán, C Sánchez, I Galve-Roperh

**Study Type** : Review

### Additional Links

**Substances** : [Cannabinoids](#) : CK(816) : AC(310)

**Diseases** : [Cancers: All](#) : CK(14773) : AC(4596) , [Neurodegenerative Diseases](#) : CK(3582) : AC(932)

**Pharmacological Actions** : [Antiproliferative](#) : CK(2546) : AC(1685), [Apoptotic](#) : CK(2958) : AC(2075), [Neuroprotective Agents](#) : CK(2360) : AC(1099)

---

## Cannabinoids prevent proliferation and cause apoptosis



## via a combination of cannabinoid receptor-independent, cellular and molecular mechanisms.

**Pubmed Data** : Br J Pharmacol. 2013 Jan ;168(1):79-102. PMID: [22594963](#)

**Article Published Date** : Dec 31, 2012

**Authors** : Luciano De Petrocellis, Alessia Ligresti, Aniello Schiano Moriello, Mariagrazia Iappelli, Roberta Verde, Colin G Stott, Luigia Cristino, Pierangelo Orlando, Vincenzo Di Marzo

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310)

**Diseases** : Prostate Cancer : CK(1586) : AC(463)

**Pharmacological Actions** : Anti-Androgen : CK(60) : AC(18), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Cell cycle arrest : CK(810) : AC(612)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

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## Cannabinoids reduce ErbB2-positive breast cancer cell progression.

**Pubmed Data** : Mol Cancer. 2010;9:196. Epub 2010 Jul 22. PMID: [20649976](#)

**Article Published Date** : Jan 01, 2010

**Authors** : María M Caffarel, Clara Andradas, Emilia Mira, Eduardo Pérez-Gómez, Camilla Cerutti, Gema Moreno-Bueno, Juana M Flores, Isabel García-Real, José Palacios, Santos Mañes, Manuel Guzmán, Cristina Sánchez

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Breast Cancer : CK(3592) : AC(1064)

**Pharmacological Actions** : Anti-Angiogenic : CK(197) : AC(137), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

---

## Cannabinoids were effective in reducing the tumor load, prolonging the mean survival time as well as curing a significant proportion of mice in this study.

**Pubmed Data** : Blood. 2002 Jul 15 ;100(2):627-34. PMID: [12091357](#)

**Article Published Date** : Jul 14, 2002

**Authors** : Robert J McKallip, Catherine Lombard, Michael Fisher, Billy R Martin, Seongho Ryu, Steven Grant, Prakash S Nagarkatti, Mitzi Nagarkatti

**Study Type** : Animal Study

### Additional Links

**Substances** : Anandamide : CK(2) : AC(2), Cannabinoids: Synthetic : CK(78) : AC(33), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Acute lymphoblastic leukemia (ALL) : CK(130) : AC(39)

**Pharmacological Actions** : Anti-Tumor : CK(146) : AC(73), Antineoplastic Agents : CK(1158) :

AC(639), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37) , Significant Treatment Outcome : CK(3038) : AC(366)

---

## Cannabinoids work synergistically with paclitaxel in gastric cancer cell lines.

**Pubmed Data** : J Surg Res. 2009 Jul;155(1):40-7. Epub 2008 Aug 9. PMID: [19394652](#)

**Article Published Date** : Jul 01, 2009

**Authors** : Hideyo Miyato, Joji Kitayama, Hiroharu Yamashita, Daisuke Souma, Masahiro Asakage, Jun Yamada, Hirokazu Nagawa

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Gastric Cancer : CK(622) : AC(198)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Cell cycle arrest : CK(810) : AC(612) , Chemosensitizer : CK(394) : AC(286)

**Additional Keywords** : Drug: Paclitaxel : CK(36) : AC(13) , Drug Synergy : CK(351) : AC(156)

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## Delta 9-tetrahydrocannabinol exhibits anti-tumor properties.

**Pubmed Data** : Eur J Pharmacol. 2007 Jun 14;564(1-3):57-65. Epub 2007 Feb 22. PMID: [17379209](#)

**Article Published Date** : Jun 14, 2007

**Authors** : Eric J Downer, Aoife Gowran, Aine C Murphy, Veronica A Campbell

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Tumors : CK(205) : AC(120)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075), Tumor Suppressor Protein p53 Upregulation : CK(293) : AC(202)

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## High concentrations of cannabinoids are preferable for efficacious treatment of malignant astrocytomas.

**Pubmed Data** : PLoS One. 2010 ;5(1):e8702. Epub 2010 Jan 14. PMID: [20090845](#)

**Article Published Date** : Dec 31, 2009

**Authors** : Eiron Cudaback, William Marrs, Thomas Moeller, Nephi Stella

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Astrocytoma : CK(12) : AC(6) , Brain Cancer : CK(450) : AC(179)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075)

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## In the current study we demonstrated that cannabidiol can induce apoptosis in murine as well as human leukemia cells.

**Pubmed Data** : Mol Pharmacol. 2006 Sep ;70(3):897-908. Epub 2006 Jun 5. PMID: [16754784](#)

**Article Published Date** : Aug 31, 2006

**Authors** : Robert J McKallip, Wentao Jia, Jerome Schlomer, James W Warren, Prakash S Nagarkatti, Mitzi Nagarkatti

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Leukemia : CK(1005) : AC(398)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075), Caspase-3 Activation : CK(91) : AC(66), Caspase-8 activation : CK(27) : AC(6), Caspase-9 Activation : CK(30) : AC(19), NADPH Oxidase Inhibitors : CK(1) : AC(1)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

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## Induction of apoptosis by cannabinoids in prostate and colon cancer cells is phosphatase dependent.

**Pubmed Data** : Anticancer Res. 2011 Nov ;31(11):3799-807. PMID: [22110202](#)

**Article Published Date** : Oct 31, 2011

**Authors** : Sandeep Sreevalsan, Sonia Joseph, Indira Jutooru, Gayathri Chadalapaka, Stephen H Safe

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids: Synthetic : CK(78) : AC(33)

**Diseases** : Colon Cancer : CK(749) : AC(430), Prostate Cancer : CK(1586) : AC(463)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

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## Preclinical and clinical assessment of cannabinoids as anti-cancer agents.

**Pubmed Data** : Front Pharmacol. 2016 ;7:361. Epub 2016 Oct 7. PMID: [27774065](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Daniel A Ladin, Eman Soliman, LaToya Griffin, Rukiyah Van Dross

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33), Cannabis : CK(1776) : AC(408)

**Diseases** : Breast Cancer : CK(3592) : AC(1064), Colorectal Cancer : CK(1646) : AC(619), Glioma : CK(177) : AC(86), Liver Cancer : CK(1235) : AC(462), Lung Cancer : CK(1043) : AC(393), Melanoma :

CK(285) : AC(149), Pancreatic Cancer : CK(890) : AC(260), Prostate Cancer : CK(1586) : AC(463), Skin Cancer : CK(736) : AC(293), Thyroid Cancer : CK(237) : AC(55)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Anticarcinogenic Agents : CK(1099) : AC(519), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

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## Results show that stimulation of the CB2 receptor leads to p38 MAPK activation and that inhibition of this kinase attenuates CB2 receptor induced caspase activation and apoptosis.

**Pubmed Data** : FEBS Lett. 2005 Sep 12 ;579(22):5084-8. PMID: [16139274](#)

**Article Published Date** : Sep 11, 2005

**Authors** : Blanca Herrera, Arkaitz Carracedo, María Díez-Zaera, Manuel Guzmán, Guillermo Velasco

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Leukemia : CK(1005) : AC(398)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075), P38 Mitogen-Activated Protein Kinase Modulator : CK(6) : AC(5)

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## Results thus show that THC-induced apoptosis in glioma C6.9 cells may rely on a CBI receptor-independent stimulation of sphingomyelin breakdown.

**Pubmed Data** : FEBS Lett. 1998 Sep 25 ;436(1):6-10. PMID: [9771884](#)

**Article Published Date** : Sep 24, 1998

**Authors** : C Sánchez, I Galve-Roperh, C Canova, P Brachet, M Guzmán

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Glioma : CK(177) : AC(86)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075)

**Additional Keywords** : Selective Cytotoxicity : CK(158) : AC(112)

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## Sustained ceramide accumulation in tumor cells mediates cannabinoid induced apoptosis.

**Pubmed Data** : Life Sci. 2005 Aug 19 ;77(14):1723-31. PMID: [15958274](#)

**Article Published Date** : Aug 18, 2005

**Authors** : Guillermo Velasco, Ismael Galve-Roperh, Cristina Sánchez, Cristina Blázquez, Amador

Haro, Manuel Guzmán

**Study Type** : Review

**Additional Links**

**Substances** : [Cannabinoids](#) : CK(816) : AC(310)

**Pharmacological Actions** : [Apoptotic](#) : CK(2958) : AC(2075)

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## THC induced prostate PC-3 cell death by an apoptotic process in a dose dependent manner.

**Pubmed Data** : FEBS Lett. 1999 Sep 24 ;458(3):400-4. PMID: [10570948](#)

**Article Published Date** : Sep 23, 1999

**Authors** : L Ruiz, A Miguel, I Díaz-Laviada

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : [Delta-tetrahydrocannabinol \(THC\)](#) : CK(1135) : AC(342)

**Diseases** : [Prostate Cancer](#) : CK(1586) : AC(463)

**Pharmacological Actions** : [Apoptotic](#) : CK(2958) : AC(2075)

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## THC inhibited cell proliferation, migration and invasion, and induced cell apoptosis in cholangiocarcinoma cells.

**Pubmed Data** : Cancer Invest. 2010 May ;28(4):357-63. PMID: [19916793](#).

**Article Published Date** : Apr 30, 2010

**Authors** : Surang Leelawat, Kawin Leelawat, Siriluck Narong, Oraphan Matangkasombut

**Study Type** : Human In Vitro

**Additional Links**

**Substances** : [Delta-tetrahydrocannabinol \(THC\)](#) : CK(1135) : AC(342)

**Diseases** : [Cancer Metastasis](#) : CK(442) : AC(206), [Cholangiocarcinoma](#) : CK(96) : AC(21)

**Pharmacological Actions** : [Anti-metastatic](#) : CK(634) : AC(414), [Antiproliferative](#) : CK(2546) : AC(1685), [Apoptotic](#) : CK(2958) : AC(2075)

**Additional Keywords** : [Dose Response](#) : CK(1056) : AC(408)

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## THC, the active metabolite of cannabis induces programmed cell death in Jurkat leukemia T Cells.

**Pubmed Data** : Mol Cancer Res. 2006 Aug;4(8):549-62 PMID: [16908594](#)

**Article Published Date** : Aug 01, 2006

**Authors** : Wentao Jia, Venkatesh L Hegde, Narendra P Singh, Daniel Sisco, Steven Grant, Mitzi Nagarkatti, Prakash S Nagarkatti

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : [Marijuana](#) : CK(1952) : AC(456)

**Diseases** : [Acute T cell Leukemias](#) : CK(18) : AC(16)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075)

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## THC, the active metabolite of cannabis induces programmed cell death in colorectal cancer cells.

**Pubmed Data** : Eur J Clin Invest. 1990 Oct;20 Suppl 1:S65-71. PMID: [17583570](#)

**Article Published Date** : Oct 01, 1990

**Authors** : Alexander Greenhough, Helena A Patsos, Ann C Williams, Christos Paraskeva

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Marijuana : CK(1952) : AC(456)

**Diseases** : Colorectal Cancer : CK(1646) : AC(619)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075)

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## THC, the active metabolite of cannabis potently induces programmed cell death in leukemic cell lines.

**Pubmed Data** : BMC Immunol. 2009;10:12. Epub 2009 Feb 20. PMID: [15454482](#)

**Article Published Date** : Jan 01, 2009

**Authors** : Thomas Powles, Robert te Poele, Jonathan Shamash, Tracy Chaplin, David Propper, Simon Joel, Tim Oliver, Wai Man Liu

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Marijuana : CK(1952) : AC(456)

**Diseases** : Leukemia : CK(1005) : AC(398)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075)

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## TRPV2 activation could be a novel therapeutic strategy to enhance the uptake and efficacy of chemotherapy in TNBC patients.

**Pubmed Data** : Oncotarget. 2016 May 27. Epub 2016 May 27. PMID: [27248470](#)

**Article Published Date** : May 26, 2016

**Authors** : Mohamad Elbaz, Dinesh Ahirwar, Zhang Xiaoli, Xinyu Zhou, Maryam Lustberg, Mohd W Nasser, Konstantin Shilo, Ramesh K Ganju

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Breast Cancer : CK(3592) : AC(1064), Breast Cancer: Triple Negative : CK(262) : AC(144)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075), Transient receptor potential vanilloid type-2 activation : CK(1) : AC(1)

**Additional Keywords** : Chemotherapeutic Synergy: Doxorubicin : CK(44) : AC(32), Median Survival Time : CK(31) : AC(3)

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## The antitumorigenic effects of O-1602 are multiple in that it reduces viability and proliferation of cancer cells and further promotes their apoptosis.

**Pubmed Data** : J Mol Med (Berl). 2013 Apr ;91(4):449-58. Epub 2012 Sep 11. PMID: [22965195](#)

**Article Published Date** : Mar 31, 2013

**Authors** : Julia Kargl, Johannes Haybaeck, Angela Stančić, Liisa Andersen, Gunther Marsche, Akos Heinemann, Rudolf Schicho

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Colitis : CK(255) : AC(111), Colon Cancer : CK(749) : AC(430)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Chemopreventive : CK(2835) : AC(787), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

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## The cannabinoid system along with other neuroimmune systems has a subtle but significant role in the regulation of immunity.

**Pubmed Data** : Pain Res Manag. 2001 ;6(2):95-101. PMID: [11854771](#)

**Article Published Date** : Dec 31, 2000

**Authors** : T W Klein, C A Newton, H Friedman

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Acquired Immunodeficiency Syndrome : CK(16) : AC(12), Cancers: All : CK(14773) : AC(4596), Multiple Sclerosis : CK(964) : AC(184)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Apoptotic : CK(2958) : AC(2075), Immunomodulatory : CK(1287) : AC(358), Neuroimmunomodulation : CK(1) : AC(1)

**Additional Keywords** : Immunocannabinoid System : CK(1) : AC(1)

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## The current study clearly demonstrates that exposure to THC leads to suppression of the immune response.

**Pubmed Data** : J Pharmacol Exp Ther. 2002 Aug ;302(2):451-65. PMID: [12130702](#)

**Article Published Date** : Jul 31, 2002

**Authors** : Robert J McKallip, Catherine Lombard, Billy R Martin, Mitzi Nagarkatti, Prakash S Nagarkatti

**Study Type** : Animal Study, In Vitro Study

### Additional Links

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Autoimmune Diseases : CK(6629) : AC(1128), Immune Disorders : CK(28) : AC(8)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075), Immunomodulatory : CK(1287) : AC(358), Immunosuppressive Agents : CK(37) : AC(24)

**Additional Keywords** : Dose Response : CK(1056) : AC(408)

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## The discovery of IL-12-induced CB2 overexpression in thyroid cancer cells may offer a new target for anaplastic thyroid cancer treatment

**Pubmed Data** : Cancer Gene Ther. 2008 Feb ;15(2):101-7. Epub 2007 Dec 21. PMID: [18197164](#)

**Article Published Date** : Jan 31, 2008

**Authors** : Y Shi, M Zou, E Y Baitei, A S Alzahrani, R S Parhar, Z Al-Makhalafi, F A Al-Mohanna

**Study Type** : Animal Study, In Vitro Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33)

**Diseases** : Thyroid Cancer : CK(237) : AC(55)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075), Cannabinoid Receptor Antagonist/Inverse Agonist : CK(1) : AC(1), Chemosensitizer : CK(394) : AC(286)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37), Chemotherapeutic Synergy: Paclitaxel : CK(32) : AC(23)

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## The endocannabinoid system controls the growth and metastasis of malignant cells.

**Pubmed Data** : Recent Prog Med. 2003 May ;94(5):194-8. PMID: [12723496](#)

**Article Published Date** : Apr 30, 2003

**Authors** : Maurizio Bifulco, Vincenzo Di Marzo

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342), Endocannabinoids : CK(9) : AC(1)

**Diseases** : Cancer Metastasis : CK(442) : AC(206), Cancers: All : CK(14773) : AC(4596), Endocannabinoid System : CK(22) : AC(12)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

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## The evidences in favour of both proapoptotic, pronecrotic and protective, antiapoptotic effects of cannabinoids and, especially N-acylethanolamines, are evaluated.

**Pubmed Data** : Exp Oncol. 2008 Mar ;30(1):6-21. PMID: [18438336](#)



**Article Published Date** : Feb 29, 2008

**Authors** : V M Pushkarev, O I Kovzun, M D Tronko

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Cancers: All : CK(14773) : AC(4596)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639), Apoptotic : CK(2958) : AC(2075)

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## The experimental evidence reviewed in this article argues in favor of the therapeutic potential of these compounds in immune disorders and cancer.

**Pubmed Data** : Prostaglandins Leukot Essent Fatty Acids. 2002 Feb-Mar;66(2-3):319-32. PMID: [12052046](#)

**Article Published Date** : Jan 31, 2002

**Authors** : Daniela Parolaro, P Massi, T Rubino, E Monti

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Endocannabinoids : CK(9) : AC(1)

**Diseases** : Cancers: All : CK(14773) : AC(4596), Endocannabinoid System : CK(22) : AC(12), Immune Disorders : CK(28) : AC(8)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Immunosuppressive Agents : CK(37) : AC(24)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

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## The in vivo administration of microencapsulated cannabinoids efficiently reduces tumor growth.

**Pubmed Data** : PLoS One. 2013 ;8(1):e54795. Epub 2013 Jan 22. PMID: [23349970](#)

**Article Published Date** : Dec 31, 2012

**Authors** : Dolores Hernán Pérez de la Ossa, Mar Lorente, Maria Esther Gil-Alegre, Sofía Torres, Elena García-Taboada, María Del Rosario Aberturas, Jesús Molpeceres, Guillermo Velasco, Ana Isabel Torres-Suárez

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Glioblastoma Multiforme : CK(200) : AC(88)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

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## The in vivo assessment of the role of CB receptors in

## inflammation and cancer might be instrumental in broadening the understanding about bladder cancer biology.

**Pubmed Data** : Life Sci. 2015 Oct 1 ;138:41-51. Epub 2014 Oct 15. PMID: [25445433](#)

**Article Published Date** : Sep 30, 2015

**Authors** : Valeria Gasperi, Daniela Evangelista, Sergio Oddi, Fulvio Florenzano, Valerio Chiurchiù, Luciana Avigliano, M Valeria Catani, Mauro Maccarrone

**Study Type** : Animal Study, In Vitro Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Endocannabinoids : CK(9) : AC(1)

**Diseases** : Bladder Cancer : CK(349) : AC(100), Inflammation : CK(3240) : AC(882)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

---

## The potential therapeutic applications of cannabinoids are discussed.

**Pubmed Data** : Pharmacol Ther. 2002 Aug ;95(2):175-84. PMID: [12182964](#)

**Article Published Date** : Jul 31, 2002

**Authors** : Manuel Guzmán, Cristina Sánchez, Ismael Galve-Roperh

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Cancers: All : CK(14773) : AC(4596)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Immunomodulatory : CK(1287) : AC(358), Neuroprotective Agents : CK(2360) : AC(1099)

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## The present data suggest that targeting CB(1)/CB(2) may have therapeutic potential for the treatment of mantle cell lymphoma.

**Pubmed Data** : Mol Pharmacol. 2006 Nov ;70(5):1612-20. Epub 2006 Aug 25. PMID: [16936228](#)

**Article Published Date** : Oct 31, 2006

**Authors** : Kristin Gustafsson, Birger Christensson, Birgitta Sander, Jenny Flygare

**Study Type** : Human In Vitro

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33)

**Diseases** : Lymphoma : CK(253) : AC(83)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075), P38 Mitogen-Activated Protein Kinase Modulator : CK(6) : AC(5)

**Additional Keywords** : Selective Cytotoxicity : CK(158) : AC(112)

---

## The present study demonstrates in vitro anticancer activity of CB derivatives on the poorly differentiated pancreatic cancer cell line MIA PaCa-2.

**Pubmed Data** : FEBS Lett. 2006 Mar 20 ;580(7):1733-9. Epub 2006 Feb 20. PMID: [16500647](#)

**Article Published Date** : Mar 19, 2006

**Authors** : Stefano Fogli, Paola Nieri, Andrea Chicca, Barbara Adinolfi, Veronica Mariotti, Paola Iacopetti, Maria Cristina Breschi, Silvia Pellegrini

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Pancreatic Cancer : CK(890) : AC(260)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639) , Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075) , Cell cycle arrest : CK(810) : AC(612)

**Additional Keywords** : Gene Expression Regulation : CK(431) : AC(214) , Natural Substance/Drug Synergy : CK(352) : AC(142)

---

## The proapoptotic effect of cannabinoids on tumor cells is mediated by a ceramide dependent upregulation of the stress protein p8.

**Pubmed Data** : Cancer Cell. 2006 Apr ;9(4):301-12. PMID: [16616335](#)

**Article Published Date** : Mar 31, 2006

**Authors** : Arkaitz Carracedo, Mar Lorente, Ainara Egia, Cristina Blázquez, Stephane García, Valentin Giroux, Cedric Malicet, Raquel Villuendas, Meritxell Gironella, Luis González-Feria, Miguel Angel Piris, Juan L Iovanna, Manuel Guzmán, Guillermo Velasco

**Study Type** : Animal Study, Human In Vitro

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Astrocytoma : CK(12) : AC(6) , Cancers: All : CK(14773) : AC(4596) , Glioblastoma : CK(200) : AC(88)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

**Additional Keywords** : Altered Protein Expression : CK(6) : AC(2) , Gene Expression Regulation : CK(431) : AC(214)

---

## The results of this study demonstrate the anti-tumourigenic action of cannabidiol on Neuroblastoma cells.

**Pubmed Data** : Curr Oncol. 2016 Mar ;23(2):S15-22. Epub 2016 Mar 16. PMID: [27022310](#)

**Article Published Date** : Feb 29, 2016

**Authors** : T Fisher, H Golan, G Schiby, S PriChen, R Smoum, I Moshe, N Peshes-Yaloz, A Castiel, D Waldman, R Gallily, R Mechoulam, A Toren

**Study Type** : Animal Study, In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Neuroblastoma : CK(86) : AC(53)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

---

## There exists solid scientific evidence supporting that cannabinoids exhibit a remarkable anticancer activity in preclinical models of cancer.

**Pubmed Data** : Prog Neuropsychopharmacol Biol Psychiatry. 2016 Jan 4 ;64:259-66. Epub 2015 Jun 10. PMID: [26071989](#)

**Article Published Date** : Jan 03, 2016

**Authors** : Guillermo Velasco, Sonia Hernández-Tiedra, David Dávila, Mar Lorente

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Cancers: All : CK(14773) : AC(4596)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075), Autophagy Up-regulation : CK(108) : AC(65)

---

## These findings describe a mechanism by which THC can promote the autophagic death of human and mouse cancer cells.

**Pubmed Data** : J Clin Invest. 2009 May ;119(5):1359-72. PMID: [19425170](#)

**Article Published Date** : Apr 30, 2009

**Authors** : María Salazar, Arkaitz Carracedo, Iñigo J Salanueva, Sonia Hernández-Tiedra, Mar Lorente, Ainara Egia, Patricia Vázquez, Cristina Blázquez, Sofía Torres, Stephane García, Jonathan Nowak, Gian María Fimia, Mauro Piacentini, Francesco Cecconi, Pier Paolo Pandolfi, Luis González-Feria, Juan L Iovanna, Manuel Guzmán, Patricia Boya, Guillermo Velasco

**Study Type** : Animal Study, Human In Vitro, In Vitro Study

**Additional Links**

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Glioblastoma Multiforme : CK(200) : AC(88), Glioma : CK(177) : AC(86)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075), Autophagy Up-regulation : CK(108) : AC(65), Enzyme Inhibitors : CK(473) : AC(251)

---

## These findings show that de novo synthesized ceramide is involved in cannabinoid induced apoptosis of glioma cells.

**Pubmed Data** : Biochem J. 2002 Apr 1 ;363(Pt 1):183-8. PMID: [11903061](#)

**Article Published Date** : Mar 31, 2002

**Authors** : Teresa Gómez del Pulgar, Guillermo Velasco, Cristina Sánchez, Amador Haro, Manuel Guzmán

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Glioma : CK(177) : AC(86)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075)

---

## This further demonstrates the ability of Cannabis sativa to induce apoptosis with or without cell cycle arrest and via mitochondrial pathway.

**Pubmed Data** : BMC Complement Altern Med. 2016 ;16(1):335. Epub 2016 Sep 1. PMID: [27586579](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Sindiswa T Lukhele, Lesetja R Motadi

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408)

**Diseases** : Cervical Cancer : CK(345) : AC(144)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

---

## This is the first report to provide an inhibitor-proven tumor-regressive mechanism of Cannabidiol.

**Pubmed Data** : Mol Cancer Ther. 2013 Jan ;12(1):69-82. Epub 2012 Dec 7. PMID: [23220503](#)

**Article Published Date** : Dec 31, 2012

**Authors** : Robert Ramer, Katharina Heinemann, Jutta Merkord, Helga Rohde, Achim Salamon, Michael Linnebacher, Burkhard Hinz

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Lung Cancer : CK(1043) : AC(393)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639), Apoptotic : CK(2958) : AC(2075)

---

## This review discusses the current understanding of cannabinoids as antitumour agents.

**Pubmed Data** : Handb Exp Pharmacol. 2015 ;231:449-72. PMID: [26408171](#)

**Article Published Date** : Dec 31, 2014

**Authors** : Guillermo Velasco, Cristina Sánchez, Manuel Guzmán

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Cancers: All : CK(14773) : AC(4596)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075)

---

## This review will center on mechanisms by which CBD, and other plant-derived cannabinoids inefficient at activating cannabinoid receptors, inhibit tumor cell viability, invasion, metastasis, angiogenesis.

**Pubmed Data** : J Neuroimmune Pharmacol. 2015 Jun ;10(2):255-67. Epub 2015 Apr 28. PMID: [25916739](#)

**Article Published Date** : May 31, 2015

**Authors** : Sean D McAllister, Liliana Soroceanu, Pierre-Yves Desprez

**Study Type** : Review

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Cancers: All : CK(14773) : AC(4596)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Anti-metastatic : CK(634) : AC(414), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Autophagy Up-regulation : CK(108) : AC(65)

**Additional Keywords** : Cancer Stem Cells : CK(135) : AC(88)

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## This reviews the basis for the use of cannabinoids in the treatment of cancers and neurodegenerative diseases.

**Pubmed Data** : Handb Exp Pharmacol. 2005(168):627-42. PMID: [16596790](#)

**Article Published Date** : Dec 31, 2004

**Authors** : M Guzmán

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Cancers: All : CK(14773) : AC(4596), Neurodegenerative Diseases : CK(3582) : AC(932)

**Pharmacological Actions** : Anti-Angiogenic : CK(197) : AC(137), Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Neuroprotective Agents : CK(2360) : AC(1099)

---

## **This study demonstrated cannabinoid induced upregulation of ICAM-1 on lung cancer cells to be responsible for increased cancer cell lysis by LAK cells.**

**Pubmed Data** : Biochem Pharmacol. 2014 Nov 15 ;92(2):312-25. Epub 2014 Jul 25. PMID: [25069049](#)

**Article Published Date** : Nov 14, 2014

**Authors** : Maria Haustein, Robert Ramer, Michael Linnebacher, Katrin Manda, Burkhard Hinz

**Study Type** : In Vitro Study

### **Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Lung Cancer : CK(1043) : AC(393)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414), Anti-Tumor : CK(146) : AC(73), Apoptotic : CK(2958) : AC(2075)

**Additional Keywords** : Lymphokine-activated Killer Cells : CK(1) : AC(1)

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## **This study demonstrates that AEA, THC, and HU 210 are all able to cause changes in integrated mitochondrial function, directly, in the absence of cannabinoid receptors.**

**Pubmed Data** : Biochem Biophys Res Commun. 2007 Dec 7 ;364(1):131-7. Epub 2007 Oct 2. PMID: [17931597](#)

**Article Published Date** : Dec 06, 2007

**Authors** : Andriani Athanasiou, Anna B Clarke, Amy E Turner, Nethia M Kumaran, Sara Vakilpour, Paul A Smith, Dimitra Bagiokou, Tracey D Bradshaw, Andrew D Westwell, Lin Fang, Dileep N Lobo, Cris S Constantinescu, Vittorio Calabrese, Andrzej Loesch, Stephen P H Alexander, Richard H Clothier, David A Kendall, Timothy E Bates

**Study Type** : In Vitro Study

### **Additional Links**

**Substances** : Anandamide : CK(2) : AC(2), Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Carcinoma: Non-Small-Cell Lung : CK(134) : AC(71), Lung Cancer : CK(1043) : AC(393)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075)

---

## **cannabidiol was able to produce a significant antitumor activity both in vitro and in vivo.**

**Pubmed Data** : J Pharmacol Exp Ther. 2004 Mar ;308(3):838-45. Epub 2003 Nov 14. PMID: [14617682](#)

**Article Published Date** : Feb 29, 2004

**Authors** : Paola Massi, Angelo Vaccani, Stefania Ceruti, Arianna Colombo, Maria P Abbracchio, Daniela Parolaro

**Study Type** : Animal Study, In Vitro Study

**Additional Links**

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338), [Cannabinoids](#) : CK(816) : AC(310)

**Diseases** : [Glioma](#) : CK(177) : AC(86)

**Pharmacological Actions** : [Anti-Tumor](#) : CK(146) : AC(73), [Antineoplastic Agents](#) : CK(1158) : AC(639), [Antiproliferative](#) : CK(2546) : AC(1685), [Apoptotic](#) : CK(2958) : AC(2075)

---

**data suggest that the intrinsic pathway plays a more critical role in THC-induced apoptosis while the extrinsic pathway may facilitate apoptosis via cross-talk with the intrinsic pathway.**

**Pubmed Data** : Leuk Res. 2005 Aug ;29(8):915-22. Epub 2005 Mar 2. PMID: [15978942](#)

**Article Published Date** : Jul 31, 2005

**Authors** : Catherine Lombard, Mitzi Nagarkatti, Prakash S Nagarkatti

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : [Delta-tetrahydrocannabinol \(THC\)](#) : CK(1135) : AC(342)

**Diseases** : [Leukemia](#) : CK(1005) : AC(398)

**Pharmacological Actions** : [Antineoplastic Agents](#) : CK(1158) : AC(639), [Apoptotic](#) : CK(2958) : AC(2075)

---

## Appetite Stimulants (AC 3) (CK 5)

**A cannabigerol enriched cannabis extract could be used as an appetite stimulant.**

**Pubmed Data** : Behav Pharmacol. 2017 Jan 25. Epub 2017 Jan 25. PMID: [28125508](#)

**Article Published Date** : Jan 24, 2017

**Authors** : Daniel I Brierley, James Samuels, Marnie Duncan, Benjamin J Whalley, Claire M Williams

**Study Type** : Animal Study

**Additional Links**

**Substances** : [Cannabinoids](#) : CK(816) : AC(310), [Cannabis](#) : CK(1776) : AC(408)



**Diseases** : Appetite Disorders: Loss/Lack of : CK(7) : AC(3)  
**Pharmacological Actions** : Appetite Stimulants : CK(10) : AC(1)  
**Additional Keywords** : Plant Extracts : CK(7645) : AC(2539)

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## A review of cannabis and cannabinoids and their benefits in many health conditions.

**Pubmed Data** : Clin Pharmacol Ther. 2015 Jun ;97(6):575-86. Epub 2015 Apr 17. PMID: [25777363](#)

**Article Published Date** : May 31, 2015

**Authors** : D I Abrams, M Guzman

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : AIDS : CK(79) : AC(13), Cachexia: Cancer : CK(50) : AC(15), Cancer: Pain : CK(55) : AC(8), Cancers: All : CK(14773) : AC(4596), Peripheral Neuropathies : CK(218) : AC(37)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Appetite Stimulants : CK(10) : AC(1), Chemopreventive : CK(2835) : AC(787)

**Additional Keywords** : Natural Substance/Drug Synergy : CK(352) : AC(142)

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## Cannabigerol is able to stimulate appetite in pre-satiated rats.

**Pubmed Data** : Psychopharmacology (Berl). 2016 Aug 9. Epub 2016 Aug 9. PMID: [27503475](#)

**Article Published Date** : Aug 08, 2016

**Authors** : Daniel I Brierley, James Samuels, Marnie Duncan, Benjamin J Whalley, Claire M Williams

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Cachexia : CK(77) : AC(25), Cachexia: Chemotherapy Induced : CK(8) : AC(4)

**Pharmacological Actions** : Appetite Stimulants : CK(10) : AC(1)

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# Autophagy Up-regulation (AC 8) (CK 14)

A growing amount of experimental data imply possible

## exploitation of cannabinoids in cancer therapy.

**Pubmed Data** : Onco Targets Ther. 2016 ;9:4323-36. Epub 2016 Jul 18. PMID: [27486335](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Maria Pyszniak, Jacek Tabarkiewicz, Jarogniew J Łuszczki

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Cancers: All : CK(14773) : AC(4596)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Anti-metastatic : CK(634) : AC(414), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Autophagy Up-regulation : CK(108) : AC(65), Cell cycle arrest : CK(810) : AC(612)

**Additional Keywords** : Endocannabinoid System : CK(60) : AC(23)

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## Cannabidiol could enhance the induction of autophagy pathway and antioxidant defense in the chronic phase of epilepsy,

**Pubmed Data** : J Mol Neurosci. 2016 Jan 6. Epub 2016 Jan 6. PMID: [26738731](#)

**Article Published Date** : Jan 05, 2016

**Authors** : Mahshid Hosseinzadeh, Sara Nikseresht, Fariba Khodagholi, Nima Naderi, Nader Maghsoudi

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Epilepsy : CK(255) : AC(66)

**Pharmacological Actions** : Anticonvulsants : CK(238) : AC(67), Antioxidants : CK(8430) : AC(3132), Autophagy Up-regulation : CK(108) : AC(65)

---

## Cannabidiol induces programmed cell death in breast cancer cells.

**Pubmed Data** : Antiviral Res. 2005 Nov;68(2):66-74. Epub 2005 Aug 9. PMID: [21566064](#)

**Article Published Date** : Nov 01, 2005

**Authors** : Ashutosh Shrivastava, Paula M Kuzontkoski, Jerome E Groopman, Anil Prasad

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Breast Cancer : CK(3592) : AC(1064)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075), Autophagy Up-regulation : CK(108) : AC(65)

---

## Cannabidiol protects mouse liver from acute alcohol-induced steatosis through multiple mechanisms.

**Pubmed Data** : Free Radic Biol Med. 2014 Mar ;68:260-7. Epub 2014 Jan 4. PMID: [24398069](#)

**Article Published Date** : Feb 28, 2014

**Authors** : Lili Yang, Raphael Rozenfeld, Defeng Wu, Lakshmi A Devi, Zhenfeng Zhang, Arthur Cederbaum

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Alcohol Toxicity : CK(337) : AC(125), Fatty Liver : CK(887) : AC(204), Oxidative Stress : CK(3871) : AC(1382)

**Pharmacological Actions** : Antioxidants : CK(8430) : AC(3132), Autophagy Up-regulation : CK(108) : AC(65), Autophagy Up-regulation : CK(108) : AC(65)

---

## Cannabinoids have anti-tumoral action against liver cancer.

**Pubmed Data** : Iran J Allergy Asthma Immunol. 2010 Sep;9(3):157-62. PMID: [21475304](#)

**Article Published Date** : Sep 01, 2010

**Authors** : D Vara, M Salazar, N Olea-Herrero, M Guzmán, G Velasco, I Díaz-Laviada

**Study Type** : Transgenic Animal Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Liver Cancer : CK(1235) : AC(462)

**Pharmacological Actions** : Anti-Tumor : CK(146) : AC(73), Autophagy Up-regulation : CK(108) : AC(65)

---

## There exists solid scientific evidence supporting that cannabinoids exhibit a remarkable anticancer activity in preclinical models of cancer.

**Pubmed Data** : Prog Neuropsychopharmacol Biol Psychiatry. 2016 Jan 4 ;64:259-66. Epub 2015 Jun 10. PMID: [26071989](#)

**Article Published Date** : Jan 03, 2016

**Authors** : Guillermo Velasco, Sonia Hernández-Tiedra, David Dávila, Mar Lorente

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Cancers: All : CK(14773) : AC(4596)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075), Autophagy Up-regulation : CK(108) : AC(65)

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## These findings describe a mechanism by which THC can promote the autophagic death of human and mouse cancer cells.

**Pubmed Data** : J Clin Invest. 2009 May ;119(5):1359-72. PMID: [19425170](#)

**Article Published Date** : Apr 30, 2009

**Authors** : María Salazar, Arkaitz Carracedo, Iñigo J Salanueva, Sonia Hernández-Tiedra, Mar Lorente, Ainara Egia, Patricia Vázquez, Cristina Blázquez, Sofía Torres, Stephane García, Jonathan Nowak, Gian María Fimia, Mauro Piacentini, Francesco Cecconi, Pier Paolo Pandolfi, Luis González-Feria, Juan L Iovanna, Manuel Guzmán, Patricia Boya, Guillermo Velasco

**Study Type** : Animal Study, Human In Vitro, In Vitro Study

### Additional Links

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Glioblastoma Multiforme : CK(200) : AC(88), Glioma : CK(177) : AC(86)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075), Autophagy Up-regulation : CK(108) : AC(65), Enzyme Inhibitors : CK(473) : AC(251)

---

## This review will center on mechanisms by which CBD, and other plant-derived cannabinoids inefficient at activating cannabinoid receptors, inhibit tumor cell viability, invasion, metastasis, angiogenesis.

**Pubmed Data** : J Neuroimmune Pharmacol. 2015 Jun ;10(2):255-67. Epub 2015 Apr 28. PMID: [25916739](#)

**Article Published Date** : May 31, 2015

**Authors** : Sean D McAllister, Liliana Soroceanu, Pierre-Yves Desprez

**Study Type** : Review

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Cancers: All : CK(14773) : AC(4596)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Anti-metastatic : CK(634) : AC(414), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Autophagy Up-regulation : CK(108) : AC(65)

**Additional Keywords** : Cancer Stem Cells : CK(135) : AC(88)

---

**Bronchodilator Agents (AC 1) (CK 10)**

## Cannabis reverses exercise-induced asthma and hyperinflation in subjects with clinically stable bronchial asthma.

**Pubmed Data** : Am Rev Respir Dis. 1975 Sep;112(3):377-86. PMID: [1099949](#)

**Article Published Date** : Sep 01, 1975

**Authors** : D P Tashkin, B J Shapiro, Y E Lee, C E Harper

**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Bronchial Asthma : CK(1265) : AC(194)

**Pharmacological Actions** : Bronchodilator Agents : CK(56) : AC(12)

---

## Calcium Channel Blockers (AC 1) (CK 2)

### Cannabinoids attenuate the effects of aging upon neuroinflammation and neurogenesis.

**Pubmed Data** : Neurobiol Dis. 2009 May ;34(2):300-7. PMID: [19385063](#)

**Article Published Date** : Apr 30, 2009

**Authors** : Yannick Marchalant, Holly M Brothers, Greg J Norman, Kate Karelina, A Courtney DeVries, Gary L Wenk

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Aging : CK(1658) : AC(438), Aging: Brain : CK(248) : AC(85), Brain Inflammation : CK(274) : AC(145)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Calcium Channel Blockers : CK(87) : AC(23), Neuritogenic : CK(133) : AC(59), Neuroprotective Agents : CK(2360) : AC(1099)

---

# Cannabinoid Receptor Antagonist/Inverse Agonist (AC 2) (CK 4)

## Cannabinoid receptor agonists HU210 and Delta(9)-tetrahydrocannabinol lowers the viability of translocation-positive rhabdomyosarcoma cells through the induction of apoptosis.

**Pubmed Data** : Mol Cancer Ther. 2009 Jul ;8(7):1838-45. Epub 2009 Jun 9. PMID: [19509271](#)

**Article Published Date** : Jun 30, 2009

**Authors** : Susanne Oesch, Dagmar Walter, Marco Wachtel, Kathya Pretre, Maria Salazar, Manuel Guzmán, Guillermo Velasco, Beat W Schäfer

**Study Type** : Animal Study, In Vitro Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33) , Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Rhabdomyosarcoma : CK(8) : AC(5)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Cannabinoid Receptor Antagonist/Inverse Agonist : CK(1) : AC(1) , Glycogen synthase kinase-3beta (GSK-3beta) Inhibitor : CK(14) : AC(4)

**Additional Keywords** : Chemotherapeutic Synergy: Cisplatin : CK(80) : AC(57) , Chemotherapeutic Synergy: Doxorubicin : CK(44) : AC(32)

---

## The discovery of IL-12-induced CB2 overexpression in thyroid cancer cells may offer a new target for anaplastic thyroid cancer treatment

**Pubmed Data** : Cancer Gene Ther. 2008 Feb ;15(2):101-7. Epub 2007 Dec 21. PMID: [18197164](#)

**Article Published Date** : Jan 31, 2008

**Authors** : Y Shi, M Zou, E Y Baitei, A S Alzahrani, R S Parhar, Z Al-Makhalafi, F A Al-Mohanna

**Study Type** : Animal Study, In Vitro Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33)

**Diseases** : Thyroid Cancer : CK(237) : AC(55)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075), Cannabinoid Receptor Antagonist/Inverse Agonist : CK(1) : AC(1), Chemosensitizer : CK(394) : AC(286)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37) , Chemotherapeutic Synergy:

## Cardioprotective (AC 7) (CK 13)

**A single ultra-low dose of THC before ischemia is a safe and effective treatment that reduces myocardial ischemic damage.**

**Pubmed Data** : Biochem Pharmacol. 2013 Jun 1 ;85(11):1626-33. Epub 2013 Mar 26. PMID: [23537701](#)

**Article Published Date** : May 31, 2013

**Authors** : M Waldman, E Hochhauser, M Fishbein, D Aravot, A Shainberg, Y Sarne

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Myocardial Infarction : CK(1101) : AC(162) , Myocardial Ischemia : CK(137) : AC(61)

**Pharmacological Actions** : Cardioprotective : CK(1596) : AC(409), Neuroprotective Agents : CK(2360) : AC(1099)

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**Acute administration of cannabidiol in vivo suppresses ischaemia-induced cardiac arrhythmias and reduces infarct size when given at reperfusion.**

**Pubmed Data** : Br J Pharmacol. 2010 Jul;160(5):1234-42. PMID: [20590615](#)

**Article Published Date** : Jul 01, 2010

**Authors** : Sarah K Walsh, Claire Y Hepburn, Kathleen A Kane, Cherry L Wainwright

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408)

**Diseases** : Cardiac Arrhythmias : CK(573) : AC(75), Myocardial Infarction : CK(1101) : AC(162) , Myocardial Ischemia : CK(137) : AC(61)

**Pharmacological Actions** : Cardioprotective : CK(1596) : AC(409)

---

**CBD exerts protective effects against Doxorubicin induced cardiotoxicity and cardiac dysfunction by attenuating**

## oxidative and nitrative stress.

**Pubmed Data** : Mol Med. 2015 Jan 6. Epub 2015 Jan 6. PMID: [25569804](#)

**Article Published Date** : Jan 05, 2015

**Authors** : Enkui Hao, Partha Mukhopadhyay, Zongxian Cao, Katalin Erdélyi, Eileen Holovac, Lucas Liaudet, Wen-Shin Lee, György Haskó, Raphael Mechoulam, Pál Pacher

**Study Type** : Animal Study, In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Chemotherapy-Induced Toxicity: Doxorubicin : CK(132) : AC(56) , Oxidative Stress : CK(3871) : AC(1382)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Cardioprotective : CK(1596) : AC(409), Chemoprotective Agents : CK(356) : AC(146) , Chemoprotective Agents : CK(356) : AC(146)

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## Cannabidiol represents a potential protective agent against doxorubicin cardiac injury.

**Pubmed Data** : Environ Toxicol Pharmacol. 2013 Sep ;36(2):347-57. Epub 2013 May 10. PMID: [23721741](#)

**Article Published Date** : Aug 31, 2013

**Authors** : Amr A Fouad, Waleed H Albuali, Abdulruhman S Al-Mulhim, Iyad Jresat

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Chemotherapy-Induced Toxicity: Doxorubicin : CK(132) : AC(56) , Oxidative Stress : CK(3871) : AC(1382)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Antioxidants : CK(8430) : AC(3132), Cardioprotective : CK(1596) : AC(409), Malondialdehyde Down-regulation : CK(554) : AC(152), NF-kappaB Inhibitor : CK(1114) : AC(694) , Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

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## Cannabidiol therapy reduced acute myocardial infarction size and facilitated restoration of left ventricular function.

**Pubmed Data** : J Cardiovasc Pharmacol. 2015 Oct ;66(4):354-63. PMID: [26065843](#)

**Article Published Date** : Sep 30, 2015

**Authors** : Yuanbo Feng, Feng Chen, Ting Yin, Qian Xia, Yewei Liu, Gang Huang, Jian Zhang, Raymond Oyen, Yicheng Ni

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Heart Attack : CK(1071) : AC(155) , Myocardial Infarction : CK(1101) : AC(162)



**Pharmacological Actions** : [Cardioprotective](#) : CK(1596) : AC(409)

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## Hempseed exhibits anti-atherogenic properties.

**Pubmed Data** : Acta Physiol Hung. 2011 Sep ;98(3):273-83. PMID: [21893466](#)

**Article Published Date** : Sep 01, 2011

**Authors** : N T Gavel, A L Edel, C M C Bassett, A-M Weber, M Merchant, D Rodriguez-Leyva, Grant N Pierce

**Study Type** : Animal Study

**Additional Links**

**Substances** : [Hemp Seed](#) : CK(446) : AC(5)

**Diseases** : [Atherosclerosis](#) : CK(601) : AC(150)

**Pharmacological Actions** : [Cardioprotective](#) : CK(1596) : AC(409)

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## This review supports the hypothesis that hempseed has the potential to beneficially influence heart disease.

**Pubmed Data** : Nutr Metab (Lond). 2010 ;7:32. Epub 2010 Apr 21. PMID: [20409317](#)

**Article Published Date** : Dec 31, 2009

**Authors** : Delfin Rodriguez-Leyva, Grant N Pierce

**Study Type** : Review

**Additional Links**

**Substances** : [Hemp Seed](#) : CK(446) : AC(5)

**Diseases** : [Cardiovascular Disease: Prevention](#) : CK(3250) : AC(433) , [Cardiovascular Diseases](#) : CK(7342) : AC(916)

**Pharmacological Actions** : [Cardioprotective](#) : CK(1596) : AC(409)

---

## Caspase-3 Activation (AC 3) (CK 3)

### Cannabidiol and cannabidiol-dimethylheptyl and exposure of the cells to gamma irradiation markedly enhanced apoptosis, reaching values of 93 and 95%.

**Pubmed Data** : Leuk Lymphoma. 2003 Oct ;44(10):1767-73. PMID: [14692532](#)

**Article Published Date** : Sep 30, 2003

**Authors** : Ruth Gallily, Tal Even-Chena, Galia Katzavian, Dan Lehmann, Arie Dagan, Raphael Mechoulam

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310)

**Diseases** : Acute Myeloid Leukemia : CK(95) : AC(47)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075), Caspase-3 Activation : CK(91) : AC(66)

**Additional Keywords** : Dose Response : CK(1056) : AC(408), Gamma Irradiation : CK(9) : AC(6), Radiation Synergy : CK(12) : AC(2)

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## Cannabidiol is cytotoxic to human glioma cells.

**Pubmed Data** : Cell Mol Life Sci. 2006 Sep;63(17):2057-66. PMID: [16909207](#)

**Article Published Date** : Sep 01, 2006

**Authors** : P Massi, A Vaccani, S Bianchessi, B Costa, P Macchi, D Parolaro

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Glioma : CK(177) : AC(86)

**Pharmacological Actions** : Anti-Proliferative : CK(59) : AC(52), Caspase-3 Activation : CK(91) : AC(66)

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## In the current study we demonstrated that cannabidiol can induce apoptosis in murine as well as human leukemia cells.

**Pubmed Data** : Mol Pharmacol. 2006 Sep ;70(3):897-908. Epub 2006 Jun 5. PMID: [16754784](#)

**Article Published Date** : Aug 31, 2006

**Authors** : Robert J McKallip, Wentao Jia, Jerome Schlomer, James W Warren, Prakash S Nagarkatti, Mitzi Nagarkatti

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Leukemia : CK(1005) : AC(398)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075), Caspase-3 Activation : CK(91) : AC(66), Caspase-8 activation : CK(27) : AC(6), Caspase-9 Activation : CK(30) : AC(19), NADPH Oxidase Inhibitors : CK(1) : AC(1)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

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**Caspase-8 activation (AC 1) (CK 1)**

## In the current study we demonstrated that cannabidiol can induce apoptosis in murine as well as human leukemia cells.

**Pubmed Data** : Mol Pharmacol. 2006 Sep ;70(3):897-908. Epub 2006 Jun 5. PMID: [16754784](#)

**Article Published Date** : Aug 31, 2006

**Authors** : Robert J McKallip, Wentao Jia, Jerome Schlomer, James W Warren, Prakash S Nagarkatti, Mitzi Nagarkatti

**Study Type** : In Vitro Study

### Additional Links

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Leukemia](#) : CK(1005) : AC(398)

**Pharmacological Actions** : [Apoptotic](#) : CK(2958) : AC(2075), [Caspase-3 Activation](#) : CK(91) : AC(66), [Caspase-8 activation](#) : CK(27) : AC(6), [Caspase-9 Activation](#) : CK(30) : AC(19), [NADPH Oxidase Inhibitors](#) : CK(1) : AC(1)

**Additional Keywords** : [Cannabinoid Receptors](#) : CK(67) : AC(37)

## Caspase-9 Activation (AC 1) (CK 1)

## In the current study we demonstrated that cannabidiol can induce apoptosis in murine as well as human leukemia cells.

**Pubmed Data** : Mol Pharmacol. 2006 Sep ;70(3):897-908. Epub 2006 Jun 5. PMID: [16754784](#)

**Article Published Date** : Aug 31, 2006

**Authors** : Robert J McKallip, Wentao Jia, Jerome Schlomer, James W Warren, Prakash S Nagarkatti, Mitzi Nagarkatti

**Study Type** : In Vitro Study

### Additional Links

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Leukemia](#) : CK(1005) : AC(398)

**Pharmacological Actions** : [Apoptotic](#) : CK(2958) : AC(2075), [Caspase-3 Activation](#) : CK(91) : AC(66), [Caspase-8 activation](#) : CK(27) : AC(6), [Caspase-9 Activation](#) : CK(30) : AC(19), [NADPH Oxidase Inhibitors](#) : CK(1) : AC(1)

**Additional Keywords** : [Cannabinoid Receptors](#) : CK(67) : AC(37)

## Catalase Up-Regulation (AC 2) (CK 4)

**A hemp seed meal protein hydrolysate contained antioxidant peptides that reduced the rate of lipid peroxidation in spontaneously hypertensive rats.**

**Pubmed Data** : Nutrients. 2014 Dec ;6(12):5652-66. PMID: [25493943](#)

**Article Published Date** : Nov 30, 2014

**Authors** : Abraham T Girgih, Adeola M Alashi, Rong He, Sunday A Malomo, Pema Raj, Thomas Netticadan, Rotimi E Aluko

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408), Hemp Seed : CK(446) : AC(5)

**Diseases** : Hypertension : CK(2984) : AC(406), Lipid Peroxidation : CK(695) : AC(255), Oxidative Stress : CK(3871) : AC(1382)

**Pharmacological Actions** : Antioxidants : CK(8430) : AC(3132), Catalase Up-Regulation : CK(118) : AC(42), Superoxide Dismutase Up-regulation : CK(530) : AC(174)

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**THC may provide a protective effect against oxidative damage induced by diabetes.**

**Pubmed Data** : Cell Biochem Funct. 2014 Oct ;32(7):612-9. Epub 2014 Sep 3. PMID: [25187240](#)

**Article Published Date** : Sep 30, 2014

**Authors** : Zeynep Mine Coskun, Sema Bolkent

**Study Type** : Animal Study

**Additional Links**

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Diabetes Mellitus: Type 2 : CK(3572) : AC(624), Oxidative Stress : CK(3871) : AC(1382)

**Pharmacological Actions** : Catalase Up-Regulation : CK(118) : AC(42), Superoxide Dismutase Up-regulation : CK(530) : AC(174)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

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## Cell cycle arrest (AC 10) (CK 12)

**A growing amount of experimental data imply possible**

## exploitation of cannabinoids in cancer therapy.

**Pubmed Data** : Onco Targets Ther. 2016 ;9:4323-36. Epub 2016 Jul 18. PMID: [27486335](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Maria Pyszniak, Jacek Tabarkiewicz, Jarogniew J Łuszczki

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Cancers: All : CK(14773) : AC(4596)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Anti-metastatic : CK(634) : AC(414), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Autophagy Up-regulation : CK(108) : AC(65), Cell cycle arrest : CK(810) : AC(612)

**Additional Keywords** : Endocannabinoid System : CK(60) : AC(23)

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## Cannabidiol by itself or in synergy with bortezomib strongly inhibited growth, arrested cell cycle progression and induced multiple myeloma cell death.

**Pubmed Data** : Int J Cancer. 2014 Jun 1 ;134(11):2534-46. Epub 2013 Dec 2. PMID: [24293211](#)

**Article Published Date** : May 31, 2014

**Authors** : Maria Beatrice Morelli, Massimo Offidani, Francesco Alesiani, Giancarlo Discepoli, Sonia Liberati, Attilio Olivieri, Matteo Santoni, Giorgio Santoni, Pietro Leoni, Massimo Nabissi

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Multiple Myeloma : CK(227) : AC(75)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Cell cycle arrest : CK(810) : AC(612), NF-kappaB Inhibitor : CK(1114) : AC(694)

**Additional Keywords** : Natural Substance/Drug Synergy : CK(352) : AC(142)

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## Cannabidiol enhanced the ability of THC to inhibit cell proliferation, induce cell cycle arrest and apoptosis.

**Pubmed Data** : Mol Cancer Ther. 2010 Jan ;9(1):180-9. Epub 2010 Jan 6. PMID: [20053780](#)

**Article Published Date** : Dec 31, 2009

**Authors** : Jahan P Marcu, Rigel T Christian, Darryl Lau, Anne J Zielinski, Maxx P Horowitz, Jasmine Lee, Arash Pakdel, Juanita Allison, Chandani Limbad, Dan H Moore, Garret L Yount, Pierre-Yves Desprez, Sean D McAllister

**Study Type** : Animal Study, In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Cancer Metastasis : CK(442) : AC(206), Glioblastoma : CK(200) : AC(88)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Cell cycle arrest : CK(810) : AC(612)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37), Natural Substance Synergy : CK(540) : AC(249)

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## Cannabinoids inhibit the growth of melanoma cells but not of normal melanocytes.

**Pubmed Data** : FASEB J. 2006 Dec ;20(14):2633-5. Epub 2006 Oct 25. PMID: [17065222](#)

**Article Published Date** : Nov 30, 2006

**Authors** : Cristina Blázquez, Arkaitz Carracedo, Lucía Barrado, Pedro José Real, José Luis Fernández-Luna, Guillermo Velasco, Marcos Malumbres, Manuel Guzmán

**Study Type** : Animal Study, In Vitro Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33)

**Diseases** : Melanoma : CK(285) : AC(149)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Anti-metastatic : CK(634) : AC(414), Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Cell cycle arrest : CK(810) : AC(612), Chemotherapeutic : CK(397) : AC(152)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37), Selective Cytotoxicity : CK(158) : AC(112)

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## Cannabinoids prevent proliferation and cause apoptosis via a combination of cannabinoid receptor-independent, cellular and molecular mechanisms.

**Pubmed Data** : Br J Pharmacol. 2013 Jan ;168(1):79-102. PMID: [22594963](#)

**Article Published Date** : Dec 31, 2012

**Authors** : Luciano De Petrocellis, Alessia Ligresti, Aniello Schiano Moriello, Mariagrazia Iappelli, Roberta Verde, Colin G Stott, Luigia Cristino, Pierangelo Orlando, Vincenzo Di Marzo

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310)

**Diseases** : Prostate Cancer : CK(1586) : AC(463)

**Pharmacological Actions** : Anti-Androgen : CK(60) : AC(18), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Cell cycle arrest : CK(810) : AC(612)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

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## Cannabinoids work synergistically with paclitaxel in gastric cancer cell lines.

**Pubmed Data** : J Surg Res. 2009 Jul;155(1):40-7. Epub 2008 Aug 9. PMID: [19394652](#)

**Article Published Date** : Jul 01, 2009

**Authors** : Hideyo Miyato, Joji Kitayama, Hiroharu Yamashita, Daisuke Souma, Masahiro Asakage, Jun Yamada, Hirokazu Nagawa

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Gastric Cancer : CK(622) : AC(198)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Cell cycle arrest : CK(810) : AC(612) , Chemosensitizer : CK(394) : AC(286)

**Additional Keywords** : Drug: Paclitaxel : CK(36) : AC(13) , Drug Synergy : CK(351) : AC(156)

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## **Cannabisin B, a bioactive compound from hempseed hull, possesses antiproliferative activity in human hepatocarcinoma HepG2 cells.**

**Pubmed Data** : Food Chem. 2013 Jun 1 ;138(2-3):1034-41. Epub 2012 Dec 5. PMID: [23411211](#)

**Article Published Date** : May 31, 2013

**Authors** : Tianpeng Chen, Jianxiong Hao, Jinfeng He, Jianchun Zhang, Yingcong Li, Rui Liu, Lite Li

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408), Hemp Seed : CK(446) : AC(5)

**Diseases** : Liver Cancer : CK(1235) : AC(462)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Cell cycle arrest : CK(810) : AC(612), Chemopreventive : CK(2835) : AC(787)

**Additional Keywords** : Dose Response : CK(1056) : AC(408), Plant Extracts : CK(7645) : AC(2539)

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## **Delta 9-tetrahydrocannabinol inhibits glioblastoma multiforme cells.**

**Pubmed Data** : Acta Oncol. 2008;47(6):1062-70. PMID: [17934890](#)

**Article Published Date** : Jan 01, 2008

**Authors** : Gil Galanti, Tamar Fisher, Iris Kventsel, Jacob Shoham, Ruth Gallily, Raphael Mechoulam, Gad Lavie, Ninette Amariglio, Gideon Rechavi, Amos Toren

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Glioblastoma : CK(200) : AC(88), Glioblastoma Multiforme : CK(200) : AC(88)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639) , Antiproliferative : CK(2546) : AC(1685), Cell cycle arrest : CK(810) : AC(612)

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## **The cannabinoid quinone HU-331 is a highly specific**

## inhibitor of topoisomerase II.

**Pubmed Data** : Mol Cancer Ther. 2007 Jan ;6(1):173-83. PMID: [17237277](#)

**Article Published Date** : Dec 31, 2006

**Authors** : Natalya M Kogan, Michael Schlesinger, Esther Priel, Ruth Rabinowitz, Eduard Berenshtein, Mordechai Chevion, Raphael Mechoulam

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids: Synthetic : CK(78) : AC(33)

**Diseases** : Colorectal Cancer : CK(1646) : AC(619)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639), Cell cycle arrest : CK(810) : AC(612), Chemotherapeutic : CK(397) : AC(152), Paraptosis : CK(1) : AC(1), Topoisomerase II Inhibitor : CK(3) : AC(3)

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## The present study demonstrates in vitro anticancer activity of CB derivatives on the poorly differentiated pancreatic cancer cell line MIA PaCa-2.

**Pubmed Data** : FEBS Lett. 2006 Mar 20 ;580(7):1733-9. Epub 2006 Feb 20. PMID: [16500647](#)

**Article Published Date** : Mar 19, 2006

**Authors** : Stefano Fogli, Paola Nieri, Andrea Chicca, Barbara Adinolfi, Veronica Mariotti, Paola Iacopetti, Maria Cristina Breschi, Silvia Pellegrini

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Pancreatic Cancer : CK(890) : AC(260)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Cell cycle arrest : CK(810) : AC(612)

**Additional Keywords** : Gene Expression Regulation : CK(431) : AC(214), Natural Substance/Drug Synergy : CK(352) : AC(142)

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## Chemopreventive (AC 5) (CK 16)

### A review of cannabis and cannabinoids and their benefits in many health conditions.

**Pubmed Data** : Clin Pharmacol Ther. 2015 Jun ;97(6):575-86. Epub 2015 Apr 17. PMID: [25777363](#)

**Article Published Date** : May 31, 2015

**Authors** : D I Abrams, M Guzman



**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : AIDS : CK(79) : AC(13), Cachexia: Cancer : CK(50) : AC(15), Cancer: Pain : CK(55) : AC(8), Cancers: All : CK(14773) : AC(4596), Peripheral Neuropathies : CK(218) : AC(37)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Appetite Stimulants : CK(10) : AC(1), Chemopreventive : CK(2835) : AC(787)

**Additional Keywords** : Natural Substance/Drug Synergy : CK(352) : AC(142)

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## **Cannabidiol protected DNA from oxidative damage, increased endocannabinoid levels and reduced cell proliferation.**

**Pubmed Data** : J Mol Med (Berl). 2012 Aug ;90(8):925-34. Epub 2012 Jan 10. PMID: [22231745](#)

**Article Published Date** : Jul 31, 2012

**Authors** : Gabriella Aviello, Barbara Romano, Francesca Borrelli, Raffaele Capasso, Laura Gallo, Fabiana Piscitelli, Vincenzo Di Marzo, Angelo A Izzo

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Colon Cancer : CK(749) : AC(430)

**Pharmacological Actions** : Anticarcinogenic Agents : CK(1099) : AC(519), Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Chemopreventive : CK(2835) : AC(787)

**Additional Keywords** : Endocannabinoid System : CK(60) : AC(23)

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## **Cannabisin B, a bioactive compound from hempseed hull, possesses antiproliferative activity in human hepatocarcinoma HepG2 cells.**

**Pubmed Data** : Food Chem. 2013 Jun 1 ;138(2-3):1034-41. Epub 2012 Dec 5. PMID: [23411211](#)

**Article Published Date** : May 31, 2013

**Authors** : Tianpeng Chen, Jianxiong Hao, Jinfeng He, Jianchun Zhang, Yingcong Li, Rui Liu, Lite Li

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408), Hemp Seed : CK(446) : AC(5)

**Diseases** : Liver Cancer : CK(1235) : AC(462)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Cell cycle arrest : CK(810) : AC(612), Chemopreventive : CK(2835) : AC(787)

**Additional Keywords** : Dose Response : CK(1056) : AC(408), Plant Extracts : CK(7645) : AC(2539)

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## **Moderate marijuana use is associated with reduced risk**

## of head and neck squamous cell carcinoma.

**Pubmed Data** : Cancer Prev Res (Phila Pa). 2009 Aug;2(8):759-68. Epub 2009 Jul 28. PMID: [19638490](#)

**Article Published Date** : Aug 01, 2009

**Authors** : Caihua Liang, Michael D McClean, Carmen Marsit, Brock Christensen, Edward Peters, Heather H Nelson, Karl T Kelsey

**Study Type** : Human Study

### Additional Links

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Head and Neck Cancer : CK(165) : AC(44)

**Pharmacological Actions** : Chemopreventive : CK(2835) : AC(787)

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## The antitumorigenic effects of O-1602 are multiple in that it reduces viability and proliferation of cancer cells and further promotes their apoptosis.

**Pubmed Data** : J Mol Med (Berl). 2013 Apr ;91(4):449-58. Epub 2012 Sep 11. PMID: [22965195](#)

**Article Published Date** : Mar 31, 2013

**Authors** : Julia Kargl, Johannes Haybaeck, Angela Stančić, Liisa Andersen, Gunther Marsche, Akos Heinemann, Rudolf Schicho

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Colitis : CK(255) : AC(111), Colon Cancer : CK(749) : AC(430)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Chemopreventive : CK(2835) : AC(787), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

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## Chemoprotective Agents (AC 2) (CK 4)

### CBD exerts protective effects against Doxorubicin induced cardiotoxicity and cardiac dysfunction by attenuating oxidative and nitrative stress.

**Pubmed Data** : Mol Med. 2015 Jan 6. Epub 2015 Jan 6. PMID: [25569804](#)

**Article Published Date** : Jan 05, 2015

**Authors** : Enkui Hao, Partha Mukhopadhyay, Zongxian Cao, Katalin Erdélyi, Eileen Holovac, Lucas

Liaudet, Wen-Shin Lee, György Haskó, Raphael Mechoulam, Pál Pacher

**Study Type** : Animal Study, In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Chemotherapy-Induced Toxicity: Doxorubicin : CK(132) : AC(56) , Oxidative Stress : CK(3871) : AC(1382)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Cardioprotective : CK(1596) : AC(409), Chemoprotective Agents : CK(356) : AC(146) , Chemoprotective Agents : CK(356) : AC(146)

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## Cannabidiol may represent a promising new protective strategy against cisplatin-induced nephrotoxicity.

**Pubmed Data** : J Pharmacol Exp Ther. 2009 Mar ;328(3):708-14. Epub 2008 Dec 12. PMID: [19074681](#)

**Article Published Date** : Feb 28, 2009

**Authors** : Hao Pan, Partha Mukhopadhyay, Mohanraj Rajesh, Vivek Patel, Bani Mukhopadhyay, Bin Gao, György Haskó, Pál Pacher

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Chemotherapy-Induced Toxicity: Cisplatin : CK(319) : AC(133) , Inflammation : CK(3240) : AC(882), Oxidative Stress : CK(3871) : AC(1382)

**Pharmacological Actions** : Chemoprotective Agents : CK(356) : AC(146)

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## Chemosensitizer (AC 4) (CK 5)

### Cannabinoids synergize with carfilzomib, reducing multiple myeloma cells viability and migration.

**Pubmed Data** : Oncotarget. 2016 Oct 18. Epub 2016 Aug 18. PMID: [27769052](#)

**Article Published Date** : Oct 17, 2016

**Authors** : Massimo Nabissi, Maria Beatrice Morelli, Massimo Offidani, Consuelo Amantini, Silvia Gentili, Alessandra Soriani, Claudio Cardinali, Pietro Leoni, Giorgio Santoni

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Multiple Myeloma : CK(227) : AC(75)

**Pharmacological Actions** : Chemosensitizer : CK(394) : AC(286)

**Additional Keywords** : Dose Response : CK(1056) : AC(408), Natural Substance/Drug Synergy : CK(352) : AC(142)

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## Cannabinoids work synergistically with paclitaxel in gastric cancer cell lines.

**Pubmed Data** : J Surg Res. 2009 Jul;155(1):40-7. Epub 2008 Aug 9. PMID: [19394652](#)

**Article Published Date** : Jul 01, 2009

**Authors** : Hideyo Miyato, Joji Kitayama, Hiroharu Yamashita, Daisuke Souma, Masahiro Asakage, Jun Yamada, Hirokazu Nagawa

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Gastric Cancer : CK(622) : AC(198)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Cell cycle arrest : CK(810) : AC(612), Chemosensitizer : CK(394) : AC(286)

**Additional Keywords** : Drug: Paclitaxel : CK(36) : AC(13), Drug Synergy : CK(351) : AC(156)

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## Co-administration of cytotoxic agents together with CBD increases drug uptake and potentiates cytotoxic activity in human glioma cells.

**Pubmed Data** : Carcinogenesis. 2013 Jan ;34(1):48-57. Epub 2012 Oct 18. PMID: [23079154](#)

**Article Published Date** : Dec 31, 2012

**Authors** : Massimo Nabissi, Maria Beatrice Morelli, Matteo Santoni, Giorgio Santoni

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Glioblastoma Multiforme : CK(200) : AC(88)

**Pharmacological Actions** : Chemosensitizer : CK(394) : AC(286)

**Additional Keywords** : Natural Substance/Drug Synergy : CK(352) : AC(142)

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## The discovery of IL-12-induced CB2 overexpression in thyroid cancer cells may offer a new target for anaplastic thyroid cancer treatment

**Pubmed Data** : Cancer Gene Ther. 2008 Feb ;15(2):101-7. Epub 2007 Dec 21. PMID: [18197164](#)

**Article Published Date** : Jan 31, 2008

**Authors** : Y Shi, M Zou, E Y Baitei, A S Alzahrani, R S Parhar, Z Al-Makhalafi, F A Al-Mohanna

**Study Type** : Animal Study, In Vitro Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33)

**Diseases** : Thyroid Cancer : CK(237) : AC(55)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075), Cannabinoid Receptor Antagonist/Inverse Agonist : CK(1) : AC(1), Chemosensitizer : CK(394) : AC(286)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37), Chemotherapeutic Synergy: Paclitaxel : CK(32) : AC(23)

## Chemotherapeutic (AC 4) (CK 5)

### Cannabinoids inhibit the growth of melanoma cells but not of normal melanocytes.

**Pubmed Data** : FASEB J. 2006 Dec ;20(14):2633-5. Epub 2006 Oct 25. PMID: [17065222](#)

**Article Published Date** : Nov 30, 2006

**Authors** : Cristina Blázquez, Arkaitz Carracedo, Lucía Barrado, Pedro José Real, José Luis Fernández-Luna, Guillermo Velasco, Marcos Malumbres, Manuel Guzmán

**Study Type** : Animal Study, In Vitro Study

#### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33)

**Diseases** : Melanoma : CK(285) : AC(149)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Anti-metastatic : CK(634) : AC(414), Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Cell cycle arrest : CK(810) : AC(612), Chemotherapeutic : CK(397) : AC(152)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37), Selective Cytotoxicity : CK(158) : AC(112)

### Cannabinoids may be promising tools in combination therapy for breast and prostate cancers.

**Pubmed Data** : Expert Opin Investig Drugs. 2016 Nov ;25(11):1311-1323. Epub 2016 Aug 28. PMID: [27633508](#)

**Article Published Date** : Oct 31, 2016

**Authors** : A I Fraguas-Sánchez, A Fernández-Carballido, A I Torres-Suárez

**Study Type** : Review

#### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33), Endocannabinoids : CK(9) : AC(1)

**Diseases** : Breast Cancer : CK(3592) : AC(1064), Prostate Cancer : CK(1586) : AC(463)

**Pharmacological Actions** : Chemotherapeutic : CK(397) : AC(152)

## Targeting calcium signaling in cancer therapy.

**Pubmed Data** : Acta Pharm Sin B. 2017 Jan ;7(1):3-17. Epub 2016 Dec 13. PMID: [28119804](#)

**Article Published Date** : Dec 31, 2016

**Authors** : Chaochu Cui, Robert Merritt, Liwu Fu, Zui Pan

**Study Type** : Review

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310)

**Diseases** : Cancers: All : CK(14773) : AC(4596)

**Pharmacological Actions** : Chemotherapeutic : CK(397) : AC(152)

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## The cannabinoid quinone HU-331 is a highly specific inhibitor of topoisomerase II.

**Pubmed Data** : Mol Cancer Ther. 2007 Jan ;6(1):173-83. PMID: [17237277](#)

**Article Published Date** : Dec 31, 2006

**Authors** : Natalya M Kogan, Michael Schlesinger, Esther Priel, Ruth Rabinowitz, Eduard Berenshtein, Mordechai Chevion, Raphael Mechoulam

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids: Synthetic : CK(78) : AC(33)

**Diseases** : Colorectal Cancer : CK(1646) : AC(619)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639), Cell cycle arrest : CK(810) : AC(612), Chemotherapeutic : CK(397) : AC(152), Paraptosis : CK(1) : AC(1), Topoisomerase II Inhibitor : CK(3) : AC(3)

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# Cyclooxygenase 1 Inhibitor (AC 1) (CK 1)

## Cannabinoids may have a role to play in arthritis prevention and treatment.

**Pubmed Data** : J Pharm Pharmacol. 2006 Mar ;58(3):351-8. PMID: [16536902](#)

**Article Published Date** : Feb 28, 2006

**Authors** : Estery C Mbvundula, Rowena A D Bunning, K D Rainsford

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Arthritis : CK(1964) : AC(312)

**Pharmacological Actions** : Cyclooxygenase 1 Inhibitor : CK(34) : AC(27) , Cyclooxygenase 2 Inhibitors : CK(464) : AC(272)

## Cyclooxygenase 2 Inhibitors (AC 4) (CK 8)

**Cannabidiolic acid abrogates the expression of COX-2 via the selective down-regulation of c-fos.**

**Pubmed Data** : J Nat Med. 2016 Aug 16. Epub 2016 Aug 16. PMID: [27530354](#)

**Article Published Date** : Aug 15, 2016

**Authors** : Shuso Takeda, Taichi Himeno, Kazuhiro Kakizoe, Hiroyuki Okazaki, Tomoko Okada, Kazuhito Watanabe, Hironori Aramaki

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Breast Cancer: Triple Negative : CK(262) : AC(144)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414), Cyclooxygenase 2 Inhibitors : CK(464) : AC(272)

**Cannabidiolic acid an active component in the cannabis plant offers potential therapeutic modality in the abrogation of cancer cell migration.**

**Pubmed Data** : Toxicol Lett. 2012 Nov 15 ;214(3):314-9. Epub 2012 Sep 8. PMID: [22963825](#)

**Article Published Date** : Nov 14, 2012

**Authors** : Shuso Takeda, Shunsuke Okajima, Hiroko Miyoshi, Kazutaka Yoshida, Yoshiko Okamoto, Tomoko Okada, Toshiaki Amamoto, Kazuhito Watanabe, Curtis J Omiecinski, Hironori Aramaki

**Study Type** : Human In Vitro

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Breast Cancer : CK(3592) : AC(1064) , Breast Cancer: Triple Negative : CK(262) : AC(144)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414), Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Cyclooxygenase 2 Inhibitors : CK(464) : AC(272) , Enzyme Inhibitors : CK(473) : AC(251)

## Cannabidiolic acid had dual inhibitory effects on COX-2 through down-regulation and enzyme inhibition, and may suppress genes that are positively involved in the metastasis of cancer cells in vitro.

**Pubmed Data** : J Toxicol Sci. 2014 ;39(5):711-6. PMID: [25242400](#)

**Article Published Date** : Dec 31, 2013

**Authors** : Shuso Takeda, Hiroyuki Okazaki, Eriko Ikeda, Satomi Abe, Yasushi Yoshioka, Kazuhito Watanabe, Hironori Aramaki

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Breast Cancer : CK(3592) : AC(1064) , Breast Cancer: Metastatic : CK(123) : AC(52) , Breast Cancer: Triple Negative : CK(262) : AC(144)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414) , Cyclooxygenase 2 Inhibitors : CK(464) : AC(272) , Enzyme Inhibitors : CK(473) : AC(251)

**Additional Keywords** : Gene Expression Regulation : CK(431) : AC(214)

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## Cannabinoids may have a role to play in arthritis prevention and treatment.

**Pubmed Data** : J Pharm Pharmacol. 2006 Mar ;58(3):351-8. PMID: [16536902](#)

**Article Published Date** : Feb 28, 2006

**Authors** : Estery C Mbvundula, Rowena A D Bunning, K D Rainsford

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Arthritis : CK(1964) : AC(312)

**Pharmacological Actions** : Cyclooxygenase 1 Inhibitor : CK(34) : AC(27) , Cyclooxygenase 2 Inhibitors : CK(464) : AC(272)

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# Cyclooxygenase Inhibitors (AC 1) (CK 1)

## Cannabinoids have cyclooxygenase inhibitory properties.

**Pubmed Data** : Biol Pharm Bull. 2011;34(5):774-8. PMID: [21532172](#)



**Article Published Date** : Jan 01, 2011

**Authors** : Lucia Renee Ruhaak, Jenny Felth, Pernilla Christina Karlsson, Joseph James Rafter, Robert Verpoorte, Lars Bohlin

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338), [Cannabinoids](#) : CK(816) : AC(310)

**Diseases** : [Inflammation](#) : CK(3240) : AC(882)

**Pharmacological Actions** : [Anti-Inflammatory Agents](#) : CK(4861) : AC(1630), [Cyclooxygenase Inhibitors](#) : CK(71) : AC(39)

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## Cytotoxic (AC 2) (CK 3)

**A nanoformulation of THC revealed a statistically significant selective cytotoxic effect towards lung cancer cell lines.**

**Pubmed Data** : Int J Pharm. 2015 Jun 20 ;487(1-2):205-12. Epub 2015 Apr 18. PMID: [25899283](#)

**Article Published Date** : Jun 19, 2015

**Authors** : L Martín-Banderas, I Muñoz-Rubio, J Prados, J Álvarez-Fuentes, J M Calderón-Montaño, M López-Lázaro, J L Arias, M C Leiva, M A Holgado, M Fernández-Arévalo

**Study Type** : Animal Study, In Vitro Study

**Additional Links**

**Substances** : [Delta-tetrahydrocannabinol \(THC\)](#) : CK(1135) : AC(342)

**Diseases** : [Lung Cancer](#) : CK(1043) : AC(393)

**Pharmacological Actions** : [Cytotoxic](#) : CK(76) : AC(60)

**Additional Keywords** : [Nanoparticles](#) : CK(2) : AC(1), [Selective Cytotoxicity](#) : CK(158) : AC(112)

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**Heat shock protein inhibition potentiates the cytotoxic effects of Cannabidiol in glioma cell lines.**

**Pubmed Data** : Anticancer Res. 2015 Nov ;35(11):5827-37. PMID: [26504004](#)

**Article Published Date** : Oct 31, 2015

**Authors** : Katherine A Scott, Jayne L Dennis, Angus G Dalglish, Wai M Liu

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Glioma](#) : CK(177) : AC(86)

**Pharmacological Actions** : [Cytotoxic](#) : CK(76) : AC(60)

## Enzyme Activators (AC 1) (CK 2)

**CBD leads to improvement in fracture healing and demonstrate the critical mechanical role of collagen crosslinking enzymes.**

**Pubmed Data** : J Bone Miner Res. 2015 Mar 19. Epub 2015 Mar 19. PMID: [25801536](#)

**Article Published Date** : Mar 18, 2015

**Authors** : Natalya M Kogan, Eitan Melamed, Elad Wasserman, Bitya Raphael, Aviva Breuer, Kathryn S Stok, Rachel Sondergaard, Ana V Villarreal Escudero, Saja Baraghithy, Malka Attar-Namdar, Silvina Friedlander-Barenboim, Neashan Mathavan, Hanna Isaksson, Raphael Mechoulam, Ralph Müller, Alon Bajayo, Yankel Gabet, Itai Bab

**Study Type** : Animal Study

**Additional Links**

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Bone Fractures](#) : CK(514) : AC(78)

**Pharmacological Actions** : [Enzyme Activators](#) : CK(4) : AC(2)

## Enzyme Inhibitors (AC 4) (CK 13)

**Cannabidiol has a neuroprotective effect in endotoxin-induced uveitis.**

**Pubmed Data** : Mol Vis. 2008;14:2190-203. Epub 2008 Dec 3. PMID: [19052649](#)

**Article Published Date** : Jan 01, 2008

**Authors** : A B El-Remessy, Y Tang, G Zhu, S Matragoon, Y Khalifa, E K Liu, J-Y Liu, E Hanson, S Mian, N Fatteh, G I Liou

**Study Type** : Animal Study

**Additional Links**

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338), [Cannabis](#) : CK(1776) : AC(408)

**Diseases** : [Brain: Microglial Activation](#) : CK(82) : AC(53), [Endotoxemia](#) : CK(83) : AC(43),

[Lipopolysaccharide-Induced Toxicity](#) : CK(380) : AC(218), [Oxidative Stress](#) : CK(3871) : AC(1382),

[Uveitis](#) : CK(91) : AC(17)

**Pharmacological Actions** : Enzyme Inhibitors : CK(473) : AC(251), Neuroprotective Agents : CK(2360) : AC(1099), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

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## **Cannabidiolic acid an active component in the cannabis plant offers potential therapeutic modality in the abrogation of cancer cell migration.**

**Pubmed Data** : Toxicol Lett. 2012 Nov 15 ;214(3):314-9. Epub 2012 Sep 8. PMID: [22963825](#)

**Article Published Date** : Nov 14, 2012

**Authors** : Shuso Takeda, Shunsuke Okajima, Hiroko Miyoshi, Kazutaka Yoshida, Yoshiko Okamoto, Tomoko Okada, Toshiaki Amamoto, Kazuhito Watanabe, Curtis J Omiecinski, Hironori Aramaki

**Study Type** : Human In Vitro

### **Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Breast Cancer : CK(3592) : AC(1064), Breast Cancer: Triple Negative : CK(262) : AC(144)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414), Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Cyclooxygenase 2 Inhibitors : CK(464) : AC(272), Enzyme Inhibitors : CK(473) : AC(251)

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## **Cannabidiolic acid had dual inhibitory effects on COX-2 through down-regulation and enzyme inhibition, and may suppress genes that are positively involved in the metastasis of cancer cells in vitro.**

**Pubmed Data** : J Toxicol Sci. 2014 ;39(5):711-6. PMID: [25242400](#)

**Article Published Date** : Dec 31, 2013

**Authors** : Shuso Takeda, Hiroyuki Okazaki, Eriko Ikeda, Satomi Abe, Yasushi Yoshioka, Kazuhito Watanabe, Hironori Aramaki

**Study Type** : In Vitro Study

### **Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Breast Cancer : CK(3592) : AC(1064), Breast Cancer: Metastatic : CK(123) : AC(52), Breast Cancer: Triple Negative : CK(262) : AC(144)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414), Cyclooxygenase 2 Inhibitors : CK(464) : AC(272), Enzyme Inhibitors : CK(473) : AC(251)

**Additional Keywords** : Gene Expression Regulation : CK(431) : AC(214)

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## **These findings describe a mechanism by which THC can promote the autophagic death of human and mouse cancer cells.**

**Pubmed Data** : J Clin Invest. 2009 May ;119(5):1359-72. PMID: [19425170](#)

**Article Published Date** : Apr 30, 2009

**Authors** : María Salazar, Arkaitz Carracedo, Iñigo J Salanueva, Sonia Hernández-Tiedra, Mar Lorente, Ainara Egia, Patricia Vázquez, Cristina Blázquez, Sofía Torres, Stephane García, Jonathan Nowak, Gian María Fimia, Mauro Piacentini, Francesco Cecconi, Pier Paolo Pandolfi, Luis González-Feria, Juan L Iovanna, Manuel Guzmán, Patricia Boya, Guillermo Velasco

**Study Type** : Animal Study, Human In Vitro, In Vitro Study

**Additional Links**

**Substances** : [Delta-tetrahydrocannabinol \(THC\)](#) : CK(1135) : AC(342)

**Diseases** : [Glioblastoma Multiforme](#) : CK(200) : AC(88), [Glioma](#) : CK(177) : AC(86)

**Pharmacological Actions** : [Apoptotic](#) : CK(2958) : AC(2075), [Autophagy Up-regulation](#) : CK(108) : AC(65), [Enzyme Inhibitors](#) : CK(473) : AC(251)

## Epidermal growth factor receptor (EGFR) inhibitor (AC 1) (CK 2)

**CBD can be used as a novel therapeutic option to inhibit growth and metastasis of highly aggressive breast cancer subtypes including TNBC.**

**Pubmed Data** : Mol Oncol. 2015 Apr ;9(4):906-19. Epub 2015 Jan 19. PMID: [25660577](#)

**Article Published Date** : Mar 31, 2015

**Authors** : Mohamad Elbaz, Mohd W Nasser, Janani Ravi, Nissar A Wani, Dinesh K Ahirwar, Helong Zhao, Steve Oghumu, Abhay R Satoskar, Konstantin Shilo, William E Carson, Ramesh K Ganju

**Study Type** : Animal Study, In Vitro Study

**Additional Links**

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Breast Cancer](#) : CK(3592) : AC(1064), [Breast Cancer: Triple Negative](#) : CK(262) : AC(144)

**Pharmacological Actions** : [Anti-metastatic](#) : CK(634) : AC(414), [Antiproliferative](#) : CK(2546) :

[AC\(1685\)](#), [Epidermal growth factor receptor \(EGFR\) inhibitor](#) : CK(65) : AC(41), [Matrix metalloproteinase-2 \(MMP-2\) inhibitor](#) : CK(287) : AC(147), [Matrix metalloproteinase-9 \(MMP-9\) inhibitor](#) : CK(212) : AC(128), [NF-kappaB Inhibitor](#) : CK(1114) : AC(694)

## Gastrointestinal Agents (AC 1) (CK 1)

## Cannabis and cannabinoids can protect the gastric mucosa against noxious challenge.

**Pubmed Data** : Asian Pac J Trop Med. 2016 May ;9(5):413-9. Epub 2016 Apr 15. PMID: [27261847](#)

**Article Published Date** : Apr 30, 2016

**Authors** : Omar Abdel-Salam

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Alcohol Toxicity : CK(337) : AC(125)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Antioxidants : CK(8430) : AC(3132), Gastrointestinal Agents : CK(268) : AC(41), Gastroprotective : CK(155) : AC(73)

**Additional Keywords** : Endocannabinoid System : CK(60) : AC(23)

**Problem Substances** : Non-Steroidal Anti-Inflammatory Drugs (NSAIDs) : CK(1905) : AC(215)

## Gastroprotective (AC 1) (CK 1)

## Cannabis and cannabinoids can protect the gastric mucosa against noxious challenge.

**Pubmed Data** : Asian Pac J Trop Med. 2016 May ;9(5):413-9. Epub 2016 Apr 15. PMID: [27261847](#)

**Article Published Date** : Apr 30, 2016

**Authors** : Omar Abdel-Salam

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Alcohol Toxicity : CK(337) : AC(125)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Antioxidants : CK(8430) : AC(3132), Gastrointestinal Agents : CK(268) : AC(41), Gastroprotective : CK(155) : AC(73)

**Additional Keywords** : Endocannabinoid System : CK(60) : AC(23)

**Problem Substances** : Non-Steroidal Anti-Inflammatory Drugs (NSAIDs) : CK(1905) : AC(215)

## Glycine Agents (AC 1) (CK 2)

## Cannabinoid potentiation of glycine receptors contributes to cannabis-induced analgesia.

**Pubmed Data** : Nat Chem Biol. 2011 May;7(5):296-303. Epub 2011 Apr 3. PMID: [21460829](#)

**Article Published Date** : May 01, 2011

**Authors** : Wei Xiong, Kejun Cheng, Tanxing Cui, Grzegorz Godlewski, Kenner C Rice, Yan Xu, Li Zhang

**Study Type** : Animal Study

### Additional Links

**Substances** : [Cannabinoids](#) : CK(816) : AC(310)

**Diseases** : [Pain](#) : CK(880) : AC(142)

**Pharmacological Actions** : [Analgesics](#) : CK(1327) : AC(217), [Glycine Agents](#) : CK(2) : AC(1)

## Glycogen synthase kinase-3beta (GSK-3beta) Inhibitor (AC 1) (CK 2)

## Cannabinoid receptor agonists HU210 and Delta(9)-tetrahydrocannabinol lowers the viability of translocation-positive rhabdomyosarcoma cells through the induction of apoptosis.

**Pubmed Data** : Mol Cancer Ther. 2009 Jul ;8(7):1838-45. Epub 2009 Jun 9. PMID: [19509271](#)

**Article Published Date** : Jun 30, 2009

**Authors** : Susanne Oesch, Dagmar Walter, Marco Wachtel, Kathya Pretre, Maria Salazar, Manuel Guzmán, Guillermo Velasco, Beat W Schäfer

**Study Type** : Animal Study, In Vitro Study

### Additional Links

**Substances** : [Cannabinoids](#) : CK(816) : AC(310), [Cannabinoids: Synthetic](#) : CK(78) : AC(33), [Delta-tetrahydrocannabinol \(THC\)](#) : CK(1135) : AC(342)

**Diseases** : [Rhabdomyosarcoma](#) : CK(8) : AC(5)

**Pharmacological Actions** : [Antiproliferative](#) : CK(2546) : AC(1685), [Apoptotic](#) : CK(2958) : AC(2075), [Cannabinoid Receptor Antagonist/Inverse Agonist](#) : CK(1) : AC(1), [Glycogen synthase kinase-3beta \(GSK-3beta\) Inhibitor](#) : CK(14) : AC(4)

**Additional Keywords** : [Chemotherapeutic Synergy: Cisplatin](#) : CK(80) : AC(57), [Chemotherapeutic Synergy: Doxorubicin](#) : CK(44) : AC(32)

# Hypoglycemic Agents (AC 3) (CK 14)

## Tetrahydrocannabinol affects the glucose uptake in the rat brain.

**Pubmed Data** : Neuropharmacology. 2017 Feb 20 ;117:273-281. Epub 2017 Feb 20. PMID: [28219717](#)

**Article Published Date** : Feb 19, 2017

**Authors** : I Miederer, K Uebbing, J Röhrich, S Maus, N Bausbacher, K Krauter, V Weyer-Elberich, B Lutz, M Schreckenberger, R Urban

**Study Type** : Animal Study

### Additional Links

**Substances** : [Delta-tetrahydrocannabinol \(THC\)](#) : CK(1135) : AC(342)

**Pharmacological Actions** : [Hypoglycemic Agents](#) : CK(1446) : AC(342)

**Additional Keywords** : [Dose Response](#) : CK(1056) : AC(408)

---

## Tetrahydrocannabivarin could represent a new therapeutic agent in glycemic control in subjects with type 2 diabetes.

**Pubmed Data** : Diabetes Care. 2016 Aug 29. Epub 2016 Aug 29. PMID: [27573936](#)

**Article Published Date** : Aug 28, 2016

**Authors** : Khalid A Jadoon, Stuart H Ratcliffe, David A Barrett, E Louise Thomas, Colin Stott, Jimmy D Bell, Saoirse E O'Sullivan, Garry D Tan

**Study Type** : Human Study

### Additional Links

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338), [Cannabinoids](#) : CK(816) : AC(310)

**Diseases** : [Diabetes Mellitus: Type 2](#) : CK(3572) : AC(624), [Hypoglycemia](#) : CK(189) : AC(30)

**Pharmacological Actions** : [Hypoglycemic Agents](#) : CK(1446) : AC(342)

---

## Tetrahydrocannabivarin is a new potential treatment against obesity-associated glucose intolerance.

**Pubmed Data** : Nutr Diabetes. 2013 ;3:e68. Epub 2013 May 27. PMID: [23712280](#)

**Article Published Date** : Dec 31, 2012

**Authors** : E T Wargent, M S Zaibi, C Silvestri, D C Hislop, C J Stocker, C G Stott, G W Guy, M Duncan, V Di Marzo, M A Cawthorne

**Study Type** : Animal Study, In Vitro Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Insulin Resistance : CK(1683) : AC(346), Metabolic Diseases : CK(411) : AC(75), Obesity : CK(2443) : AC(521)

**Pharmacological Actions** : Hypoglycemic Agents : CK(1446) : AC(342)

---

## Hypoxia inducible factor-1 alpha (HIF-1 $\alpha$ ) inhibitor (AC 1) (CK 1)

**The present investigation confirms the antiproliferative and antiinvasive effects of CBD in U87-MG cells.**

**Pubmed Data** : PLoS One. 2013 ;8(10):e76918. Epub 2013 Oct 21. PMID: [24204703](#)

**Article Published Date** : Dec 31, 2012

**Authors** : Marta Solinas, Paola Massi, Valentina Cinquina, Marta Valenti, Daniele Bolognini, Marzia Gariboldi, Elena Monti, Tiziana Rubino, Daniela Parolaro

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Cancer Metastasis : CK(442) : AC(206), Glioma : CK(177) : AC(86)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Anti-metastatic : CK(634) : AC(414), Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Hypoxia inducible factor-1 alpha (HIF-1 $\alpha$ ) inhibitor : CK(22) : AC(15)

---

## Immunomodulatory (AC 18) (CK 37)

**CBD may represent a promising novel treatment for management of autoimmune myocarditis and possibly other autoimmune disorders**

**Pubmed Data** : Mol Med. 2016 Jan 8. Epub 2016 Jan 8. PMID: [26772776](#)

**Article Published Date** : Jan 07, 2016



**Authors** : Wen-Shin Lee, Katalin Erdelyi, Csaba Matyas, Partha Mukhopadhyay, Zoltan V Varga, Lucas Liaudet, György Haskó, Daniela Čiháková, Raphael Mechoulam, Pal Pacher

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Autoimmune Diseases : CK(6629) : AC(1128), Myocarditis: Autoimmune : CK(20) : AC(6)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Immunomodulatory : CK(1287) : AC(358)

---

## Cannabidiol inhibits symptoms of multiple sclerosis-like disease in mice.

**Pubmed Data** : Br J Pharmacol. 2011 Mar 30. Epub 2011 Mar 30. PMID: [21449980](#)

**Article Published Date** : Mar 30, 2011

**Authors** : Ewa Kozela, Nirit Lev, Nathali Kaushansky, Raya Eilam, Neta Rimmerman, Rivka Levy, Avraham Ben-Nun, Ana Juknat, Zvi Vogel

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Brain: Microglial Activation : CK(82) : AC(53), Multiple Sclerosis : CK(964) : AC(184)

**Pharmacological Actions** : Immunomodulatory : CK(1287) : AC(358), Immunomodulatory: T-Cell down-regulation : CK(12) : AC(2)

---

## Cannabidiol treatment significantly reduces the incidence of diabetes in NOD mice.

**Pubmed Data** : Autoimmunity. 2006 Mar ;39(2):143-51. PMID: [16698671](#)

**Article Published Date** : Feb 28, 2006

**Authors** : L Weiss, M Zeira, S Reich, M Har-Noy, R Mechoulam, S Slavin, R Gallily

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Diabetes Mellitus: Type 1: Prevention : CK(255) : AC(50)

**Pharmacological Actions** : Immunomodulatory : CK(1287) : AC(358), Interferon Gamma Reducer : CK(58) : AC(24), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

**Additional Keywords** : Risk Reduction : CK(6417) : AC(686), Significant Treatment Outcome : CK(24) : AC(4)

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## Cannabinoids have the potential to regulate the activation and balance of human Th1/Th2 cells by a CB2 receptor-dependent pathway.

**Pubmed Data** : J Neuroimmunol. 2002 Dec ;133(1-2):124-31. PMID: [12446015](#)

**Article Published Date** : Nov 30, 2002

**Authors** : Michael Yuan, Sylvia M Kiertscher, Qingwen Cheng, Richard Zoumalan, Donald P Tashkin, Michael D Roth

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : [Cannabinoids](#) : CK(816) : AC(310), [Delta-tetrahydrocannabinol \(THC\)](#) : CK(1135) : AC(342)

**Diseases** : [Immune Dysregulation: TH1/TH2 imbalance](#) : CK(171) : AC(45)

**Pharmacological Actions** : [Immunomodulatory](#) : CK(1287) : AC(358)

**Additional Keywords** : [Cannabinoid Receptors](#) : CK(67) : AC(37)

---

## Cannabinoids may have immunomodulatory or antiviral effects among individuals living with HIV/AIDS.

**Pubmed Data** : Drug Alcohol Rev. 2015 Mar ;34(2):135-40. Epub 2014 Nov 11. PMID: [25389027](#)

**Article Published Date** : Feb 28, 2015

**Authors** : M-J Milloy, Brandon Marshall, Thomas Kerr, Lindsey Richardson, Robert Hogg, Silvia Guillemi, Julio S G Montaner, Evan Wood

**Study Type** : Animal Study

**Additional Links**

**Substances** : [Cannabis](#) : CK(1776) : AC(408)

**Diseases** : [AIDS](#) : CK(79) : AC(13), [HIV Infections](#) : CK(680) : AC(219)

**Pharmacological Actions** : [Antiviral Agents](#) : CK(938) : AC(433), [Immunomodulatory](#) : CK(1287) : AC(358)

---

## Cannabis extracts have therapeutic potential to slow multiple sclerosis progression and repair the central nervous system.

**Pubmed Data** : Br J Pharmacol. 2015 Jul ;172(14):3579-95. Epub 2015 May 20. PMID: [25857324](#)

**Article Published Date** : Jun 30, 2015

**Authors** : A Feliú, M Moreno-Martet, M Mecha, F J Carrillo-Salinas, E de Lago, J Fernández-Ruiz, C Guaza

**Study Type** : Animal Study

**Additional Links**

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338), [Cannabis](#) : CK(1776) : AC(408), [Delta-tetrahydrocannabinol \(THC\)](#) : CK(1135) : AC(342)

**Diseases** : [Multiple Sclerosis](#) : CK(964) : AC(184)

**Pharmacological Actions** : [Immunomodulatory](#) : CK(1287) : AC(358)

**Additional Keywords** : [Plant Extracts](#) : CK(7645) : AC(2539)

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## Delta-tetrahydrocannabinol (THC) may modulate immune response through epigenetic regulation involving histone

## modifications.

**Pubmed Data** : J Biol Chem. 2014 Jul 4 ;289(27):18707-18718. Epub 2014 May 19. PMID: [24841204](#)

**Article Published Date** : Jul 03, 2014

**Authors** : Xiaoming Yang, Venkatesh L Hegde, Roshni Rao, Jiajia Zhang, Prakash S Nagarkatti, Mitzi Nagarkatti

**Study Type** : Animal Study

### Additional Links

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Autoimmune Diseases : CK(6629) : AC(1128)

**Pharmacological Actions** : Immunomodulatory : CK(1287) : AC(358)

**Additional Keywords** : Epigenetic Modification : CK(220) : AC(90), Gene Expression Regulation : CK(431) : AC(214), Histone Modifications : CK(5) : AC(4)

---

## Hemp seed and evening primrose oils with hot-nature diet have beneficial effects in improving the clinical score in multiple sclerosis patients.

**Pubmed Data** : Complement Ther Med. 2013 Oct ;21(5):473-80. Epub 2013 Jul 25. PMID: [24050582](#)

**Article Published Date** : Sep 30, 2013

**Authors** : Soheila Rezapour-Firouzi, Seyed Rafie Arefhosseini, Farhoudi Mehdi, Ebrahimi-Mamaghani Mehrangiz, Behzad Baradaran, Elyar Sadeghihokmabad, Somaiyeh Mostafaei, Seyed Mohammad Bagher Fazljou, Mohammad-ali Torbati, Sarvin Sanaie, Fatemeh Zamani

**Study Type** : Human Study

### Additional Links

**Substances** : Evening Primrose Oil : CK(66) : AC(8), Hemp Seed : CK(446) : AC(5)

**Diseases** : Inflammation : CK(3240) : AC(882), Multiple Sclerosis: Relapsing-Remitting : CK(124) : AC(14)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Immunomodulatory : CK(1287) : AC(358)

**Additional Keywords** : Dietary Modification : CK(315) : AC(47), Phytotherapy : CK(1216) : AC(221), Plant Extracts : CK(7645) : AC(2539)

---

## THC treatment during Delayed-type hypersensitivity response can simultaneously inhibit Th1/Th17 activation via regulation of microRNA expression.

**Pubmed Data** : J Mol Med (Berl). 2016 Apr 1. Epub 2016 Apr 1. PMID: [27038180](#)

**Article Published Date** : Mar 31, 2016

**Authors** : Jessica M Sido, Austin R Jackson, Prakash S Nagarkatti, Mitzi Nagarkatti

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Hypersensitivity : CK(74) : AC(22)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Immunomodulatory : CK(1287) : AC(358), Immunomodulatory: Th17 downregulation : CK(30) : AC(17), MicroRNA modulator : CK(264) : AC(145)

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## The cannabinoid system along with other neuroimmune systems has a subtle but significant role in the regulation of immunity.

**Pubmed Data** : Pain Res Manag. 2001 ;6(2):95-101. PMID: [11854771](#)

**Article Published Date** : Dec 31, 2000

**Authors** : T W Klein, C A Newton, H Friedman

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Acquired Immunodeficiency Syndrome : CK(16) : AC(12), Cancers: All : CK(14773) : AC(4596), Multiple Sclerosis : CK(964) : AC(184)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Apoptotic : CK(2958) : AC(2075), Immunomodulatory : CK(1287) : AC(358), Neuroimmunomodulation : CK(1) : AC(1)

**Additional Keywords** : Immunocannabinoid System : CK(1) : AC(1)

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## The current study clearly demonstrates that exposure to THC leads to suppression of the immune response.

**Pubmed Data** : J Pharmacol Exp Ther. 2002 Aug ;302(2):451-65. PMID: [12130702](#)

**Article Published Date** : Jul 31, 2002

**Authors** : Robert J McKallip, Catherine Lombard, Billy R Martin, Mitzi Nagarkatti, Prakash S Nagarkatti

**Study Type** : Animal Study, In Vitro Study

### Additional Links

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Autoimmune Diseases : CK(6629) : AC(1128), Immune Disorders : CK(28) : AC(8)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075), Immunomodulatory : CK(1287) : AC(358), Immunosuppressive Agents : CK(37) : AC(24)

**Additional Keywords** : Dose Response : CK(1056) : AC(408)

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## The potential therapeutic applications of cannabinoids are discussed.

**Pubmed Data** : Pharmacol Ther. 2002 Aug ;95(2):175-84. PMID: [12182964](#)

**Article Published Date** : Jul 31, 2002

**Authors** : Manuel Guzmán, Cristina Sánchez, Ismael Galve-Roperh

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Cancers: All : CK(14773) : AC(4596)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Immunomodulatory : CK(1287) : AC(358), Neuroprotective Agents : CK(2360) : AC(1099)

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## The present study reviews current insights into the role of cannabinoids and their receptors on viral infections.

**Pubmed Data** : J Med Virol. 2016 Jan ;88(1):1-12. Epub 2015 Jun 25. PMID: [26059175](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Alireza Tahamtan, Masoumeh Tavakoli-Yaraki, Tomasz P Rygiel, Talat Mokhtari-Azad, Vahid Salimi

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Hepatitis C : CK(474) : AC(87), Herpes Simplex Virus Type 2 : CK(35) : AC(20), HIV Infections : CK(680) : AC(219), Influenza : CK(789) : AC(123)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Immunomodulatory : CK(1287) : AC(358)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

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## This data suggests that CBD exerts its immunoregulatory effects via induction of CD4(+)CD25(-)CD69(+)LAG3(+) cells.

**Pubmed Data** : J Neuroinflammation. 2015 ;12:52. Epub 2015 Mar 15. PMID: [25880134](#)

**Article Published Date** : Dec 31, 2014

**Authors** : Ewa Kozela, Ana Juknat, Nathali Kaushansky, Avraham Ben-Nun, Giovanni Coppola, Zvi Vogel

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Multiple Sclerosis : CK(964) : AC(184)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Immunomodulatory : CK(1287) : AC(358), Immunomodulatory: Th17 downregulation : CK(30) : AC(17)

---

## This study explains the beneficial role of CBD in pathological memory T cells and in autoimmune diseases.

**Pubmed Data** : J Neuroinflammation. 2016 ;13(1):136. Epub 2016 Jun 3. PMID: [27256343](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Ewa Kozela, Ana Juknat, Fuying Gao, Nathali Kaushansky, Giovanni Coppola, Zvi Vogel

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Autoimmune Diseases : CK(6629) : AC(1128)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Antioxidants : CK(8430) : AC(3132), Immunomodulatory : CK(1287) : AC(358), Immunomodulatory: Th17 downregulation : CK(30) : AC(17), Nrf2 activation : CK(177) : AC(86)

---

## This study revealed the crucial role of THC in promoting the immunomodulatory effects of MSCs and proposed a new strategy to alleviate pain.

**Pubmed Data** : Oncotarget. 2016 Jan 27. Epub 2016 Jan 27. PMID: [26824325](#)

**Article Published Date** : Jan 26, 2016

**Authors** : Junran Xie, Dongju Xiao, Yun Xu, Jinning Zhao, Li Jiang, Xuming Hu, Yaping Zhang, Lina Yu

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Inflammation : CK(3240) : AC(882), Neuropathic Pain : CK(284) : AC(69)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Antinociceptive : CK(193) : AC(51), Immunomodulatory : CK(1287) : AC(358)

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## Under certain conditions THC enhances HIV antigen-specific immune responses.

**Pubmed Data** : J Neuroimmune Pharmacol. 2015 Jun ;10(2):344-55. Epub 2015 Apr 22. PMID: [25900076](#)

**Article Published Date** : May 31, 2015

**Authors** : Weimin Chen, Robert B Crawford, Barbara L F Kaplan, Norbert E Kaminski

**Study Type** : Animal Study

### Additional Links

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : HIV Infections : CK(680) : AC(219)

**Pharmacological Actions** : Immunomodulatory : CK(1287) : AC(358)

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## Unheated Cannabis sativa extracts have potential immuno-modulating properties.

**Pubmed Data** : Int Immunopharmacol. 2006 Apr ;6(4):656-65. Epub 2005 Nov 7. PMID: [16504929](#)

**Article Published Date** : Mar 31, 2006

**Authors** : Kitty C M Verhoeckx, Henrie A A J Korthout, A P van Meeteren-Kreikamp, Karl A Ehlert, Mei Wang, Jan van der Greef, Richard J T Rodenburg, Renger F Witkamp

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Pharmacological Actions** : Immunomodulatory : CK(1287) : AC(358), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

**Additional Keywords** : Plant Extracts : CK(7645) : AC(2539)

---

## Immunomodulatory: T-Cell down-regulation (AC 1) (CK 2)

### Cannabidiol inhibits symptoms of multiple sclerosis-like disease in mice.

**Pubmed Data** : Br J Pharmacol. 2011 Mar 30. Epub 2011 Mar 30. PMID: [21449980](#)

**Article Published Date** : Mar 30, 2011

**Authors** : Ewa Kozela, Nirit Lev, Nathali Kaushansky, Raya Eilam, Neta Rimmerman, Rivka Levy, Avraham Ben-Nun, Ana Juknat, Zvi Vogel

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Brain: Microglial Activation : CK(82) : AC(53), Multiple Sclerosis : CK(964) : AC(184)

**Pharmacological Actions** : Immunomodulatory : CK(1287) : AC(358), Immunomodulatory: T-Cell down-regulation : CK(12) : AC(2)

---

## Immunomodulatory: Th17 downregulation (AC 3) (CK 5)

### THC treatment during Delayed-type hypersensitivity response can simultaneously inhibit Th1/Th17 activation via regulation of microRNA expression.

**Pubmed Data** : J Mol Med (Berl). 2016 Apr 1. Epub 2016 Apr 1. PMID: [27038180](#)

**Article Published Date** : Mar 31, 2016

**Authors** : Jessica M Sido, Austin R Jackson, Prakash S Nagarkatti, Mitzi Nagarkatti

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Hypersensitivity : CK(74) : AC(22)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Immunomodulatory : CK(1287) : AC(358), Immunomodulatory: Th17 downregulation : CK(30) : AC(17), MicroRNA modulator : CK(264) : AC(145)

---

## This data suggests that CBD exerts its immunoregulatory effects via induction of CD4(+)CD25(-)CD69(+)LAG3(+) cells.

**Pubmed Data** : J Neuroinflammation. 2015 ;12:52. Epub 2015 Mar 15. PMID: [25880134](#)

**Article Published Date** : Dec 31, 2014

**Authors** : Ewa Kozela, Ana Juknat, Nathali Kaushansky, Avraham Ben-Nun, Giovanni Coppola, Zvi Vogel

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Multiple Sclerosis : CK(964) : AC(184)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Immunomodulatory : CK(1287) : AC(358), Immunomodulatory: Th17 downregulation : CK(30) : AC(17)

---

## This study explains the beneficial role of CBD in pathological memory T cells and in autoimmune diseases.

**Pubmed Data** : J Neuroinflammation. 2016 ;13(1):136. Epub 2016 Jun 3. PMID: [27256343](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Ewa Kozela, Ana Juknat, Fuying Gao, Nathali Kaushansky, Giovanni Coppola, Zvi Vogel

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Autoimmune Diseases : CK(6629) : AC(1128)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Antioxidants : CK(8430) : AC(3132), Immunomodulatory : CK(1287) : AC(358), Immunomodulatory: Th17 downregulation : CK(30) : AC(17), Nrf2 activation : CK(177) : AC(86)

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**Immunosuppressive Agents (AC 6)**



## (CK 16)

### A review of the pharmacokinetics and pharmacodynamics of cannabinoids.

**Pubmed Data** : Clin Pharmacokinet. 2003 ;42(4):327-60. PMID: [12648025](#)

**Article Published Date** : Dec 31, 2002

**Authors** : Franjo Grotenhermen

**Study Type** : Review

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Cancers: All : CK(14773) : AC(4596)

**Pharmacological Actions** : Analgesics : CK(1327) : AC(217), Apoptotic : CK(2958) : AC(2075), Immunosuppressive Agents : CK(37) : AC(24), Neuroprotective Agents : CK(2360) : AC(1099)

**Additional Keywords** : Phytotherapy : CK(1216) : AC(221)

---

### Cannabidiol (CBD) induces functional Tregs in response to low-level T cell activation.

**Pubmed Data** : Cell Immunol. 2016 Nov 9. Epub 2016 Aug 9. PMID: [27865421](#)

**Article Published Date** : Nov 08, 2016

**Authors** : Saphala Dhital, John V Stokes, Nogi Park, Keun Seok Seo, Barbara L F Kaplan

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Pharmacological Actions** : Immunosuppressive Agents : CK(37) : AC(24)

---

### Cannabis may have a therapeutic role to play in reducing inflammation and over-active immune cells in autoimmune diseases.

**Pubmed Data** : Immunobiology. 2009 May 18; PMID: [19457575](#)

**Article Published Date** : May 18, 2009

**Authors** : Sadiye Amcaoglu Rieder, Ashok Chauhan, Ugra Singh, Mitzi Nagarkatti, Prakash Nagarkatti

**Study Type** : Commentary

**Additional Links**

**Substances** : Marijuana : CK(1952) : AC(456)

**Diseases** : Autoimmune Diseases : CK(6629) : AC(1128)

**Pharmacological Actions** : Immunosuppressive Agents : CK(37) : AC(24)

---

## The current study clearly demonstrates that exposure to THC leads to suppression of the immune response.

**Pubmed Data** : J Pharmacol Exp Ther. 2002 Aug ;302(2):451-65. PMID: [12130702](#)

**Article Published Date** : Jul 31, 2002

**Authors** : Robert J McKallip, Catherine Lombard, Billy R Martin, Mitzi Nagarkatti, Prakash S Nagarkatti

**Study Type** : Animal Study, In Vitro Study

### Additional Links

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Autoimmune Diseases : CK(6629) : AC(1128), Immune Disorders : CK(28) : AC(8)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075), Immunomodulatory : CK(1287) : AC(358), Immunosuppressive Agents : CK(37) : AC(24)

**Additional Keywords** : Dose Response : CK(1056) : AC(408)

---

## The experimental evidence reviewed in this article argues in favor of the therapeutic potential of these compounds in immune disorders and cancer.

**Pubmed Data** : Prostaglandins Leukot Essent Fatty Acids. 2002 Feb-Mar;66(2-3):319-32. PMID: [12052046](#)

**Article Published Date** : Jan 31, 2002

**Authors** : Daniela Parolaro, P Massi, T Rubino, E Monti

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Endocannabinoids : CK(9) : AC(1)

**Diseases** : Cancers: All : CK(14773) : AC(4596), Endocannabinoid System : CK(22) : AC(12), Immune Disorders : CK(28) : AC(8)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Immunosuppressive Agents : CK(37) : AC(24)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

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## These results reveal an immunosuppressive effect of cannabinoid preparations.

**Pubmed Data** : Front Mol Neurosci. 2017 ;10:14. Epub 2017 Jan 24. PMID: [28174520](#)

**Article Published Date** : Dec 31, 2016

**Authors** : Wesley K Utomo, Marjan de Vries, Henri Braat, Marco J Bruno, Kaushal Parikh, Mònica Comalada, Maikel P Peppelenbosch, Harry van Goor, Gwenny M Fuhler

**Study Type** : Human Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Inflammation : CK(3240) : AC(882), Pancreatitis: Chronic : CK(4) : AC(4)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Immunosuppressive Agents : CK(37) : AC(24)

**Additional Keywords** : Immunosuppressive Agents : CK(37) : AC(24), Immunosuppressive Agents : CK(37) : AC(24), Immunosuppressive Agents : CK(37) : AC(24), Inflammation : CK(2) : AC(2), Inflammation : CK(2) : AC(2)

## Interferon Gamma Reducer (AC 3) (CK 6)

### Cannabidiol treatment significantly reduces the incidence of diabetes in NOD mice.

**Pubmed Data** : Autoimmunity. 2006 Mar ;39(2):143-51. PMID: [16698671](#)

**Article Published Date** : Feb 28, 2006

**Authors** : L Weiss, M Zeira, S Reich, M Har-Noy, R Mechoulam, S Slavin, R Gallily

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Diabetes Mellitus: Type 1: Prevention : CK(255) : AC(50)

**Pharmacological Actions** : Immunomodulatory : CK(1287) : AC(358), Interferon Gamma Reducer : CK(58) : AC(24), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

**Additional Keywords** : Risk Reduction : CK(6417) : AC(686), Significant Treatment Outcome : CK(24) : AC(4)

### Cannabidiol was found to promote neuronal survival by inhibiting JNK and p38 MAP kinases.

**Pubmed Data** : Fitoterapia. 2016 Nov 25 ;116:77-84. Epub 2016 Nov 25. PMID: [27890794](#)

**Article Published Date** : Nov 24, 2016

**Authors** : Sabrina Giacoppo, Federica Pollastro, Gianpaolo Grassi, Placido Bramanti, Emanuela Mazzon

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Multiple Sclerosis : CK(964) : AC(184)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Interferon Gamma Reducer : CK(58) : AC(24), Interleukin-17 downregulation : CK(39) : AC(13), Neuroprotective Agents : CK(2360) : AC(1099)

## Oral treatment with a low dose of THC inhibits atherosclerosis progression in this mouse model.

**Pubmed Data** : Nature. 2005 Apr 7 ;434(7034):782-6. PMID: [15815632](#)

**Article Published Date** : Apr 06, 2005

**Authors** : Sabine Steffens, Niels R Veillard, Claire Arnaud, Graziano Pelli, Fabienne Burger, Christian Staub, Meliha Karsak, Andreas Zimmer, Jean-Louis Frossard, François Mach

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Arteriosclerosis : CK(452) : AC(126), Inflammation : CK(3240) : AC(882)

**Pharmacological Actions** : Anti-atherogenic : CK(156) : AC(39), Anti-Inflammatory Agents : CK(4861) : AC(1630), Interferon Gamma Reducer : CK(58) : AC(24), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

## Interleukin-1 beta downregulation (AC 2) (CK 3)

### Cannabichromene could be considered for clinical experimentation in inflammatory bowel disease patients.

**Pubmed Data** : Biochem Pharmacol. 2013 May 1 ;85(9):1306-16. Epub 2013 Feb 12. PMID: [23415610](#)

**Article Published Date** : Apr 30, 2013

**Authors** : Francesca Borrelli, Ines Fasolino, Barbara Romano, Raffaele Capasso, Francesco Maiello, Diana Coppola, Pierangelo Orlando, Giovanni Battista, Ester Pagano, Vincenzo Di Marzo, Angelo A Izzo

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Colitis : CK(255) : AC(111), Inflammatory Bowel Diseases : CK(1052) : AC(197)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Interleukin-10 downregulation : CK(128) : AC(45), Interleukin-1 beta downregulation : CK(478) : AC(205), Nitric Oxide Inhibitor : CK(223) : AC(108), Superoxide Dismutase Up-regulation : CK(530) : AC(174)

**These findings highlight the anti-inflammatory effects of**

## cannabidiol in this viral model of multiple sclerosis.

**Pubmed Data** : Neurobiol Dis. 2013 Nov ;59:141-50. Epub 2013 Jul 11. PMID: [23851307](#)

**Article Published Date** : Oct 31, 2013

**Authors** : M Mecha, A Feliú, P M Iñigo, L Mestre, F J Carrillo-Salinas, C Guaza

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Inflammation : CK(3240) : AC(882), Multiple Sclerosis : CK(964) : AC(184)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Interleukin-1 beta downregulation : CK(478) : AC(205), Vascular Cell Adhesion Molecule-1 Inhibitor : CK(117) : AC(30)

## Interleukin-10 downregulation (AC 1) (CK 2)

### Cannabichromene could be considered for clinical experimentation in inflammatory bowel disease patients.

**Pubmed Data** : Biochem Pharmacol. 2013 May 1 ;85(9):1306-16. Epub 2013 Feb 12. PMID: [23415610](#)

**Article Published Date** : Apr 30, 2013

**Authors** : Francesca Borrelli, Ines Fasolino, Barbara Romano, Raffaele Capasso, Francesco Maiello, Diana Coppola, Pierangelo Orlando, Giovanni Battista, Ester Pagano, Vincenzo Di Marzo, Angelo A Izzo

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Colitis : CK(255) : AC(111), Inflammatory Bowel Diseases : CK(1052) : AC(197)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Interleukin-10 downregulation : CK(128) : AC(45), Interleukin-1 beta downregulation : CK(478) : AC(205), Nitric Oxide Inhibitor : CK(223) : AC(108), Superoxide Dismutase Up-regulation : CK(530) : AC(174)

## Interleukin-17 downregulation (AC 1)

## (CK 2)

### Cannabidiol was found to promote neuronal survival by inhibiting JNK and p38 MAP kinases.

**Pubmed Data** : Fitoterapia. 2016 Nov 25 ;116:77-84. Epub 2016 Nov 25. PMID: [27890794](#)

**Article Published Date** : Nov 24, 2016

**Authors** : Sabrina Giacoppo, Federica Pollastro, Gianpaolo Grassi, Placido Bramanti, Emanuela Mazzon

**Study Type** : Animal Study

#### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Multiple Sclerosis : CK(964) : AC(184)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Interferon Gamma Reducer : CK(58) : AC(24), Interleukin-17 downregulation : CK(39) : AC(13), Neuroprotective Agents : CK(2360) : AC(1099)

## Interleukin-4 downregulation (AC 1) (CK 2)

### Cannabidiol controls the exaggerated inflammatory response observed in an animal model of asthma.

**Pubmed Data** : Mediators Inflamm. 2015 ;2015:538670. Epub 2015 May 25. PMID: [26101464](#)

**Article Published Date** : Dec 31, 2014

**Authors** : Francieli Vuolo, Fabricia Petronilho, Beatriz Sonai, Cristiane Ritter, Jaime E C Hallak, Antonio Waldo Zuardi, José A Crippa, Felipe Dal-Pizzol

**Study Type** : Animal Study

#### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Asthma : CK(1157) : AC(190)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), interleukin-13 downregulation : CK(2) : AC(1), Interleukin-4 downregulation : CK(119) : AC(34), Interleukin-5 downregulation : CK(25) : AC(4), Interleukin-6 Downregulation : CK(1137) : AC(354), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

# Interleukin-5 downregulation (AC 1) (CK 2)

## Cannabidiol controls the exaggerated inflammatory response observed in an animal model of asthma.

**Pubmed Data** : Mediators Inflamm. 2015 ;2015:538670. Epub 2015 May 25. PMID: [26101464](#)

**Article Published Date** : Dec 31, 2014

**Authors** : Francieli Vuolo, Fabricia Petronilho, Beatriz Sonai, Cristiane Ritter, Jaime E C Hallak, Antonio Waldo Zuardi, José A Crippa, Felipe Dal-Pizzol

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Asthma : CK(1157) : AC(190)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), interleukin-13 downregulation : CK(2) : AC(1), Interleukin-4 downregulation : CK(119) : AC(34), Interleukin-5 downregulation : CK(25) : AC(4), Interleukin-6 Downregulation : CK(1137) : AC(354), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

# Interleukin-6 Downregulation (AC 5) (CK 9)

## Cannabidiol controls the exaggerated inflammatory response observed in an animal model of asthma.

**Pubmed Data** : Mediators Inflamm. 2015 ;2015:538670. Epub 2015 May 25. PMID: [26101464](#)

**Article Published Date** : Dec 31, 2014

**Authors** : Francieli Vuolo, Fabricia Petronilho, Beatriz Sonai, Cristiane Ritter, Jaime E C Hallak, Antonio Waldo Zuardi, José A Crippa, Felipe Dal-Pizzol

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Asthma : CK(1157) : AC(190)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), interleukin-13 down-

regulation : CK(2) : AC(1), Interleukin-4 downregulation : CK(119) : AC(34), Interleukin-5 downregulation : CK(25) : AC(4), Interleukin-6 Downregulation : CK(1137) : AC(354), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

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## Cannabidiol might become a useful therapeutic tool for the attenuation and treatment of inflammatory lung diseases.

**Pubmed Data** : Immunopharmacol Immunotoxicol. 2015 Feb ;37(1):35-41. Epub 2014 Oct 30. PMID: [25356537](#)

**Article Published Date** : Jan 31, 2015

**Authors** : A Ribeiro, V I Almeida, C Costola-de-Souza, V Ferraz-de-Paula, M L Pinheiro, L B Vitoretti, J A Gimenes-Junior, A T Akamine, J A Crippa, W Tavares-de-Lima, J Palermo-Neto

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Interstitial Lung Diseases : CK(63) : AC(11), Lipopolysaccharide-Induced Toxicity : CK(380) : AC(218)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Interleukin-6 Downregulation : CK(1137) : AC(354), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

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## Grossamide could be a potential therapeutic candidate for inhibiting neuroinflammation in neurodegenerative diseases.

**Pubmed Data** : Mol Cell Biochem. 2017 Apr ;428(1-2):129-137. Epub 2017 Feb 21. PMID: [28224333](#)

**Article Published Date** : Mar 31, 2017

**Authors** : Qian Luo, Xiaoli Yan, Larisa Bobrovskaya, Mei Ji, Huiqing Yuan, Hongxiang Lou, Peihong Fan

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Hemp Seed : CK(446) : AC(5)

**Diseases** : Brain Inflammation : CK(274) : AC(145), Neurodegenerative Diseases : CK(3582) : AC(932)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Interleukin-6 Downregulation : CK(1137) : AC(354), NF-kappaB Inhibitor : CK(1114) : AC(694), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

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**Our results indicate that CBD exhibits neuroprotective effects in a cerebral malaria model and might be useful as an adjunctive therapy to prevent neurological symptoms.**



**Pubmed Data** : Neuroscience. 2015 Mar 19 ;289:166-80. Epub 2015 Jan 13. PMID: [25595981](#)

**Article Published Date** : Mar 18, 2015

**Authors** : A C Campos, F Brant, A S Miranda, F S Machado, A L Teixeira

**Study Type** : Animal Study

**Additional Links**

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Malaria](#) : CK(145) : AC(58)

**Pharmacological Actions** : [Anti-Inflammatory Agents](#) : CK(4861) : AC(1630), [Interleukin-6 Downregulation](#) : CK(1137) : AC(354), [Neuroprotective Agents](#) : CK(2360) : AC(1099), [Tumor Necrosis Factor \(TNF\) Alpha Inhibitor](#) : CK(1823) : AC(669)

**Additional Keywords** : [Malaria Complications](#) : CK(2) : AC(1)

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## The neuroprotective effect of cannabidiol in an in vitro model of newborn hypoxic-ischemic brain damage in mice is mediated by CB(2) and adenosine receptors.

**Pubmed Data** : Neurobiol Dis. 2010 Feb ;37(2):434-40. Epub 2009 Nov 6. PMID: [19900555](#)

**Article Published Date** : Jan 31, 2010

**Authors** : A Castillo, M R Tolón, J Fernández-Ruiz, J Romero, J Martinez-Orgado

**Study Type** : Animal Study

**Additional Links**

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Brain Damage](#) : CK(93) : AC(44), [Brain Damage: Hypoxic Ischemic Insult](#) : CK(2) : AC(1)

**Pharmacological Actions** : [Interleukin-6 Downregulation](#) : CK(1137) : AC(354), [Neuroprotective Agents](#) : CK(2360) : AC(1099)

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## Interleukin-6 upregulation (AC 1) (CK 1)

### A novel cannabinoid induces IL-6 secretion and decreases prostate cancer cell proliferation.

**Pubmed Data** : J Immunotoxicol. 2009 Dec;6(4):249-56. PMID: [19908944](#)

**Article Published Date** : Dec 01, 2009

**Authors** : Nuria Olea-Herrero, Diana Vara, Sophie Malagarie-Cazenave, Inés Díaz-Laviada

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Prostate Cancer : CK(1586) : AC(463)

**Pharmacological Actions** : Interleukin-6 upregulation : CK(26) : AC(7)

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## Intracellular adhesion molecule-1 (ICAM-1) (AC 1) (CK 2)

### Cannabidiol inhibits lung cancer cell invasion and metastasis via intercellular adhesion molecule-1.

**Pubmed Data** : FASEB J. 2012 Apr ;26(4):1535-48. Epub 2011 Dec 23. PMID: [22198381](#)

**Article Published Date** : Apr 01, 2012

**Authors** : Robert Ramer, Katharina Bublitz, Nadine Freimuth, Jutta Merkord, Helga Rohde, Maria Haustein, Philipp Borchert, Ellen Schmuhl, Michael Linnebacher, Burkhard Hinz

**Study Type** : Animal Study

#### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Cancer Metastasis : CK(442) : AC(206), Lung Cancer : CK(1043) : AC(393)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414), Intracellular adhesion molecule-1 (ICAM-1) : CK(4) : AC(3)

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## Malondialdehyde Down-regulation (AC 1) (CK 2)

### Cannabidiol represents a potential protective agent against doxorubicin cardiac injury.

**Pubmed Data** : Environ Toxicol Pharmacol. 2013 Sep ;36(2):347-57. Epub 2013 May 10. PMID: [23721741](#)

**Article Published Date** : Aug 31, 2013

**Authors** : Amr A Fouad, Waleed H Albuali, Abdulruhman S Al-Mulhim, Iyad Jresat

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Chemotherapy-Induced Toxicity: Doxorubicin : CK(132) : AC(56) , Oxidative Stress : CK(3871) : AC(1382)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630) , Antioxidants : CK(8430) : AC(3132), Cardioprotective : CK(1596) : AC(409), Malondialdehyde Down-regulation : CK(554) : AC(152), NF-kappaB Inhibitor : CK(1114) : AC(694) , Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

## Matrix metalloproteinase-1 (MMP-1) inhibitor (AC 2) (CK 2)

### Anti-migratory effects were confirmed for cannabinoid-treated lung cancer cell lines (H460 and H358).

**Pubmed Data** : Biochem Pharmacol. 2014 Sep 15 ;91(2):202-16. Epub 2014 Jun 26. PMID: [24976505](#)

**Article Published Date** : Sep 14, 2014

**Authors** : Robert Ramer, Sascha Fischer, Maria Haustein, Katrin Manda, Burkhard Hinz

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Lung Cancer : CK(1043) : AC(393)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Anti-metastatic : CK(634) : AC(414), Matrix metalloproteinase-1 (MMP-1) inhibitor : CK(32) : AC(16)

### Cannabidiol inhibits cancer cell invasion via upregulation of tissue inhibitor of matrix metalloproteinases-1.

**Pubmed Data** : Biochem Pharmacol. 2010 Apr 1;79(7):955-66. Epub 2009 Nov 13. PMID: [19914218](#)

**Article Published Date** : Apr 01, 2010

**Authors** : Robert Ramer, Jutta Merkord, Helga Rohde, Burkhard Hinz

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408)

**Diseases** : Cancer Metastasis : CK(442) : AC(206), Lung Cancer : CK(1043) : AC(393)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639) , Matrix metalloproteinase-1 (MMP-1) inhibitor : CK(32) : AC(16)

## Matrix metalloproteinase-2 (MMP-2) inhibitor (AC 2) (CK 4)

**CBD can be used as a novel therapeutic option to inhibit growth and metastasis of highly aggressive breast cancer subtypes including TNBC.**

**Pubmed Data** : Mol Oncol. 2015 Apr ;9(4):906-19. Epub 2015 Jan 19. PMID: [25660577](#)

**Article Published Date** : Mar 31, 2015

**Authors** : Mohamad Elbaz, Mohd W Nasser, Janani Ravi, Nissar A Wani, Dinesh K Ahirwar, Helong Zhao, Steve Oghumu, Abhay R Satoskar, Konstantin Shilo, William E Carson, Ramesh K Ganju

**Study Type** : Animal Study, In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Breast Cancer : CK(3592) : AC(1064) , Breast Cancer: Triple Negative : CK(262) : AC(144)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414) , Antiproliferative : CK(2546) : AC(1685) , Epidermal growth factor receptor (EGFR) inhibitor : CK(65) : AC(41) , Matrix metalloproteinase-2 (MMP-2) inhibitor : CK(287) : AC(147) , Matrix metalloproteinase-9 (MMP-9) inhibitor : CK(212) : AC(128) , NF-kappaB Inhibitor : CK(1114) : AC(694)

**Cannabinoids inhibit the growth of gliomas in vivo by targeting both tumor cells and vascular endothelial cells.**

**Pubmed Data** : FASEB J. 2003 Mar ;17(3):529-31. Epub 2003 Jan 2. PMID: [12514108](#)

**Article Published Date** : Feb 28, 2003

**Authors** : Cristina Blázquez, M Llanos Casanova, Anna Planas, Teresa Gómez Del Pulgar, Concepción Villanueva, María J Fernández-Aceñero, Julián Aragonés, John W Huffman, José L Jorcano, Manuel Guzmán

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Cancers: All : CK(14773) : AC(4596) , Gliomas : CK(5) : AC(3)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62) , Matrix metalloproteinase-2 (MMP-2) inhibitor : CK(287) : AC(147) , Vascular Endothelial Growth Factor Regulator : CK(31) : AC(14)

**Additional Keywords :** Disease Regression : CK(150) : AC(26)

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## Matrix metalloproteinase-9 (MMP-9) inhibitor (AC 1) (CK 2)

**CBD can be used as a novel therapeutic option to inhibit growth and metastasis of highly aggressive breast cancer subtypes including TNBC.**

**Pubmed Data :** Mol Oncol. 2015 Apr ;9(4):906-19. Epub 2015 Jan 19. PMID: [25660577](#)

**Article Published Date :** Mar 31, 2015

**Authors :** Mohamad Elbaz, Mohd W Nasser, Janani Ravi, Nissar A Wani, Dinesh K Ahirwar, Helong Zhao, Steve Oghumu, Abhay R Satoskar, Konstantin Shilo, William E Carson, Ramesh K Ganju

**Study Type :** Animal Study, In Vitro Study

### **Additional Links**

**Substances :** Cannabidiol : CK(1115) : AC(338)

**Diseases :** Breast Cancer : CK(3592) : AC(1064), Breast Cancer: Triple Negative : CK(262) : AC(144)

**Pharmacological Actions :** Anti-metastatic : CK(634) : AC(414), Antiproliferative : CK(2546) : AC(1685), Epidermal growth factor receptor (EGFR) inhibitor : CK(65) : AC(41), Matrix metalloproteinase-2 (MMP-2) inhibitor : CK(287) : AC(147), Matrix metalloproteinase-9 (MMP-9) inhibitor : CK(212) : AC(128), NF-kappaB Inhibitor : CK(1114) : AC(694)

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## MicroRNA modulator (AC 2) (CK 4)

**THC treatment during Delayed-type hypersensitivity response can simultaneously inhibit Th1/Th17 activation via regulation of microRNA expression.**

**Pubmed Data :** J Mol Med (Berl). 2016 Apr 1. Epub 2016 Apr 1. PMID: [27038180](#)

**Article Published Date :** Mar 31, 2016

**Authors :** Jessica M Sido, Austin R Jackson, Prakash S Nagarkatti, Mitzi Nagarkatti

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Hypersensitivity : CK(74) : AC(22)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Immunomodulatory : CK(1287) : AC(358), Immunomodulatory: Th17 downregulation : CK(30) : AC(17), MicroRNA modulator : CK(264) : AC(145)

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## THC treatment led to 100% survival of mice due to its potent anti-inflammatory action that suppressed SEB-induced pulmonary inflammation.

**Pubmed Data** : Br J Pharmacol. 2015 Apr ;172(7):1792-806. Epub 2015 Feb 10. PMID: [25425209](#)

**Article Published Date** : Mar 31, 2015

**Authors** : R Rao, P S Nagarkatti, M Nagarkatti

**Study Type** : Animal Study

**Additional Links**

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Lung Inflammation : CK(11) : AC(6), Staphylococcus aureus infection : CK(188) : AC(125)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), MicroRNA modulator : CK(264) : AC(145)

**Additional Keywords** : Significant Treatment Outcome : CK(3038) : AC(366)

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## NADPH Oxidase Inhibitors (AC 1) (CK 1)

### In the current study we demonstrated that cannabidiol can induce apoptosis in murine as well as human leukemia cells.

**Pubmed Data** : Mol Pharmacol. 2006 Sep ;70(3):897-908. Epub 2006 Jun 5. PMID: [16754784](#)

**Article Published Date** : Aug 31, 2006

**Authors** : Robert J McKallip, Wentao Jia, Jerome Schlomer, James W Warren, Prakash S Nagarkatti, Mitzi Nagarkatti

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Leukemia : CK(1005) : AC(398)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075), Caspase-3 Activation : CK(91) : AC(66), Caspase-8 activation : CK(27) : AC(6), Caspase-9 Activation : CK(30) : AC(19), NADPH Oxidase Inhibitors : CK(1) : AC(1)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

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## NF-kappaB Inhibitor (AC 4) (CK 6)

**CBD can be used as a novel therapeutic option to inhibit growth and metastasis of highly aggressive breast cancer subtypes including TNBC.**

**Pubmed Data** : Mol Oncol. 2015 Apr ;9(4):906-19. Epub 2015 Jan 19. PMID: [25660577](#)

**Article Published Date** : Mar 31, 2015

**Authors** : Mohamad Elbaz, Mohd W Nasser, Janani Ravi, Nissar A Wani, Dinesh K Ahirwar, Helong Zhao, Steve Oghumu, Abhay R Satoskar, Konstantin Shilo, William E Carson, Ramesh K Ganju

**Study Type** : Animal Study, In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Breast Cancer : CK(3592) : AC(1064), Breast Cancer: Triple Negative : CK(262) : AC(144)

**Pharmacological Actions** : Anti-metastatic : CK(634) : AC(414), Antiproliferative : CK(2546) : AC(1685), Epidermal growth factor receptor (EGFR) inhibitor : CK(65) : AC(41), Matrix metalloproteinase-2 (MMP-2) inhibitor : CK(287) : AC(147), Matrix metalloproteinase-9 (MMP-9) inhibitor : CK(212) : AC(128), NF-kappaB Inhibitor : CK(1114) : AC(694)

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**Cannabidiol by itself or in synergy with bortezomib strongly inhibited growth, arrested cell cycle progression and induced multiple myeloma cell death.**

**Pubmed Data** : Int J Cancer. 2014 Jun 1 ;134(11):2534-46. Epub 2013 Dec 2. PMID: [24293211](#)

**Article Published Date** : May 31, 2014

**Authors** : Maria Beatrice Morelli, Massimo Offidani, Francesco Alesiani, Giancarlo Discepoli, Sonia Liberati, Attilio Olivieri, Matteo Santoni, Giorgio Santoni, Pietro Leoni, Massimo Nabissi

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Multiple Myeloma : CK(227) : AC(75)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Cell cycle arrest : CK(810) : AC(612), NF-kappaB

Inhibitor : CK(1114) : AC(694)

**Additional Keywords** : Natural Substance/Drug Synergy : CK(352) : AC(142)

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## Cannabidiol represents a potential protective agent against doxorubicin cardiac injury.

**Pubmed Data** : Environ Toxicol Pharmacol. 2013 Sep ;36(2):347-57. Epub 2013 May 10. PMID: [23721741](#)

**Article Published Date** : Aug 31, 2013

**Authors** : Amr A Fouad, Waleed H Albuali, Abdulruhman S Al-Mulhim, Iyad Jresat

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Chemotherapy-Induced Toxicity: Doxorubicin : CK(132) : AC(56) , Oxidative Stress : CK(3871) : AC(1382)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630) , Antioxidants : CK(8430) : AC(3132), Cardioprotective : CK(1596) : AC(409), Malondialdehyde Down-regulation : CK(554) : AC(152), NF-kappaB Inhibitor : CK(1114) : AC(694) , Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

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## Grossamide could be a potential therapeutic candidate for inhibiting neuroinflammation in neurodegenerative diseases.

**Pubmed Data** : Mol Cell Biochem. 2017 Apr ;428(1-2):129-137. Epub 2017 Feb 21. PMID: [28224333](#)

**Article Published Date** : Mar 31, 2017

**Authors** : Qian Luo, Xiaoli Yan, Larisa Bobrovskaya, Mei Ji, Huiqing Yuan, Hongxiang Lou, Peihong Fan

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Hemp Seed : CK(446) : AC(5)

**Diseases** : Brain Inflammation : CK(274) : AC(145), Neurodegenerative Diseases : CK(3582) : AC(932)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630) , Interleukin-6 Downregulation : CK(1137) : AC(354), NF-kappaB Inhibitor : CK(1114) : AC(694) , Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

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**Neuritogenic (AC 1) (CK 2)**



## Cannabinoids attenuate the effects of aging upon neuroinflammation and neurogenesis.

**Pubmed Data** : Neurobiol Dis. 2009 May ;34(2):300-7. PMID: [19385063](#)

**Article Published Date** : Apr 30, 2009

**Authors** : Yannick Marchalant, Holly M Brothers, Greg J Norman, Kate Karelina, A Courtney DeVries, Gary L Wenk

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Aging : CK(1658) : AC(438), Aging: Brain : CK(248) : AC(85), Brain Inflammation : CK(274) : AC(145)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Calcium Channel Blockers : CK(87) : AC(23), Neuritogenic : CK(133) : AC(59), Neuroprotective Agents : CK(2360) : AC(1099)

## Neurogenesis (AC 3) (CK 4)

### The activation of the endocannabinoid system promotes white and gray matter recovery after neonatal HI injury.

**Pubmed Data** : Stroke. 2010 Dec ;41(12):2956-64. PMID: [21115947](#)

**Article Published Date** : Nov 30, 2010

**Authors** : David Fernández-López, Jesús M Pradillo, Isaac García-Yébenes, José A Martínez-Orgado, María A Moro, Ignacio Lizasoain

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Brain Ischemia : CK(136) : AC(52), Neonatal Stroke : CK(4) : AC(2), Stroke: Attenuation/Recovery : CK(347) : AC(75)

**Pharmacological Actions** : Neurogenesis : CK(59) : AC(30)

**Additional Keywords** : Endocannabinoid System : CK(60) : AC(23), Neuro-repair : CK(2) : AC(1)

### The studies provide "proof of principle" that CBD and possibly CBD-THC combinations are valid candidates for novel AD therapies.

**Pubmed Data** : Front Pharmacol. 2017 ;8:20. Epub 2017 Feb 3. PMID: [28217094](#)

**Article Published Date** : Dec 31, 2016

**Authors** : Georgia Watt, Tim Karl

**Study Type** : Review

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Alzheimer's Disease : CK(1292) : AC(382)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Antioxidants : CK(8430) : AC(3132), Neurogenesis : CK(59) : AC(30), Neuroprotective Agents : CK(2360) : AC(1099)

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**This review details the mechanisms of neurodegeneration and highlights the beneficial effects of cannabinoid treatment.**

**Pubmed Data** : Br J Pharmacol. 2014 Mar ;171(6):1347-60. PMID: [24172185](#)

**Article Published Date** : Feb 28, 2014

**Authors** : S G Fagan, V A Campbell

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Alzheimer's Disease : CK(1292) : AC(382), Brain Inflammation : CK(274) : AC(145), Huntington Disease : CK(91) : AC(36), Neurodegenerative Diseases : CK(3582) : AC(932), Parkinson's Disease : CK(1021) : AC(167)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Neurogenesis : CK(59) : AC(30), Neuroprotective Agents : CK(2360) : AC(1099)

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## Neuroimmunomodulation (AC 1) (CK 1)

**The cannabinoid system along with other neuroimmune systems has a subtle but significant role in the regulation of immunity.**

**Pubmed Data** : Pain Res Manag. 2001 ;6(2):95-101. PMID: [11854771](#)

**Article Published Date** : Dec 31, 2000

**Authors** : T W Klein, C A Newton, H Friedman

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Acquired Immunodeficiency Syndrome : CK(16) : AC(12) , Cancers: All : CK(14773) : AC(4596), Multiple Sclerosis : CK(964) : AC(184)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Apoptotic : CK(2958) : AC(2075), Immunomodulatory : CK(1287) : AC(358), Neuroimmunomodulation : CK(1) : AC(1)

**Additional Keywords** : Immunocannabinoid System : CK(1) : AC(1)

## Neuroplasticity enhancement (AC 1) (CK 2)

### Short-term cannabidiol treatment results in global functional recovery in ischemic mice.

**Pubmed Data** : Prog Neuropsychopharmacol Biol Psychiatry. 2016 Nov 23. Epub 2016 Nov 23. PMID: [27889412](#)

**Article Published Date** : Nov 22, 2016

**Authors** : Marco Aurélio Mori, Erika Meyer, Ligia Mendes Soares, Humberto Milani, Francisco Silveira Guimarães, Rúbia Maria Weffort de Oliveira

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Brain Inflammation : CK(274) : AC(145), Brain Ischemia : CK(136) : AC(52)

**Pharmacological Actions** : Neuroplasticity enhancement : CK(44) : AC(12), Neuroprotective Agents : CK(2360) : AC(1099)

## Neuroprotective Agents (AC 80) (CK 166)

### A cannabinoid CB2 receptor selective compound, delays disease progression in a mouse model of amyotrophic

## lateral sclerosis.

**Pubmed Data** : Eur J Pharmacol. 2006 Aug 7;542(1-3):100-5. Epub 2006 May 20. PMID: [16781706](#)

**Article Published Date** : Aug 07, 2006

**Authors** : Kathline Kim, Dan H Moore, Alexandros Makriyannis, Mary E Abood

**Study Type** : Animal Study

### Additional Links

**Substances** : [Cannabinoids](#) : CK(816) : AC(310)

**Diseases** : [Amyotrophic Lateral Sclerosis](#) : CK(567) : AC(140)

**Pharmacological Actions** : [Neuroprotective Agents](#) : CK(2360) : AC(1099)

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## A review of phytochemicals and their neuroprotective effects in the treatment of dementia.

**Pubmed Data** : Molecules. 2016 ;21(4). Epub 2016 Apr 21. PMID: [27110749](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Rosaliana Libro, Sabrina Giacoppo, Thangavelu Soundara Rajan, Placido Bramanti, Emanuela Mazzon

**Study Type** : Review

### Additional Links

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338), [Cannabinoids](#) : CK(816) : AC(310), [Flavonoids](#) : CK(1215) : AC(379), [Polyphenols](#) : CK(931) : AC(335)

**Diseases** : [Alzheimer's Disease](#) : CK(1292) : AC(382) , [Dementia](#) : CK(571) : AC(79)

**Pharmacological Actions** : [Neuroprotective Agents](#) : CK(2360) : AC(1099)

**Additional Keywords** : [Risk Reduction](#) : CK(6417) : AC(686)

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## A review of the pharmacokinetics and pharmacodynamics of cannabinoids.

**Pubmed Data** : Clin Pharmacokinet. 2003 ;42(4):327-60. PMID: [12648025](#)

**Article Published Date** : Dec 31, 2002

**Authors** : Franjo Grotenhermen

**Study Type** : Review

### Additional Links

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338), [Cannabinoids](#) : CK(816) : AC(310), [Delta-tetrahydrocannabinol \(THC\)](#) : CK(1135) : AC(342)

**Diseases** : [Cancers: All](#) : CK(14773) : AC(4596)

**Pharmacological Actions** : [Analgesics](#) : CK(1327) : AC(217) , [Apoptotic](#) : CK(2958) : AC(2075) , [Immunosuppressive Agents](#) : CK(37) : AC(24) , [Neuroprotective Agents](#) : CK(2360) : AC(1099)

**Additional Keywords** : [Phytotherapy](#) : CK(1216) : AC(221)

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## A review of the promising aspects of cannabinoid-based therapies for Parkinson's disease.

**Pubmed Data** : Mol Neurodegener. 2015 ;10:17. Epub 2015 Apr 8. PMID: [25888232](#)

**Article Published Date** : Dec 31, 2014

**Authors** : Sandeep Vasant More, Dong-Kug Choi

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33)

**Diseases** : Parkinson's Disease : CK(1021) : AC(167)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Neuroprotective Agents : CK(2360) : AC(1099)

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## A review of the therapeutic effects of cannabinoids in animal models of seizures, epilepsy, epileptogenesis.

**Pubmed Data** : Epilepsy Behav. 2017 Feb 9. Epub 2017 Feb 9. PMID: [28190698](#)

**Article Published Date** : Feb 08, 2017

**Authors** : Evan C Rosenberg, Pabitra H Patra, Benjamin J Whalley

**Study Type** : Review

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310)

**Diseases** : Epilepsy : CK(255) : AC(66), Seizures : CK(208) : AC(60)

**Pharmacological Actions** : Anticonvulsants : CK(238) : AC(67), Neuroprotective Agents : CK(2360) : AC(1099)

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## A single ultra-low dose of THC before ischemia is a safe and effective treatment that reduces myocardial ischemic damage.

**Pubmed Data** : Biochem Pharmacol. 2013 Jun 1 ;85(11):1626-33. Epub 2013 Mar 26. PMID: [23537701](#)

**Article Published Date** : May 31, 2013

**Authors** : M Waldman, E Hochhauser, M Fishbein, D Aravot, A Shainberg, Y Sarne

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Myocardial Infarction : CK(1101) : AC(162), Myocardial Ischemia : CK(137) : AC(61)

**Pharmacological Actions** : Cardioprotective : CK(1596) : AC(409), Neuroprotective Agents : CK(2360) : AC(1099)

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## Activation of cannabinoid system may have protective actions on both liver and brain induced by cocaine, minimizing inflammatory injury promoted by cocaine.

**Pubmed Data** : Mediators Inflamm. 2015 ;2015:523418. Epub 2015 Apr 27. PMID: [25999668](#)

**Article Published Date** : Dec 31, 2014

**Authors** : Luciano Rezende Vilela, Lindisley Ferreira Gomides, Bruna Araújo David, Máisa Mota Antunes, Ariane Barros Diniz, Fabrício de Araújo Moreira, Gustavo Batista Menezes

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Cocaine Toxicity : CK(19) : AC(6), Drug Abuse : CK(16) : AC(5)

**Pharmacological Actions** : Drug Abuse : CK(16) : AC(5), Neuroprotective Agents : CK(2360) : AC(1099)

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## Administration of synthetic 2-AG to mice after CHI led to significant reduction of brain oedema, better clinical recovery, reduced infarct volume and reduced hippocampal cell death compared with controls.

**Pubmed Data** : Nature. 2001 Oct 4 ;413(6855):527-31. PMID: [11586361](#)

**Article Published Date** : Oct 03, 2001

**Authors** : D Panikashvili, C Simeonidou, S Ben-Shabat, L Hanus, A Breuer, R Mechoulam, E Shohami

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Endocannabinoids : CK(9) : AC(1)

**Diseases** : Brain Edema : CK(49) : AC(13), Brain Inflammation : CK(274) : AC(145), Traumatic Brain Injury : CK(88) : AC(25)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Neuroprotective Agents : CK(2360) : AC(1099)

**Additional Keywords** : Significant Treatment Outcome : CK(3038) : AC(366)

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## Agents modulating cannabinoid receptors or endocannabinoid tone provide promising therapeutic opportunities in the treatment of inflammatory neurodegenerative disorders of the CNS.

**Pubmed Data** : Exp Neurol. 2010 Jul ;224(1):92-102. Epub 2010 Mar 29. PMID: [20353778](#)

**Article Published Date** : Jun 30, 2010

**Authors** : Silvia Rossi, Giorgio Bernardi, Diego Centonze

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Amyotrophic Lateral Sclerosis : CK(567) : AC(140), Inflammation : CK(3240) : AC(882), Multiple Sclerosis : CK(964) : AC(184), Neurodegenerative Diseases : CK(3582) : AC(932)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

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## CBD can attenuate both behavioural and dopaminergic neuronal correlates of mesolimbic dopaminergic sensitization.

**Pubmed Data** : J Neurosci. 2016 May 4 ;36(18):5160-9. PMID: [27147666](#)

**Article Published Date** : May 03, 2016

**Authors** : Justine Renard, Michael Loureiro, Laura G Rosen, Jordan Zunder, Cleusa de Oliveira, Susanne Schmid, Walter J Rushlow, Steven R Laviolette

**Study Type** : Animal Study, In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Amphetamine Addiction/Withdrawal : CK(36) : AC(11), Schizophrenia : CK(445) : AC(70)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

**Problem Substances** : Amphetamine : CK(12) : AC(3)

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## CBD has a neurorestorative potential independent of NGF that might contribute to its neuroprotection against neurotoxins relevant to Parkinson's disease.

**Pubmed Data** : Toxicol In Vitro. 2015 Nov 7. Epub 2015 Nov 7. PMID: [26556726](#)

**Article Published Date** : Nov 06, 2015

**Authors** : Neife Aparecida Guinaim Santos, Nádia Maria Martins, Flávia Malvestio Sisti, Laís Silva Fernandes, Rafaela Scalco Ferreira, Regina Helena Costa Queiroz, Antônio Cardozo Santos

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Neurodegenerative Diseases : CK(3582) : AC(932), Parkinson's Disease : CK(1021) : AC(167)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

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## Cannabidiol acts in the dorsal striatum to improve haloperidol-induced catalepsy.

**Pubmed Data** : Behav Brain Res. 2016 Apr 27 ;309:22-28. Epub 2016 Apr 27. PMID: [27131780](#)

**Article Published Date** : Apr 26, 2016

**Authors** : Andreza B Sonogo, Felipe V Gomes, Elaine A Del Bel, Francisco S Guimaraes

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

**Problem Substances** : Antipsychotic Drugs : CK(10) : AC(1)

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## Cannabidiol administration after hypoxia-ischemia to newborn rats reduces long-term brain injury and restores neurobehavioral function.

**Pubmed Data** : Neuropharmacology. 2012 Oct ;63(5):776-83. Epub 2012 May 30. PMID: [22659086](#)

**Article Published Date** : Sep 30, 2012

**Authors** : M R Pazos, V Cinquina, A Gómez, R Layunta, M Santos, J Fernández-Ruiz, José Martínez-Orgado

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Brain Damage: Hypoxic Ischemic Insult : CK(2) : AC(1) , Brain Ischemia : CK(136) : AC(52)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

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## Cannabidiol and (-)Delta9-tetrahydrocannabinol are neuroprotective antioxidants.

**Pubmed Data** : Proc Natl Acad Sci U S A. 1998 Jul 7 ;95(14):8268-73. PMID: [9653176](#)

**Article Published Date** : Jul 06, 1998

**Authors** : A J Hampson, M Grimaldi, J Axelrod, D Wink

**Study Type** : Review

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Brain Inflammation : CK(274) : AC(145), Cerebral Ischemia : CK(229) : AC(77) , Oxidative Stress : CK(3871) : AC(1382)

**Pharmacological Actions** : Antioxidants : CK(8430) : AC(3132) , Neuroprotective Agents : CK(2360) : AC(1099)

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## Cannabidiol exhibits an anticonvulsive effect in the rats with chronic epilepsy.

**Pubmed Data** : Int J Clin Exp Med. 2015 ;8(6):8820-7. Epub 2015 Jun 15. PMID: [26309534](#)

**Article Published Date** : Dec 31, 2014

**Authors** : Ke Mao, Chao You, Ding Lei, Heng Zhang

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Epilepsy : CK(255) : AC(66) , Epilepsy: Drug-Induced : CK(20) : AC(6)

**Pharmacological Actions** : Anticonvulsants : CK(238) : AC(67) , Neuroprotective Agents : CK(2360) : AC(1099)

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## Cannabidiol has a neuroprotective and blood-retinal-preserving effect in experimental diabetes.

**Pubmed Data** : Int Urol Nephrol. 2004;36(4):591-8. PMID: [16400026](#)

**Article Published Date** : Jan 01, 2004

**Authors** : Azza B El-Remessy, Mohamed Al-Shabrawey, Yousuf Khalifa, Nai-Tse Tsai, Ruth B Caldwell, Gregory I Liou

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Diabetes: Cataract : CK(22) : AC(14), Diabetes Mellitus: Type 1 : CK(1130) : AC(301), Diabetes Mellitus: Type 2 : CK(3572) : AC(624), Oxidative Stress : CK(3871) : AC(1382)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669), Vascular Endothelial Growth Factor A Inhibitor : CK(132) : AC(71)

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## Cannabidiol has a neuroprotective effect in endotoxin-induced uveitis.

**Pubmed Data** : Mol Vis. 2008;14:2190-203. Epub 2008 Dec 3. PMID: [19052649](#)

**Article Published Date** : Jan 01, 2008

**Authors** : A B El-Remessy, Y Tang, G Zhu, S Matragoon, Y Khalifa, E K Liu, J-Y Liu, E Hanson, S Mian, N Fatteh, G I Liou

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408)

**Diseases** : Brain: Microglial Activation : CK(82) : AC(53), Endotoxemia : CK(83) : AC(43), Lipopolysaccharide-Induced Toxicity : CK(380) : AC(218), Oxidative Stress : CK(3871) : AC(1382), Uveitis : CK(91) : AC(17)

**Pharmacological Actions** : Enzyme Inhibitors : CK(473) : AC(251), Neuroprotective Agents : CK(2360) : AC(1099), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

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## Cannabidiol has a neuroprotective property in newborn rodent hypoxic ischemic insult.

**Pubmed Data** : CNS Neurol Disord Drug Targets. 2016 Sep 27. Epub 2016 Sep 27. PMID: [27686886](#)

**Article Published Date** : Sep 26, 2016

**Authors** : Nagat Mohammed, Maria Ceprián, Laura Jimenez, M Ruth Pazos, Jose Martínez-Orgado

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Brain Ischemia : CK(136) : AC(52), Infant Neurological Development : CK(58) : AC(9)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

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## Cannabidiol improves brain and liver function in a fulminant hepatic failure-induced model of hepatic encephalopathy in mice.

**Pubmed Data** : Br J Pharmacol. 2010 Dec 23. Epub 2010 Dec 23. PMID: [21182490](#)

**Article Published Date** : Dec 23, 2010

**Authors** : Y Avraham, Nc Grigoriadis, T Poutahidis, L Vorobiev, I Magen, Y Ilan, R Mechoulam, Em Berry

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408)

**Diseases** : Fulminant Hepatic Failure : CK(4) : AC(2), Hepatic Encephalopathy : CK(46) : AC(10), Liver Failure: Acute : CK(8) : AC(4)

**Pharmacological Actions** : Liver Failure: Acute : CK(8) : AC(4), Neuroprotective Agents : CK(2360) : AC(1099)

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## Cannabidiol is able to attenuate motor and cognitive impairments induced by reserpine.

**Pubmed Data** : Front Pharmacol. 2016 ;7:343. Epub 2016 Aug 28. PMID: [27733830](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Fernanda F Peres, Raquel Levin, Mayra A Suiama, Mariana C Diana, Douglas A Gouvêa, Valéria Almeida, Camila M Santos, Lisandro Lungato, Antônio W Zuardi, Jaime E C Hallak, José A Crippa, D'Almeida Vânia, Regina H Silva, Vanessa C Abílio

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Memory Disorders: Drug-Induced : CK(101) : AC(26), Parkinson's Disease : CK(1021) : AC(167), Tardive Dyskinesia : CK(78) : AC(12)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

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## Cannabidiol may have potential as a preventative treatment for Alzheimer's disease.

**Pubmed Data** : J Alzheimers Dis. 2014 ;42(4):1383-96. PMID: [25024347](#)

**Article Published Date** : Dec 31, 2013

**Authors** : David Cheng, Adena S Spiro, Andrew M Jenner, Brett Garner, Tim Karl

**Study Type** : Transgenic Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Brain: Oxidative Stress : CK(79) : AC(46), Brain Inflammation : CK(274) : AC(145), Memory Disorders : CK(344) : AC(104)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Antioxidants : CK(8430) : AC(3132), Neuroprotective Agents : CK(2360) : AC(1099)

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## Cannabidiol normalizes caspase 3, synaptophysin, and mitochondrial fission protein DNM1L expression levels in rats with brain iron overload.

**Pubmed Data** : Mol Neurobiol. 2014 Feb ;49(1):222-33. Epub 2013 Jul 28. PMID: [23893294](#)

**Article Published Date** : Jan 31, 2014

**Authors** : Vanessa Kappel da Silva, Betânia Souza de Freitas, Arethusa da Silva Dornelles, Laura Roesler Nery, Lucio Falavigna, Rafael Dal Ponte Ferreira, Maurício Reis Bogo, Jaime Eduardo Cecílio Hallak, Antônio Waldo Zuardi, José Alexandre S Crippa, Nadja Schröder

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Iron Overload : CK(32) : AC(18), Neurodegenerative Diseases : CK(3582) : AC(932)

**Pharmacological Actions** : Anti-Apoptotic : CK(384) : AC(212), Neuroprotective Agents : CK(2360) : AC(1099)

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## Cannabidiol possesses an anti-apoptotic power against the neurodegenerative processes underlying MS development.

**Pubmed Data** : Eur Rev Med Pharmacol Sci. 2015 Dec ;19(24):4906-19. PMID: [26744883](#)

**Article Published Date** : Nov 30, 2015

**Authors** : S Giacoppo, T Soundara Rajan, M Galuppo, F Pollastro, G Grassi, P Bramanti, E Mazzon

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Multiple Sclerosis : CK(964) : AC(184)

**Pharmacological Actions** : Anti-Apoptotic : CK(384) : AC(212), Neuroprotective Agents : CK(2360) : AC(1099)

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## Cannabidiol possesses neuroprotective characteristics that may, in turn, be promising for future clinical use.

**Pubmed Data** : Eur J Neurosci. 2013 Nov ;38(10):3424-34. Epub 2013 Aug 25. PMID: [23981015](#)

**Article Published Date** : Oct 31, 2013

**Authors** : Matheus Perez, Suzana U Benitez, Luciana P Cartarozzi, Elaine Del Bel, Francisco S Guimarães, Alexandre L R Oliveira

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Sciatic Nerve Crush Injury : CK(18) : AC(9)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

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## Cannabidiol promotes amyloid precursor protein ubiquitination and reduction of beta amyloid expression.

**Pubmed Data** : Phytother Res. 2014 Jul ;28(7):1007-13. Epub 2013 Nov 28. PMID: [24288245](#)

**Article Published Date** : Jun 30, 2014

**Authors** : Caterina Scuderi, Luca Steardo, Giuseppe Esposito

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Pharmacological Actions** : Anti-Apoptotic : CK(384) : AC(212), Neuroprotective Agents : CK(2360) : AC(1099)

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## Cannabidiol reduces brain damage and improves functional recovery in a neonatal rat model of arterial ischemic stroke.

**Pubmed Data** : Neuropharmacology. 2016 Dec 21. Epub 2016 Dec 21. PMID: [28012949](#)

**Article Published Date** : Dec 20, 2016

**Authors** : Maria Ceprián, Laura Jiménez-Sánchez, Carlos Vargas, Lorena Barata, Will Hind, Jose Martínez-Orgado

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Stroke: Ischemic : CK(218) : AC(31)

**Pharmacological Actions** : Anti-Apoptotic : CK(384) : AC(212), Anti-Inflammatory Agents : CK(4861) : AC(1630), Neuroprotective Agents : CK(2360) : AC(1099)

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## Cannabidiol reduces lung injury induced by hypoxic-ischemic brain damage.

**Pubmed Data** : Pediatr Res. 2017 Apr 7. Epub 2017 Apr 7. PMID: [28388598](#)

**Article Published Date** : Apr 06, 2017

**Authors** : Luis Arruza, Maria Ruth Pazos, Nagat Mohammed, Natalia Escribano, Hector Lafuente, Martín Santos, Francisco J Alvarez-Díaz, William Hind, Jose Martínez-Orgado

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Brain Damage: Hypoxic Ischemic Insult : CK(2) : AC(1)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Neuroprotective

Agents : CK(2360) : AC(1099)

**Additional Keywords** : Neuroprotective Agents : CK(2360) : AC(1099) , Neuroprotective Agents : CK(2360) : AC(1099), Neuroprotective Agents : CK(2360) : AC(1099) , Neuroprotective Agents : CK(2360) : AC(1099)

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## Cannabidiol was found to promote neuronal survival by inhibiting JNK and p38 MAP kinases.

**Pubmed Data** : Fitoterapia. 2016 Nov 25 ;116:77-84. Epub 2016 Nov 25. PMID: [27890794](#)

**Article Published Date** : Nov 24, 2016

**Authors** : Sabrina Giacoppo, Federica Pollastro, Gianpaolo Grassi, Placido Bramanti, Emanuela Mazzon

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Multiple Sclerosis : CK(964) : AC(184)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Interferon Gamma Reducer : CK(58) : AC(24), Interleukin-17 downregulation : CK(39) : AC(13), Neuroprotective Agents : CK(2360) : AC(1099)

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## Cannabidiol will have a palliative action and open new therapeutic possibilities for treating cerebrovascular disorders.

**Pubmed Data** : Neuropharmacology. 2007 Mar ;52(4):1079-87. Epub 2007 Feb 21. PMID: [17320118](#)

**Article Published Date** : Feb 28, 2007

**Authors** : Kazuhide Hayakawa, Kenichi Mishima, Masanori Nozako, Ayumi Ogata, Mai Hazekawa, An-Xin Liu, Masayuki Fujioka, Kohji Abe, Nobuyoshi Hasebe, Nobuaki Egashira, Katsunori Iwasaki, Michihiro Fujiwara

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Cerebral Ischemia : CK(229) : AC(77)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

**Additional Keywords** : Risk Reduction : CK(6417) : AC(686)

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## Cannabidiol, a non-psychoactive component from Cannabis sativa, exhibits neuroprotective, antioxidant and anti-apoptotic effect against beta-amyloid peptide toxicity.

**Pubmed Data** : Fitoterapia. 2011 Jan 26. Epub 2011 Jan 26. PMID: [15030397](#)

**Article Published Date** : Jan 26, 2011

**Authors** : Teresa Iuvone, Giuseppe Esposito, Ramona Esposito, Rita Santamaria, Massimo Di Rosa, Angelo A Izzo

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Marijuana : CK(1952) : AC(456)

**Diseases** : Alzheimer's Disease : CK(1292) : AC(382) , Neurodegenerative Diseases : CK(3582) : AC(932)

**Pharmacological Actions** : Antioxidants : CK(8430) : AC(3132) , Neuroprotective Agents : CK(2360) : AC(1099)

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## **Cannabidiol, a nonpsychoactive compound from cannabis, exhibits neuroprotective properties in binge ethanol-induced brain injury.**

**Pubmed Data** : J Pharmacol Exp Ther. 2005 Aug;314(2):780-8. Epub 2005 May 5. PMID: [15878999](#)

**Article Published Date** : Aug 01, 2005

**Authors** : Carol Hamelink, Aidan Hampson, David A Wink, Lee E Eiden, Robert L Eskay

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408)

**Diseases** : Alcohol Toxicity : CK(337) : AC(125) , Neurodegenerative Diseases : CK(3582) : AC(932)

**Pharmacological Actions** : Antioxidants : CK(8430) : AC(3132) , Neuroprotective Agents : CK(2360) : AC(1099)

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## **Cannabigerol could be used for the treatment of neurodegenerative diseases such as Huntington's disease.**

**Pubmed Data** : Neurotherapeutics. 2015 Jan ;12(1):185-99. PMID: [25252936](#)

**Article Published Date** : Dec 31, 2014

**Authors** : Sara Valdeolivas, Carmen Navarrete, Irene Cantarero, María L Bellido, Eduardo Muñoz, Onintza Sagredo

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Huntington Disease : CK(91) : AC(36) , Neurodegenerative Diseases : CK(3582) : AC(932)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

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## **Cannabigerol quinone (VCE-003) has high potential for use against MS and perhaps other neuroinflammatory diseases.**

**Pubmed Data** : J Neuroimmune Pharmacol. 2012 Dec ;7(4):1002-16. Epub 2012 Sep 14. PMID: [22971837](#)

**Article Published Date** : Nov 30, 2012

**Authors** : Aitor G Granja, Francisco Carrillo-Salinas, Alberto Pagani, María Gómez-Cañas, Roberto Negri, Carmen Navarrete, Miriam Mecha, Leyre Mestre, Bend L Fiebich, Irene Cantarero, Marco A Calzado, Maria L Bellido, Javier Fernandez-Ruiz, Giovanni Appendino, Carmen Guaza, Eduardo Muñoz

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33)

**Diseases** : Brain Inflammation : CK(274) : AC(145), Encephalomyelitis : CK(24) : AC(15), Multiple Sclerosis : CK(964) : AC(184)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Neuroprotective Agents : CK(2360) : AC(1099)

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## Cannabinoids are effective in reducing memory impairment in A $\beta$ PP/PS1 mice.

**Pubmed Data** : J Alzheimers Dis. 2016 Aug 10. Epub 2016 Aug 10. PMID: [27567873](#)

**Article Published Date** : Aug 09, 2016

**Authors** : Ester Aso, Pol Andrés-Benito, Isidro Ferrer

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Dementia : CK(571) : AC(79)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

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## Cannabinoids attenuate the effects of aging upon neuroinflammation and neurogenesis.

**Pubmed Data** : Neurobiol Dis. 2009 May ;34(2):300-7. PMID: [19385063](#)

**Article Published Date** : Apr 30, 2009

**Authors** : Yannick Marchalant, Holly M Brothers, Greg J Norman, Kate Karelina, A Courtney DeVries, Gary L Wenk

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Aging : CK(1658) : AC(438), Aging: Brain : CK(248) : AC(85), Brain Inflammation : CK(274) : AC(145)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Calcium Channel Blockers : CK(87) : AC(23), Neuritogenic : CK(133) : AC(59), Neuroprotective Agents : CK(2360) : AC(1099)

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## Cannabinoids have neuroprotective properties.

**Pubmed Data** : Recent Pat CNS Drug Discov. 2007 Jun ;2(2):131-9. PMID: [18221224](#)

**Article Published Date** : May 31, 2007

**Authors** : Jose Martínez-Orgado, David Fernández-López, Ignacio Lizasoain, Julián Romero

**Study Type** : Review

### Additional Links

**Substances** : [Cannabinoids](#) : CK(816) : AC(310)

**Diseases** : [Brain Damage](#) : CK(93) : AC(44) , [Brain Damage: Hypoxic Ischemic Insult](#) : CK(2) : AC(1)

**Pharmacological Actions** : [Neuroprotective Agents](#) : CK(2360) : AC(1099)

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## Cannabinoids have therapeutic potential in central nervous system disease.

**Pubmed Data** : Eur J Pharmacol. 2011 Jan 13. Epub 2011 Jan 13. PMID: [12617697](#)

**Article Published Date** : Jan 13, 2011

**Authors** : J Ludovic Croxford

**Study Type** : Review

### Additional Links

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338) , [Cannabis](#) : CK(1776) : AC(408)

**Diseases** : [Central Nervous System Diseases](#) : CK(6) : AC(6) , [Neurodegenerative Diseases](#) : CK(3582) : AC(932)

**Pharmacological Actions** : [Neuroprotective Agents](#) : CK(2360) : AC(1099)

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## Cannabinoids may have therapeutic value in neurodegenerative conditions by preventing and/or reducing neuroinflammation.

**Pubmed Data** : Neuroscience. 2007 Feb 23 ;144(4):1516-22. Epub 2006 Dec 18. PMID: [17178196](#)

**Article Published Date** : Feb 22, 2007

**Authors** : Y Marchalant, S Rosi, G L Wenk

**Study Type** : Animal Study

### Additional Links

**Substances** : [Cannabinoids](#) : CK(816) : AC(310)

**Diseases** : [Brain: Microglial Activation](#) : CK(82) : AC(53) , [Brain Inflammation](#) : CK(274) : AC(145) , [Lipopolysaccharide-Induced Toxicity](#) : CK(380) : AC(218) , [Memory Disorders](#) : CK(344) : AC(104)

**Pharmacological Actions** : [Analgesics](#) : CK(1327) : AC(217) , [Anti-Inflammatory Agents](#) : CK(4861) : AC(1630) , [Neuroprotective Agents](#) : CK(2360) : AC(1099)

---

## Cannabinoids may therapeutic value in neurodegenerative conditions and cancer.



**Pubmed Data** : J Mol Med. 2001;78(11):613-25. PMID: [11269508](#)

**Article Published Date** : Jan 01, 2001

**Authors** : M Guzmán, C Sánchez, I Galve-Roperh

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Cancers: All : CK(14773) : AC(4596) , Neurodegenerative Diseases : CK(3582) : AC(932)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Neuroprotective Agents : CK(2360) : AC(1099)

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## Cannabinoids seem to protect neurons against NMDA toxicity.

**Pubmed Data** : Mol Pharmacol. 2006 Mar ;69(3):691-6. Epub 2005 Nov 18. PMID: [16299067](#)

**Article Published Date** : Feb 28, 2006

**Authors** : Sun Hee Kim, Seok Joon Won, Xiao Ou Mao, Kunlin Jin, David A Greenberg

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099) , Nitric Oxide Inhibitor : CK(223) : AC(108)

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## Cannabinoids significantly reduced infarct volume and improve functional outcome in experimental stroke models.

**Pubmed Data** : J Cereb Blood Flow Metab. 2015 Mar ;35(3):348-58. Epub 2014 Dec 10. PMID: [25492113](#)

**Article Published Date** : Feb 28, 2015

**Authors** : Timothy J England, William H Hind, Nadiah A Rasid, Saoirse E O'Sullivan

**Study Type** : Meta Analysis, Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Stroke : CK(1365) : AC(168) , Stroke: Attenuation/Recovery : CK(347) : AC(75)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

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## Cannabis based medicine could be used as a neuroprotective agent capable of delaying disease progression in Huntington's disease.

**Pubmed Data** : J Neurosci Res. 2011 Sep ;89(9):1509-18. Epub 2011 Jun 14. PMID: [21674569](#)

**Article Published Date** : Aug 31, 2011

**Authors** : Onintza Sagredo, M Ruth Pazos, Valentina Satta, José A Ramos, Roger G Pertwee, Javier Fernández-Ruiz

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Huntington Disease : CK(91) : AC(36)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

**Additional Keywords** : Plant Extracts : CK(7645) : AC(2539)

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## Cannabis contains a number of compounds which may have therapeutic value in delaying the progression of ALS.

**Pubmed Data** : Amyotroph Lateral Scler Other Motor Neuron Disord. 2004 Mar;5(1):33-9. PMID: [15204022](#)

**Article Published Date** : Mar 01, 2004

**Authors** : Chandrasekaran Raman, Sean D McAllister, Gulrukh Rizvi, Sonal G Patel, Dan H Moore, Mary E Abood

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Amyotrophic Lateral Sclerosis : CK(567) : AC(140)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

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## Cannabis extracts could be neuroprotective agents, delaying disease progression in a proinflammatory model of Huntington's disease.

**Pubmed Data** : ACS Chem Neurosci. 2012 May 16 ;3(5):400-6. Epub 2012 Feb 9. PMID: [22860209](#)

**Article Published Date** : May 15, 2012

**Authors** : Sara Valdeolivas, Valentina Satta, Roger G Pertwee, Javier Fernández-Ruiz, Onintza Sagredo

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Huntington Disease : CK(91) : AC(36), Inflammation : CK(3240) : AC(882)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Neuroprotective Agents : CK(2360) : AC(1099)

**Additional Keywords** : Phytotherapy : CK(1216) : AC(221), Plant Extracts : CK(7645) : AC(2539)

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## Cannabis has potential therapeutic value in the treatment of amyotrophic lateral sclerosis.

**Pubmed Data** : Am J Hosp Palliat Care. 2010 Aug;27(5):347-56. Epub 2010 May 3. PMID: [20439484](#)

**Article Published Date** : Aug 01, 2010

**Authors** : Gregory T Carter, Mary E Abood, Sunil K Aggarwal, Michael D Weiss

**Study Type** : Review

**Additional Links**

**Substances** : [Cannabinoids](#) : CK(816) : AC(310), [Cannabis](#) : CK(1776) : AC(408)

**Diseases** : [Amyotrophic Lateral Sclerosis](#) : CK(567) : AC(140)

**Pharmacological Actions** : [Anti-Inflammatory Agents](#) : CK(4861) : AC(1630), [Antineoplastic Agents](#) : CK(1158) : AC(639), [Antioxidants](#) : CK(8430) : AC(3132), [Neuroprotective Agents](#) : CK(2360) : AC(1099)

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## Daily treatment with topical 1 % CBD-cream may exert neuroprotective effects against autoimmune encephalomyelitis.

**Pubmed Data** : Daru. 2015 ;23(1):48. Epub 2015 Oct 21. PMID: [26489494](#)

**Article Published Date** : Dec 31, 2014

**Authors** : Sabrina Giacoppo, Maria Galuppo, Federica Pollastro, Gianpaolo Grassi, Placido Bramanti, Emanuela Mazzon

**Study Type** : Animal Study

**Additional Links**

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Multiple Sclerosis](#) : CK(964) : AC(184)

**Pharmacological Actions** : [Neuroprotective Agents](#) : CK(2360) : AC(1099)

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## Data suggest that activity at the BBB could represent an as yet unrecognised mechanism of CBD-induced neuroprotection in ischaemic stroke

**Pubmed Data** : Br J Pharmacol. 2015 Oct 24. Epub 2015 Oct 24. PMID: [26497782](#)

**Article Published Date** : Oct 23, 2015

**Authors** : William H Hind, Timothy J England, Saoirse E O'Sullivan

**Study Type** : Human In Vitro

**Additional Links**

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Stroke: Attenuation/Recovery](#) : CK(347) : AC(75), [Stroke: Ischemic](#) : CK(218) : AC(31)

**Pharmacological Actions** : [Neuroprotective Agents](#) : CK(2360) : AC(1099), [Vascular Cell Adhesion Molecule-1 Inhibitor](#) : CK(117) : AC(30)

**Additional Keywords** : [Blood Brain Barrier](#) : CK(34) : AC(13)

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## It may be possible to prevent Alzheimer's disease pathology by cannabinoids.

**Pubmed Data** : J Neurosci. 2005 Feb 23 ;25(8):1904-13. PMID: [15728830](#)

**Article Published Date** : Feb 22, 2005

**Authors** : Belén G Ramírez, Cristina Blázquez, Teresa Gómez del Pulgar, Manuel Guzmán, María L de Ceballos

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Brain: Microglial Activation : CK(82) : AC(53)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099) , Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

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## **JWH-015, THC, CBD, Abn-CBD and O-1602 all protected SH-SY5Y cells from BV-2 conditioned media activated via LPS.**

**Pubmed Data** : Cell Mol Neurobiol. 2014 Jan ;34(1):31-42. Epub 2013 Sep 13. PMID: [24030360](#)

**Article Published Date** : Dec 31, 2013

**Authors** : Emelie Janefjord, Jesper L V Mååg, Benjamin S Harvey, Scott D Smid

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342), Lignans : CK(169) : AC(46)

**Diseases** : Brain: Microglial Activation : CK(82) : AC(53) , Lipopolysaccharide-Induced Toxicity : CK(380) : AC(218)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

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## **Low doses of CBD exert oligoprotective effects in oligodendrocyte progenitor cells under conditions of inflammation, oxidative and ER stress.**

**Pubmed Data** : Cell Death Dis. 2012 ;3:e331. Epub 2012 Jun 28. PMID: [22739983](#)

**Article Published Date** : Dec 31, 2011

**Authors** : M Mecha, A S Torrao, L Mestre, F J Carrillo-Salinas, R Mechoulam, C Guaza

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Inflammation : CK(3240) : AC(882) , Multiple Sclerosis : CK(964) : AC(184) , Oxidative Stress : CK(3871) : AC(1382)

**Pharmacological Actions** : Anti-Apoptotic : CK(384) : AC(212) , Anti-Inflammatory Agents : CK(4861) : AC(1630), Antioxidants : CK(8430) : AC(3132) , Neuroprotective Agents : CK(2360) : AC(1099)

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## **Mechanisms of cannabidiol neuroprotection in hypoxic-ischemic newborn pigs have been identified.**

**Pubmed Data** : Neuropharmacology. 2013 Aug ;71:282-91. Epub 2013 Apr 12. PMID: [23587650](#)

**Article Published Date** : Jul 31, 2013

**Authors** : M Ruth Pazos, Nagat Mohammed, Hector Lafuente, Martin Santos, Eva Martínez-Pinilla, Estefania Moreno, Elsa Valdizan, Julián Romero, Angel Pazos, Rafael Franco, Cecilia J Hillard, Francisco J Alvarez, Jose Martínez-Orgado

**Study Type** : Animal Study

**Additional Links**

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338), [Cannabinoids](#) : CK(816) : AC(310)

**Diseases** : [Brain Damage: Hypoxic Ischemic Insult](#) : CK(2) : AC(1) , [Brain Ischemia](#) : CK(136) : AC(52)

**Pharmacological Actions** : [Neuroprotective Agents](#) : CK(2360) : AC(1099)

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## Neuroprotective effects of the nonpsychoactive cannabinoid cannabidiol in hypoxic-ischemic newborn piglets has been observed.

**Pubmed Data** : Pediatr Res. 2008 Dec ;64(6):653-8. PMID: [18679164](#)

**Article Published Date** : Nov 30, 2008

**Authors** : Francisco J Alvarez, Hector Lafuente, M Carmen Rey-Santano, Victoria E Mielgo, Elena Gastiasoro, Miguel Rueda, Roger G Pertwee, Ana I Castillo, Julián Romero, José Martínez-Orgado

**Study Type** : Animal Study

**Additional Links**

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Brain Damage: Hypoxic Ischemic Insult](#) : CK(2) : AC(1) , [Brain Ischemia](#) : CK(136) : AC(52)

**Pharmacological Actions** : [Neuroprotective Agents](#) : CK(2360) : AC(1099)

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## Our results indicate that CBD exhibits neuroprotective effects in a cerebral malaria model and might be useful as an adjunctive therapy to prevent neurological symptoms.

**Pubmed Data** : Neuroscience. 2015 Mar 19 ;289:166-80. Epub 2015 Jan 13. PMID: [25595981](#)

**Article Published Date** : Mar 18, 2015

**Authors** : A C Campos, F Brant, A S Miranda, F S Machado, A L Teixeira

**Study Type** : Animal Study

**Additional Links**

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Malaria](#) : CK(145) : AC(58)

**Pharmacological Actions** : [Anti-Inflammatory Agents](#) : CK(4861) : AC(1630) , [Interleukin-6 Downregulation](#) : CK(1137) : AC(354) , [Neuroprotective Agents](#) : CK(2360) : AC(1099) , [Tumor Necrosis Factor \(TNF\) Alpha Inhibitor](#) : CK(1823) : AC(669)

**Additional Keywords** : [Malaria Complications](#) : CK(2) : AC(1)

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## Pre or post-conditioning treatment with extremely low

## doses of THC before or after brain injury, may provide safe and effective long-term neuroprotection.

**Pubmed Data** : Behav Brain Res. 2011 Jun 20 ;220(1):194-201. Epub 2011 Feb 18. PMID: [21315768](#)

**Article Published Date** : Jun 19, 2011

**Authors** : Fadi Assaf, Miriam Fishbein, Mikhal Gafni, Ora Keren, Yosef Sarne

**Study Type** : Animal Study

### Additional Links

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Cognitive Decline/Dysfunction : CK(1163) : AC(215), Drug-Induced Toxicity: Epilepsy  
Drugs : CK(2) : AC(1)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

**Additional Keywords** : Risk Reduction : CK(6417) : AC(686)

---

## Pre-clinical evidence largely shows that CBD can produce beneficial effects in AD, PD and MS patients

**Pubmed Data** : CNS Neurol Disord Drug Targets. 2017 Apr 13. Epub 2017 Apr 13. PMID: [28412918](#)

**Article Published Date** : Apr 12, 2017

**Authors** : Carmen Mannucci, Michele Navarra, Fabrizio Calapai, Elvira Ventura Spagnolo, Francesco Paolo Busardò, Roberto Da Cas, Francesca Menniti Ippolito, Gioacchino Calapai

**Study Type** : Review

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Alzheimer's Disease : CK(1292) : AC(382), Multiple Sclerosis : CK(964) : AC(184),  
Parkinson's Disease : CK(1021) : AC(167)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

**Additional Keywords** : Neuroprotective Agents : CK(2360) : AC(1099), Neuroprotective Agents :  
CK(2360) : AC(1099), Multiple Sclerosis : CK(10) : AC(1), Multiple Sclerosis : CK(10) : AC(1), Multiple  
Sclerosis : CK(10) : AC(1)

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## Pre-treatment with CBD prevented the expression of proteins potentially involved in tau phosphorylation and A $\beta$ production in GMSCs.

**Pubmed Data** : Int J Mol Sci. 2016 Dec 23 ;18(1). Epub 2016 Dec 23. PMID: [28025562](#)

**Article Published Date** : Dec 22, 2016

**Authors** : Rosaliana Libro, Francesca Diomede, Domenico Scionti, Adriano Piattelli, Gianpaolo Grassi, Federica Pollastro, Placido Bramanti, Emanuela Mazzon, Oriana Trubiani

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Alzheimer's Disease : CK(1292) : AC(382)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

**Additional Keywords** : Gene Expression Regulation : CK(431) : AC(214) , Mesenchymal Stem Cells : CK(13) : AC(7)

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## Short-term cannabidiol treatment results in global functional recovery in ischemic mice.

**Pubmed Data** : Prog Neuropsychopharmacol Biol Psychiatry. 2016 Nov 23. Epub 2016 Nov 23. PMID: [27889412](#)

**Article Published Date** : Nov 22, 2016

**Authors** : Marco Aurélio Mori, Erika Meyer, Ligia Mendes Soares, Humberto Milani, Francisco Silveira Guimarães, Rúbia Maria Weffort de Oliveira

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Brain Inflammation : CK(274) : AC(145), Brain Ischemia : CK(136) : AC(52)

**Pharmacological Actions** : Neuroplasticity enhancement : CK(44) : AC(12), Neuroprotective Agents : CK(2360) : AC(1099)

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## THC and other cannabinoids are potent antioxidants, with cannabidiol been superior to both alpha-tocopherol and ascorbate in protective capacity.

**Pubmed Data** : Ann N Y Acad Sci. 2000 ;899:274-82. PMID: [10863546](#)

**Article Published Date** : Dec 31, 1999

**Authors** : A J Hampson, M Grimaldi, M Lolic, D Wink, R Rosenthal, J Axelrod

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Brain: Oxidative Stress : CK(79) : AC(46)

**Pharmacological Actions** : Antioxidants : CK(8430) : AC(3132), Neuroprotective Agents : CK(2360) : AC(1099)

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## THC exerts anti-apoptotic and restores mitochondrial membrane potential.

**Pubmed Data** : Phytother Res. 2016 Dec ;30(12):2044-2052. Epub 2016 Sep 22. PMID: [27654887](#)

**Article Published Date** : Nov 30, 2016

**Authors** : Chi Huu Nguyen, Christopher Krewenka, Khaled Radad, Barbara Kranner, Alexandra Huber, Johanna Catharina Duvigneau, Ingrid Miller, Rudolf Moldzio

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Neurodegenerative Diseases : CK(3582) : AC(932), Parkinson's Disease : CK(1021) : AC(167)

**Pharmacological Actions** : Anti-Apoptotic : CK(384) : AC(212), Neuroprotective Agents : CK(2360) : AC(1099)

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## THC mediates neuroprotection via PPAR $\gamma$ -dependent restoration of mitochondrial content which may be beneficial for PD treatment.

**Pubmed Data** : Oncotarget. 2016 Jun 27. Epub 2016 Jun 27. PMID: [27366949](#)

**Article Published Date** : Jun 26, 2016

**Authors** : Marie-Louise Zeissler, Jordan Eastwood, Kieran McCorry, C Oliver Hanemann, John P Zajicek, Camille B Carroll

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Parkinson's Disease : CK(1021) : AC(167)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

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## Tetrahydrocannabivarin could be used for delaying disease progression in PD and also for ameliorating parkinsonian symptoms.

**Pubmed Data** : Br J Pharmacol. 2011 Aug ;163(7):1495-506. PMID: [21323909](#)

**Article Published Date** : Jul 31, 2011

**Authors** : C Garca, C Palomo-Garo, M Garca-Arencibia, Ja Ramos, Rg Pertwee, J Fernandez-Ruiz

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Parkinson's Disease : CK(1021) : AC(167)

**Pharmacological Actions** : Antioxidants : CK(8430) : AC(3132), Neuroprotective Agents : CK(2360) : AC(1099)

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## The CB2 cannabinoid agonist AM-1241 prolongs survival (56%) in a transgenic mouse model of amyotrophic lateral sclerosis when initiated at symptom onset.

**Pubmed Data** : Curr Eye Res. 2005 Jul;30(7):583-91. PMID: [17241118](#)

**Article Published Date** : Jul 01, 2005

**Authors** : Jennifer L Shoemaker, Kathryn A Seely, Ronald L Reed, John P Crow, Paul L Prather



**Study Type** : Animal Study

**Additional Links**

**Substances** : [Cannabinoids](#) : CK(816) : AC(310)

**Diseases** : [Amyotrophic Lateral Sclerosis](#) : CK(567) : AC(140)

**Pharmacological Actions** : [Neuroprotective Agents](#) : CK(2360) : AC(1099)

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## The combination of THC and CBD exhibits a better therapeutic profile than each cannabis component alone against Alzheimer's disease.

**Pubmed Data** : J Alzheimers Dis. 2015 ;43(3):977-91. PMID: [25125475](#)

**Article Published Date** : Dec 31, 2014

**Authors** : Ester Aso, Alexandre Sánchez-Pla, Esteban Vegas-Lozano, Rafael Maldonado, Isidro Ferrer

**Study Type** : Transgenic Animal Study

**Additional Links**

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338), [Cannabis](#) : CK(1776) : AC(408), [Delta-tetrahydrocannabinol \(THC\)](#) : CK(1135) : AC(342)

**Pharmacological Actions** : [Neuroprotective Agents](#) : CK(2360) : AC(1099)

**Additional Keywords** : [Gene Expression](#) : CK(93) : AC(46), [Natural Substance Synergy](#) : CK(540) : AC(249)

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## The current article provides an overview of the potential of cannabinoids in the treatment of late-onset Alzheimer's disease.

**Pubmed Data** : Clin Pharmacol Ther. 2015 Jun ;97(6):597-606. Epub 2015 Apr 17. PMID: [25788394](#)

**Article Published Date** : May 31, 2015

**Authors** : Aia Ahmed, M A van der Marck, Gah van den Elsen, Mgm Olde Rikkert

**Study Type** : Review

**Additional Links**

**Substances** : [Cannabinoids](#) : CK(816) : AC(310)

**Diseases** : [Aging](#) : CK(1658) : AC(438), [Alzheimer's Disease](#) : CK(1292) : AC(382)

**Pharmacological Actions** : [Neuroprotective Agents](#) : CK(2360) : AC(1099)

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## The data from this study supports the view that inhibition of microglial activation may improve schizophrenia symptoms.

**Pubmed Data** : Schizophr Res. 2015 May ;164(1-3):155-63. Epub 2015 Feb 10. PMID: [25680767](#)

**Article Published Date** : Apr 30, 2015

**Authors** : Felipe V Gomes, Ricardo Llorente, Elaine A Del Bel, Maria-Paz Viveros, Meritxell López-

Gallardo, Francisco S Guimarães

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Brain Inflammation : CK(274) : AC(145), Schizophrenia : CK(445) : AC(70)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Antipsychotic Agents : CK(15) : AC(2), Neuroprotective Agents : CK(2360) : AC(1099)

**Additional Keywords** : Clozapine : CK(2) : AC(1), Natural Substances Versus Drugs : CK(1698) : AC(302)

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## The endocannabinoid system may play a valuable role in the development of treatment options for amyotrophic lateral sclerosis.

**Pubmed Data** : Curr Pharm Des. 2008;14(23):2306-16. PMID: [18781981](#)

**Article Published Date** : Jan 01, 2008

**Authors** : Lynsey G Bilsland, Linda Greensmith

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Amyotrophic Lateral Sclerosis : CK(567) : AC(140), Endocannabinoid Disorders : CK(46) : AC(13), Endocannabinoid System : CK(22) : AC(12)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

**Additional Keywords** : Diseases that are Linked : CK(2335) : AC(304)

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## The marijuana component cannabidiol has a neuroprotective effect on beta-amyloid-induced neuronal changes.

**Pubmed Data** : J Mol Med. 2006 Mar;84(3):253-8. Epub 2005 Dec 31. PMID: [16389547](#)

**Article Published Date** : Mar 01, 2006

**Authors** : Giuseppe Esposito, Daniele De Filippis, Rosa Carnuccio, Angelo A Izzo, Teresa Iuvone

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408)

**Diseases** : Alzheimer's Disease : CK(1292) : AC(382)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

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## The neuroprotective effect of cannabidiol in an in vitro model of newborn hypoxic-ischemic brain damage in mice is mediated by CB(2) and adenosine receptors.

**Pubmed Data** : Neurobiol Dis. 2010 Feb ;37(2):434-40. Epub 2009 Nov 6. PMID: [19900555](#)

**Article Published Date** : Jan 31, 2010

**Authors** : A Castillo, M R Tolón, J Fernández-Ruiz, J Romero, J Martinez-Orgado

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Brain Damage : CK(93) : AC(44) , Brain Damage: Hypoxic Ischemic Insult : CK(2) : AC(1)

**Pharmacological Actions** : Interleukin-6 Downregulation : CK(1137) : AC(354) , Neuroprotective Agents : CK(2360) : AC(1099)

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## The potential therapeutic applications of cannabinoids are discussed.

**Pubmed Data** : Pharmacol Ther. 2002 Aug ;95(2):175-84. PMID: [12182964](#)

**Article Published Date** : Jul 31, 2002

**Authors** : Manuel Guzmán, Cristina Sánchez, Ismael Galve-Roperh

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Cancers: All : CK(14773) : AC(4596)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639) , Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075) , Immunomodulatory : CK(1287) : AC(358) , Neuroprotective Agents : CK(2360) : AC(1099)

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## The studies provide "proof of principle" that CBD and possibly CBD-THC combinations are valid candidates for novel AD therapies.

**Pubmed Data** : Front Pharmacol. 2017 ;8:20. Epub 2017 Feb 3. PMID: [28217094](#)

**Article Published Date** : Dec 31, 2016

**Authors** : Georgia Watt, Tim Karl

**Study Type** : Review

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Alzheimer's Disease : CK(1292) : AC(382)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630) , Antioxidants : CK(8430) : AC(3132), Neurogenesis : CK(59) : AC(30) , Neuroprotective Agents : CK(2360) : AC(1099)

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## These findings constitute the first evidence for an astroprotective role of cannabinoids.

**Pubmed Data** : J Biol Chem. 2002 Sep 27 ;277(39):36527-33. Epub 2002 Jul 19. PMID: [12133838](#)

**Article Published Date** : Sep 26, 2002

**Authors** : Teresa Gómez Del Pulgar, Maria L De Ceballos, Manuel Guzmán, Guillermo Velasco

**Study Type** : Animal Study, In Vitro Study

**Additional Links**

**Substances** : [Cannabinoids](#) : CK(816) : AC(310)

**Diseases** : [Neurodegenerative Diseases](#) : CK(3582) : AC(932)

**Pharmacological Actions** : [Neuroprotective Agents](#) : CK(2360) : AC(1099)

**Additional Keywords** : [Dose Response](#) : CK(1056) : AC(408)

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## These results reinforce the potential role of CBD in the treatment of epileptic disorders.

**Pubmed Data** : Front Pharmacol. 2017 ;8:131. Epub 2017 Mar 17. PMID: [28367124](#)

**Article Published Date** : Dec 31, 2016

**Authors** : Raquel A Do Val-da Silva, Jose E Peixoto-Santos, Ludmyla Kandratavicius, Jana B De Ross, Ingrid Esteves, Bruno S De Martinis, Marcela N R Alves, Renata C Scanduzzi, Jaime E C Hallak, Antonio W Zuardi, Jose A Crippa, Joao P Leite

**Study Type** : Animal Study

**Additional Links**

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Epilepsy](#) : CK(255) : AC(66)

**Pharmacological Actions** : [Anticonvulsants](#) : CK(238) : AC(67), [Neuroprotective Agents](#) : CK(2360) : AC(1099)

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## These results support the view of a potential neuroprotective action of cannabinoids against the in vivo and in vitro toxicity of 6-hydroxydopamine.

**Pubmed Data** : Neurobiol Dis. 2005 Jun-Jul;19(1-2):96-107. PMID: [15837565](#)

**Article Published Date** : May 31, 2005

**Authors** : Isabel Lastres-Becker, Francisco Molina-Holgado, José A Ramos, Raphael Mechoulam, Javier Fernández-Ruiz

**Study Type** : Animal Study, In Vitro Study

**Additional Links**

**Substances** : [Cannabinoids](#) : CK(816) : AC(310), [Delta-tetrahydrocannabinol \(THC\)](#) : CK(1135) : AC(342)

**Diseases** : [Neurodegenerative Diseases](#) : CK(3582) : AC(932), [Parkinson's Disease](#) : CK(1021) : AC(167)

**Pharmacological Actions** : [Antioxidants](#) : CK(8430) : AC(3132), [Neuroprotective Agents](#) : CK(2360) : AC(1099)

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## This review details the mechanisms of neurodegeneration and highlights the beneficial effects of

## cannabinoid treatment.

**Pubmed Data** : Br J Pharmacol. 2014 Mar ;171(6):1347-60. PMID: [24172185](#)

**Article Published Date** : Feb 28, 2014

**Authors** : S G Fagan, V A Campbell

**Study Type** : Review

### **Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Alzheimer's Disease : CK(1292) : AC(382) , Brain Inflammation : CK(274) : AC(145), Huntington Disease : CK(91) : AC(36) , Neurodegenerative Diseases : CK(3582) : AC(932), Parkinson's Disease : CK(1021) : AC(167)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Neurogenesis : CK(59) : AC(30), Neuroprotective Agents : CK(2360) : AC(1099)

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## This review discusses the potential of cannabinoid therapeutics as disease-modifying or symptom control agents for slowing disease progression in MS and ALS.

**Pubmed Data** : Handb Exp Pharmacol. 2015 ;231:213-31. PMID: [26408162](#)

**Article Published Date** : Dec 31, 2014

**Authors** : Gareth Pryce, David Baker

**Study Type** : Review

### **Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408), Endocannabinoids : CK(9) : AC(1)

**Diseases** : Amyotrophic lateral sclerosis (ALS) : CK(566) : AC(140) , Multiple Sclerosis : CK(964) : AC(184)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

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## This reviews the basis for the use of cannabinoids in the treatment of cancers and neurodegenerative diseases.

**Pubmed Data** : Handb Exp Pharmacol. 2005(168):627-42. PMID: [16596790](#)

**Article Published Date** : Dec 31, 2004

**Authors** : M Guzmán

**Study Type** : Review

### **Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Cancers: All : CK(14773) : AC(4596) , Neurodegenerative Diseases : CK(3582) : AC(932)

**Pharmacological Actions** : Anti-Angiogenic : CK(197) : AC(137), Antineoplastic Agents : CK(1158) : AC(639), Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075) , Neuroprotective Agents : CK(2360) : AC(1099)

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## This reviews the in-vitro and in-vivo evidence for the therapeutic potential of CBD in Alzheimer's disease.

**Pubmed Data** : Behav Pharmacol. 2016 Jul 28. Epub 2016 Jul 28. PMID: [27471947](#)

**Article Published Date** : Jul 27, 2016

**Authors** : Tim Karl, Brett Garner, David Cheng

**Study Type** : Review

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Alzheimer's Disease : CK(1292) : AC(382)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Antioxidants : CK(8430) : AC(3132), Neuroprotective Agents : CK(2360) : AC(1099)

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## This study found that cannabinoid positive patients had milder intracerebral haemorrhage presentation and less disability at discharge.

**Pubmed Data** : Cerebrovasc Dis. 2016 Jan 29 ;41(5-6):248-255. Epub 2016 Jan 29. PMID: [26820826](#)

**Article Published Date** : Jan 28, 2016

**Authors** : Mario Di Napoli, Alicia M Zha, Daniel A Godoy, Luca Masotti, Floris H B M Schreuder, Aurel Popa-Wagner, Réza Behrouz,

**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabis : CK(1776) : AC(408)

**Diseases** : Stroke: Attenuation/Recovery : CK(347) : AC(75), Stroke: Ischemic : CK(218) : AC(31)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

**Additional Keywords** : Risk Reduction : CK(6417) : AC(686)

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## This study may support the experimental and biological evidence for a neuroprotective effect by the endocannabinoid system in MS.

**Pubmed Data** : J Neuroimmune Pharmacol. 2014 Dec 24. Epub 2014 Dec 24. PMID: [25537576](#)

**Article Published Date** : Dec 23, 2014

**Authors** : Gareth Pryce, Dieter R Riddall, David L Selwood, Gavin Giovannoni, David Baker

**Study Type** : Human Study

**Additional Links**

**Substances** : Cannabinoids: Synthetic : CK(78) : AC(33), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Multiple Sclerosis : CK(964) : AC(184)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

**Additional Keywords** : Dose Response : CK(1056) : AC(408)

## This summarizes the therapeutic effects of CBD and their relevance to brain function, neuroprotection and neuropsychiatric disorders.

**Pubmed Data** : Pharmacol Res. 2016 Feb 1. Epub 2016 Feb 1. PMID: [26845349](#)

**Article Published Date** : Jan 31, 2016

**Authors** : Alline C Campos, Manoela V Fogaça, Andreza B Sonego, Francisco S Guimarães

**Study Type** : Review

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Anxiety Disorders : CK(1225) : AC(180), Brain Damage : CK(93) : AC(44), Brain Ischemia : CK(136) : AC(52), Depression : CK(2043) : AC(290), Neurodegenerative Diseases : CK(3582) : AC(932), Psychiatric Disorders : CK(123) : AC(31)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099)

## Nitric Oxide Inhibitor (AC 2) (CK 4)

### Cannabichromene could be considered for clinical experimentation in inflammatory bowel disease patients.

**Pubmed Data** : Biochem Pharmacol. 2013 May 1 ;85(9):1306-16. Epub 2013 Feb 12. PMID: [23415610](#)

**Article Published Date** : Apr 30, 2013

**Authors** : Francesca Borrelli, Ines Fasolino, Barbara Romano, Raffaele Capasso, Francesco Maiello, Diana Coppola, Pierangelo Orlando, Giovanni Battista, Ester Pagano, Vincenzo Di Marzo, Angelo A Izzo

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Colitis : CK(255) : AC(111), Inflammatory Bowel Diseases : CK(1052) : AC(197)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Interleukin-10 downregulation : CK(128) : AC(45), Interleukin-1 beta downregulation : CK(478) : AC(205), Nitric Oxide Inhibitor : CK(223) : AC(108), Superoxide Dismutase Up-regulation : CK(530) : AC(174)

### Cannabinoids seem to protect neurons against NMDA toxicity.

**Pubmed Data** : Mol Pharmacol. 2006 Mar ;69(3):691-6. Epub 2005 Nov 18. PMID: [16299067](#)

**Article Published Date** : Feb 28, 2006

**Authors** : Sun Hee Kim, Seok Joon Won, Xiao Ou Mao, Kunlin Jin, David A Greenberg

**Study Type** : Animal Study

**Additional Links**

**Substances** : [Cannabinoids](#) : CK(816) : AC(310), [Delta-tetrahydrocannabinol \(THC\)](#) : CK(1135) : AC(342)

**Pharmacological Actions** : [Neuroprotective Agents](#) : CK(2360) : AC(1099) , [Nitric Oxide Inhibitor](#) : CK(223) : AC(108)

## Nrf2 activation (AC 1) (CK 1)

**This study explains the beneficial role of CBD in pathological memory T cells and in autoimmune diseases.**

**Pubmed Data** : J Neuroinflammation. 2016 ;13(1):136. Epub 2016 Jun 3. PMID: [27256343](#)

**Article Published Date** : Dec 31, 2015

**Authors** : Ewa Kozela, Ana Juknat, Fuying Gao, Nathali Kaushansky, Giovanni Coppola, Zvi Vogel

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Autoimmune Diseases](#) : CK(6629) : AC(1128)

**Pharmacological Actions** : [Anti-Inflammatory Agents](#) : CK(4861) : AC(1630) , [Antioxidants](#) : CK(8430) : AC(3132) , [Immunomodulatory](#) : CK(1287) : AC(358) , [Immunomodulatory: Th17 downregulation](#) : CK(30) : AC(17) , [Nrf2 activation](#) : CK(177) : AC(86)

## P38 Mitogen-Activated Protein Kinase Modulator (AC 2) (CK 6)

**Results show that stimulation of the CB2 receptor leads to p38 MAPK activation and that inhibition of this kinase attenuates CB2 receptor induced caspase activation and**



## apoptosis.

**Pubmed Data** : FEBS Lett. 2005 Sep 12 ;579(22):5084-8. PMID: [16139274](#)

**Article Published Date** : Sep 11, 2005

**Authors** : Blanca Herrera, Arkaitz Carracedo, María Díez-Zaera, Manuel Guzmán, Guillermo Velasco

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Leukemia : CK(1005) : AC(398)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075), P38 Mitogen-Activated Protein Kinase Modulator : CK(6) : AC(5)

---

## The present data suggest that targeting CB(1)/CB(2) may have therapeutic potential for the treatment of mantle cell lymphoma.

**Pubmed Data** : Mol Pharmacol. 2006 Nov ;70(5):1612-20. Epub 2006 Aug 25. PMID: [16936228](#)

**Article Published Date** : Oct 31, 2006

**Authors** : Kristin Gustafsson, Birger Christensson, Birgitta Sander, Jenny Flygare

**Study Type** : Human In Vitro

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33)

**Diseases** : Lymphoma : CK(253) : AC(83)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075), P38 Mitogen-Activated Protein Kinase Modulator : CK(6) : AC(5)

**Additional Keywords** : Selective Cytotoxicity : CK(158) : AC(112)

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## Pancreato Protective Agents (AC 1) (CK 2)

## Experimental cannabidiol treatment reduces early pancreatic inflammation in type 1 diabetes.

**Pubmed Data** : Clin Hemorheol Microcirc. 2016 Oct 18. Epub 2016 Aug 18. PMID: [27767974](#)

**Article Published Date** : Oct 17, 2016

**Authors** : Christian Lehmann, Nicholas B Fisher, Barna Tugwell, Anna Szczesniak, Mel Kelly, Juan Zhou

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Diabetes Mellitus: Type 1 : CK(1130) : AC(301)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Pancreato Protective Agents : CK(40) : AC(23)

## Paraptosis (AC 1) (CK 1)

**The cannabinoid quinone HU-331 is a highly specific inhibitor of topoisomerase II.**

**Pubmed Data** : Mol Cancer Ther. 2007 Jan ;6(1):173-83. PMID: [17237277](#)

**Article Published Date** : Dec 31, 2006

**Authors** : Natalya M Kogan, Michael Schlesinger, Esther Priel, Ruth Rabinowitz, Eduard Berenshtein, Mordechai Chevion, Raphael Mechoulam

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids: Synthetic : CK(78) : AC(33)

**Diseases** : Colorectal Cancer : CK(1646) : AC(619)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639), Cell cycle arrest : CK(810) : AC(612), Chemotherapeutic : CK(397) : AC(152), Paraptosis : CK(1) : AC(1), Topoisomerase II Inhibitor : CK(3) : AC(3)

## Platelet Aggregation Inhibitors (AC 1) (CK 2)

**Hempseed prevents cholesterol-induced stimulation of platelet aggregation.**

**Pubmed Data** : Can J Physiol Pharmacol. 2008 Apr;86(4):153-9. PMID: [18418423](#)

**Article Published Date** : Apr 01, 2008

**Authors** : M A Prociuk, A L Edell, M N Richard, N T Gavel, B P Ander, C M C Dupasquier, G N Pierce

**Study Type** : Animal Study

**Additional Links**

**Substances** : Hemp Seed : CK(446) : AC(5)

**Diseases** : High Cholesterol : CK(1774) : AC(271)

**Pharmacological Actions** : Anti-Platelet : CK(125) : AC(38), Platelet Aggregation Inhibitors : CK(186) : AC(40)

## Radiosensitizer (AC 1) (CK 2)

**Cannabinoids can prime glioma cells to respond better to ionizing radiation and suggest a potential clinical benefit for glioma patients by using these two treatment modalities.**

**Pubmed Data** : Mol Cancer Ther. 2014 Dec ;13(12):2955-67. Epub 2014 Nov 14. PMID: [25398831](#)

**Article Published Date** : Nov 30, 2014

**Authors** : Katherine A Scott, Angus G Dalgleish, Wai M Liu

**Study Type** : Animal Study, In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Glioma : CK(177) : AC(86)

**Pharmacological Actions** : Radiosensitizer : CK(99) : AC(62)

**Additional Keywords** : Dose Response : CK(1056) : AC(408), Plant Extracts : CK(7645) : AC(2539)

## Redox Modulator (AC 1) (CK 2)

**CBD induced a robust increase in ROS, which led to the inhibition of cell survival, phosphorylated (p)-AKT, self-renewal and a significant increase in the survival of GSC**

## bearing mice.

**Pubmed Data** : Cell Death Dis. 2015 ;6:e1601. Epub 2015 Jan 15. PMID: [25590811](#)

**Article Published Date** : Dec 31, 2014

**Authors** : E Singer, J Judkins, N Salomonis, L Matlaf, P Soteropoulos, S McAllister, L Soroceanu

**Study Type** : Animal Study, In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Glioblastoma : CK(200) : AC(88)

**Pharmacological Actions** : Anticarcinogenic Agents : CK(1099) : AC(519) , Apoptotic : CK(2958) : AC(2075), Redox Modulator : CK(5) : AC(3)

**Additional Keywords** : Cancer Stem Cells : CK(135) : AC(88), Significant Treatment Outcome : CK(3038) : AC(366)

## Renoprotective (AC 1) (CK 2)

### Cannabidiol treatment had a protective effect against inflammation and oxidative damage in the kidney ischemia/reperfusion model.

**Pubmed Data** : Rev Bras Ter Intensiva. 2015 Dec ;27(4):383-389. PMID: [26761477](#)

**Article Published Date** : Nov 30, 2015

**Authors** : Rodrigo Zon Soares, Francieli Vuolo, Dhébora Mozena Dall'Igna, Monique Michels, José Alexandre de Souza Crippa, Jaime Eduardo Cecílio Hallak, Antonio Waldo Zuardi, Felipe Dal-Pizzol

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Ischemia : CK(76) : AC(38)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630) , Antioxidants : CK(8430) : AC(3132), Renoprotective : CK(572) : AC(254)

## Superoxide Dismutase Up-regulation (AC 4) (CK 8)

## A hemp seed meal protein hydrolysate contained antioxidant peptides that reduced the rate of lipid peroxidation in spontaneously hypertensive rats.

**Pubmed Data** : Nutrients. 2014 Dec ;6(12):5652-66. PMID: [25493943](#)

**Article Published Date** : Nov 30, 2014

**Authors** : Abraham T Girgih, Adeola M Alashi, Rong He, Sunday A Malomo, Pema Raj, Thomas Netticadan, Rotimi E Aluko

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabis : CK(1776) : AC(408), Hemp Seed : CK(446) : AC(5)

**Diseases** : Hypertension : CK(2984) : AC(406), Lipid Peroxidation : CK(695) : AC(255), Oxidative Stress : CK(3871) : AC(1382)

**Pharmacological Actions** : Antioxidants : CK(8430) : AC(3132), Catalase Up-Regulation : CK(118) : AC(42), Superoxide Dismutase Up-regulation : CK(530) : AC(174)

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## Cannabichromene could be considered for clinical experimentation in inflammatory bowel disease patients.

**Pubmed Data** : Biochem Pharmacol. 2013 May 1 ;85(9):1306-16. Epub 2013 Feb 12. PMID: [23415610](#)

**Article Published Date** : Apr 30, 2013

**Authors** : Francesca Borrelli, Ines Fasolino, Barbara Romano, Raffaele Capasso, Francesco Maiello, Diana Coppola, Pierangelo Orlando, Giovanni Battista, Ester Pagano, Vincenzo Di Marzo, Angelo A Izzo

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Colitis : CK(255) : AC(111), Inflammatory Bowel Diseases : CK(1052) : AC(197)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Interleukin-10 downregulation : CK(128) : AC(45), Interleukin-1 beta downregulation : CK(478) : AC(205), Nitric Oxide Inhibitor : CK(223) : AC(108), Superoxide Dismutase Up-regulation : CK(530) : AC(174)

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## THC may provide a protective effect against oxidative damage induced by diabetes.

**Pubmed Data** : Cell Biochem Funct. 2014 Oct ;32(7):612-9. Epub 2014 Sep 3. PMID: [25187240](#)

**Article Published Date** : Sep 30, 2014

**Authors** : Zeynep Mine Coskun, Sema Bolkent

**Study Type** : Animal Study

### Additional Links

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Diabetes Mellitus: Type 2 : CK(3572) : AC(624), Oxidative Stress : CK(3871) : AC(1382)

**Pharmacological Actions** : Catalase Up-Regulation : CK(118) : AC(42) , Superoxide Dismutase Up-regulation : CK(530) : AC(174)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

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## THC treatment may attenuate slightly the oxidative stress in diabetic rats.

**Pubmed Data** : Iran J Basic Med Sci. 2016 Feb ;19(2):154-8. PMID: [27081459](#)

**Article Published Date** : Jan 31, 2016

**Authors** : Zeynep Mine Coskun, Sema Bolkent

**Study Type** : Animal Study

**Additional Links**

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Diabetes: Oxidative Stress : CK(131) : AC(40) , Diabetes Mellitus: Type 2 : CK(3572) : AC(624)

**Pharmacological Actions** : Antioxidants : CK(8430) : AC(3132) , Superoxide Dismutase Up-regulation : CK(530) : AC(174)

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# Topoisomerase II Inhibitor (AC 1) (CK 1)

## The cannabinoid quinone HU-331 is a highly specific inhibitor of topoisomerase II.

**Pubmed Data** : Mol Cancer Ther. 2007 Jan ;6(1):173-83. PMID: [17237277](#)

**Article Published Date** : Dec 31, 2006

**Authors** : Natalya M Kogan, Michael Schlesinger, Esther Priel, Ruth Rabinowitz, Eduard Berenshtein, Mordechai Chevion, Raphael Mechoulam

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabinoids: Synthetic : CK(78) : AC(33)

**Diseases** : Colorectal Cancer : CK(1646) : AC(619)

**Pharmacological Actions** : Antineoplastic Agents : CK(1158) : AC(639) , Cell cycle arrest : CK(810) : AC(612), Chemotherapeutic : CK(397) : AC(152) , Paraptosis : CK(1) : AC(1) , Topoisomerase II Inhibitor : CK(3) : AC(3)

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## Transient receptor potential vanilloid type-2 activation (AC 1) (CK 1)

**TRPV2 activation could be a novel therapeutic strategy to enhance the uptake and efficacy of chemotherapy in TNBC patients.**

**Pubmed Data** : Oncotarget. 2016 May 27. Epub 2016 May 27. PMID: [27248470](#)

**Article Published Date** : May 26, 2016

**Authors** : Mohamad Elbaz, Dinesh Ahirwar, Zhang Xiaoli, Xinyu Zhou, Maryam Lustberg, Mohd W Nasser, Konstantin Shilo, Ramesh K Ganju

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Breast Cancer : CK(3592) : AC(1064), Breast Cancer: Triple Negative : CK(262) : AC(144)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075), Transient receptor potential vanilloid type-2 activation : CK(1) : AC(1)

**Additional Keywords** : Chemotherapeutic Synergy: Doxorubicin : CK(44) : AC(32), Median Survival Time : CK(31) : AC(3)

## Tumor Necrosis Factor (TNF) Alpha Inhibitor (AC 18) (CK 42)

**Cannabidiol controls the exaggerated inflammatory response observed in an animal model of asthma.**

**Pubmed Data** : Mediators Inflamm. 2015 ;2015:538670. Epub 2015 May 25. PMID: [26101464](#)

**Article Published Date** : Dec 31, 2014

**Authors** : Francieli Vuolo, Fabricia Petronilho, Beatriz Sonai, Cristiane Ritter, Jaime E C Hallak, Antonio Waldo Zuardi, José A Crippa, Felipe Dal-Pizzol

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Asthma : CK(1157) : AC(190)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), interleukin-13 down-regulation : CK(2) : AC(1), Interleukin-4 downregulation : CK(119) : AC(34), Interleukin-5 downregulation : CK(25) : AC(4), Interleukin-6 Downregulation : CK(1137) : AC(354), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

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## Cannabidiol exerts a potent anti-angiogenic effect by widely affecting several pathways involved in this process.

**Pubmed Data** : Br J Pharmacol. 2012 Nov ;167(6):1218-31. PMID: [22624859](#)

**Article Published Date** : Oct 31, 2012

**Authors** : M Solinas, P Massi, A R Cantelmo, M G Cattaneo, R Cammarota, D Bartolini, V Cinquina, M Valenti, L M Vicentini, D M Noonan, A Albin, D Parolaro

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Cancers: All : CK(14773) : AC(4596)

**Pharmacological Actions** : Anti-Angiogenic : CK(197) : AC(137), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669), Vascular Endothelial Growth Factor Inhibitors : CK(123) : AC(61)

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## Cannabidiol has a neuroprotective and blood-retinal-preserving effect in experimental diabetes.

**Pubmed Data** : Int Urol Nephrol. 2004;36(4):591-8. PMID: [16400026](#)

**Article Published Date** : Jan 01, 2004

**Authors** : Azza B El-Remessy, Mohamed Al-Shabrawey, Yousuf Khalifa, Nai-Tse Tsai, Ruth B Caldwell, Gregory I Liou

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Diabetes: Cataract : CK(22) : AC(14), Diabetes Mellitus: Type 1 : CK(1130) : AC(301), Diabetes Mellitus: Type 2 : CK(3572) : AC(624), Oxidative Stress : CK(3871) : AC(1382)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669), Vascular Endothelial Growth Factor A Inhibitor : CK(132) : AC(71)

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## Cannabidiol has a neuroprotective effect in endotoxin-induced uveitis.

**Pubmed Data** : Mol Vis. 2008;14:2190-203. Epub 2008 Dec 3. PMID: [19052649](#)

**Article Published Date** : Jan 01, 2008

**Authors** : A B El-Remessy, Y Tang, G Zhu, S Matragoon, Y Khalifa, E K Liu, J-Y Liu, E Hanson, S Mian, N Fatteh, G I Liou



**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338), Cannabis : CK(1776) : AC(408)

**Diseases** : Brain: Microglial Activation : CK(82) : AC(53), Endotoxemia : CK(83) : AC(43), Lipopolysaccharide-Induced Toxicity : CK(380) : AC(218), Oxidative Stress : CK(3871) : AC(1382), Uveitis : CK(91) : AC(17)

**Pharmacological Actions** : Enzyme Inhibitors : CK(473) : AC(251), Neuroprotective Agents : CK(2360) : AC(1099), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

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## Cannabidiol might become a useful therapeutic tool for the attenuation and treatment of inflammatory lung diseases.

**Pubmed Data** : Immunopharmacol Immunotoxicol. 2015 Feb ;37(1):35-41. Epub 2014 Oct 30. PMID: [25356537](#)

**Article Published Date** : Jan 31, 2015

**Authors** : A Ribeiro, V I Almeida, C Costola-de-Souza, V Ferraz-de-Paula, M L Pinheiro, L B Vitoretti, J A Gimenes-Junior, A T Akamine, J A Crippa, W Tavares-de-Lima, J Palermo-Neto

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Interstitial Lung Diseases : CK(63) : AC(11), Lipopolysaccharide-Induced Toxicity : CK(380) : AC(218)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Interleukin-6 Downregulation : CK(1137) : AC(354), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

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## Cannabidiol reduces intestinal inflammation through the control of neuroimmune axis.

**Pubmed Data** : PLoS One. 2011 ;6(12):e28159. Epub 2011 Dec 6. PMID: [22163000](#)

**Article Published Date** : Dec 31, 2010

**Authors** : Daniele De Filippis, Giuseppe Esposito, Carla Cirillo, Mariateresa Cipriano, Benedicte Y De Winter, Caterina Scuderi, Giovanni Sarnelli, Rosario Cuomo, Luca Steardo, Joris G De Man, Teresa Iuvone

**Study Type** : Animal Study, Human In Vitro

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Inflammation : CK(3240) : AC(882), Inflammatory Bowel Diseases : CK(1052) : AC(197), Ulcerative Colitis : CK(347) : AC(69)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

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## Cannabidiol represents a potential protective agent

## against doxorubicin cardiac injury.

**Pubmed Data** : Environ Toxicol Pharmacol. 2013 Sep ;36(2):347-57. Epub 2013 May 10. PMID: [23721741](#)

**Article Published Date** : Aug 31, 2013

**Authors** : Amr A Fouad, Waleed H Albuali, Abdulruhman S Al-Mulhim, Iyad Jresat

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Chemotherapy-Induced Toxicity: Doxorubicin : CK(132) : AC(56) , Oxidative Stress : CK(3871) : AC(1382)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630) , Antioxidants : CK(8430) : AC(3132) , Cardioprotective : CK(1596) : AC(409) , Malondialdehyde Down-regulation : CK(554) : AC(152) , NF-kappaB Inhibitor : CK(1114) : AC(694) , Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

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## Cannabidiol treatment significantly reduces the incidence of diabetes in NOD mice.

**Pubmed Data** : Autoimmunity. 2006 Mar ;39(2):143-51. PMID: [16698671](#)

**Article Published Date** : Feb 28, 2006

**Authors** : L Weiss, M Zeira, S Reich, M Har-Noy, R Mechoulam, S Slavin, R Gallily

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Diabetes Mellitus: Type 1: Prevention : CK(255) : AC(50)

**Pharmacological Actions** : Immunomodulatory : CK(1287) : AC(358) , Interferon Gamma Reducer : CK(58) : AC(24) , Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

**Additional Keywords** : Risk Reduction : CK(6417) : AC(686) , Significant Treatment Outcome : CK(24) : AC(4)

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## Cannabinoid type 1 receptor activation stimulates appetite and promotes lipogenesis and energy storage.

**Pubmed Data** : Curr Opin Clin Nutr Metab Care. 2007 Jul ;10(4):443-8. PMID: [17563462](#)

**Article Published Date** : Jun 30, 2007

**Authors** : Douglas Osei-Hyiaman

**Study Type** : Review

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310) , Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342) , Endocannabinoids : CK(9) : AC(1)

**Diseases** : Cachexia : CK(77) : AC(25)

**Pharmacological Actions** : Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

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## Cannabinoids ameliorate disease progression in a model of multiple sclerosis in mice.

**Pubmed Data** : Neuropharmacology. 2012 Jun ;62(7):2299-308. Epub 2012 Feb 8. PMID: [22342378](#)

**Article Published Date** : May 31, 2012

**Authors** : Eva de Lago, Miguel Moreno-Martet, Ana Cabranes, José A Ramos, Javier Fernández-Ruiz

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Cannabinoids: Synthetic : CK(78) : AC(33)

**Diseases** : Multiple Sclerosis : CK(964) : AC(184)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

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## Cannabis use significantly reduces symptoms, and reduces the requirements for drugs and surgery in subjects with Crohn's disease.

**Pubmed Data** : Isr Med Assoc J. 2011 Aug ;13(8):455-8. PMID: [21910367](#)

**Article Published Date** : Aug 01, 2011

**Authors** : Timna Naftali, Lihi Bar Lev, Doron Yablecovitch, Doron Yablekovitz, Elisabeth Half, Fred M Konikoff

**Study Type** : Human Study

### Additional Links

**Substances** : Cannabis : CK(1776) : AC(408)

**Pharmacological Actions** : Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

**Additional Keywords** : Drug Sparing : CK(451) : AC(50)

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## Grossamide could be a potential therapeutic candidate for inhibiting neuroinflammation in neurodegenerative diseases.

**Pubmed Data** : Mol Cell Biochem. 2017 Apr ;428(1-2):129-137. Epub 2017 Feb 21. PMID: [28224333](#)

**Article Published Date** : Mar 31, 2017

**Authors** : Qian Luo, Xiaoli Yan, Larisa Bobrovskaya, Mei Ji, Huiqing Yuan, Hongxiang Lou, Peihong Fan

**Study Type** : In Vitro Study

### Additional Links

**Substances** : Hemp Seed : CK(446) : AC(5)

**Diseases** : Brain Inflammation : CK(274) : AC(145), Neurodegenerative Diseases : CK(3582) : AC(932)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Interleukin-6 Downregulation : CK(1137) : AC(354), NF-kappaB Inhibitor : CK(1114) : AC(694), Tumor Necrosis

## It may be possible to prevent Alzheimer's disease pathology by cannabinoids.

**Pubmed Data** : J Neurosci. 2005 Feb 23 ;25(8):1904-13. PMID: [15728830](#)

**Article Published Date** : Feb 22, 2005

**Authors** : Belén G Ramírez, Cristina Blázquez, Teresa Gómez del Pulgar, Manuel Guzmán, María L de Ceballos

**Study Type** : Review

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Brain: Microglial Activation : CK(82) : AC(53)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099) , Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

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## Oral treatment with a low dose of THC inhibits atherosclerosis progression in this mouse model.

**Pubmed Data** : Nature. 2005 Apr 7 ;434(7034):782-6. PMID: [15815632](#)

**Article Published Date** : Apr 06, 2005

**Authors** : Sabine Steffens, Niels R Veillard, Claire Arnaud, Graziano Pelli, Fabienne Burger, Christian Staub, Meliha Karsak, Andreas Zimmer, Jean-Louis Frossard, François Mach

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Arteriosclerosis : CK(452) : AC(126), Inflammation : CK(3240) : AC(882)

**Pharmacological Actions** : Anti-atherogenic : CK(156) : AC(39), Anti-Inflammatory Agents : CK(4861) : AC(1630), Interferon Gamma Reducer : CK(58) : AC(24), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

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## Our results indicate that CBD exhibits neuroprotective effects in a cerebral malaria model and might be useful as an adjunctive therapy to prevent neurological symptoms.

**Pubmed Data** : Neuroscience. 2015 Mar 19 ;289:166-80. Epub 2015 Jan 13. PMID: [25595981](#)

**Article Published Date** : Mar 18, 2015

**Authors** : A C Campos, F Brant, A S Miranda, F S Machado, A L Teixeira

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Malaria : CK(145) : AC(58)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Interleukin-6 Downregulation : CK(1137) : AC(354), Neuroprotective Agents : CK(2360) : AC(1099) , Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

**Additional Keywords** : Malaria Complications : CK(2) : AC(1)

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## The antitumorigenic effects of O-1602 are multiple in that it reduces viability and proliferation of cancer cells and further promotes their apoptosis.

**Pubmed Data** : J Mol Med (Berl). 2013 Apr ;91(4):449-58. Epub 2012 Sep 11. PMID: [22965195](#)

**Article Published Date** : Mar 31, 2013

**Authors** : Julia Kargl, Johannes Haybaeck, Angela Stančić, Liisa Andersen, Gunther Marsche, Akos Heinemann, Rudolf Schicho

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Colitis : CK(255) : AC(111), Colon Cancer : CK(749) : AC(430)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Chemopreventive : CK(2835) : AC(787), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

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## The in vivo assessment of the role of CB receptors in inflammation and cancer might be instrumental in broadening the understanding about bladder cancer biology.

**Pubmed Data** : Life Sci. 2015 Oct 1 ;138:41-51. Epub 2014 Oct 15. PMID: [25445433](#)

**Article Published Date** : Sep 30, 2015

**Authors** : Valeria Gasperi, Daniela Evangelista, Sergio Oddi, Fulvio Florenzano, Valerio Chiurchiù, Luciana Avigliano, M Valeria Catani, Mauro Maccarrone

**Study Type** : Animal Study, In Vitro Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310), Endocannabinoids : CK(9) : AC(1)

**Diseases** : Bladder Cancer : CK(349) : AC(100), Inflammation : CK(3240) : AC(882)

**Pharmacological Actions** : Antiproliferative : CK(2546) : AC(1685), Apoptotic : CK(2958) : AC(2075), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

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## Unheated Cannabis sativa extracts have potential immuno-modulating properties.

**Pubmed Data** : Int Immunopharmacol. 2006 Apr ;6(4):656-65. Epub 2005 Nov 7. PMID: [16504929](#)

**Article Published Date** : Mar 31, 2006

**Authors** : Kitty C M Verhoeckx, Henrie A A J Korthout, A P van Meeteren-Kreikamp, Karl A Ehlert, Mei Wang, Jan van der Greef, Richard J T Rodenburg, Renger F Witkamp

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabis : CK(1776) : AC(408), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Pharmacological Actions** : Immunomodulatory : CK(1287) : AC(358), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669)

**Additional Keywords** : Plant Extracts : CK(7645) : AC(2539)

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## Tumor Suppressor Protein p53 Upregulation (AC 1) (CK 1)

**Delta 9-tetrahydrocannabinol exhibits anti-tumor properties.**

**Pubmed Data** : Eur J Pharmacol. 2007 Jun 14;564(1-3):57-65. Epub 2007 Feb 22. PMID: [17379209](#)

**Article Published Date** : Jun 14, 2007

**Authors** : Eric J Downer, Aoife Gowran, Aine C Murphy, Veronica A Campbell

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Tumors : CK(205) : AC(120)

**Pharmacological Actions** : Apoptotic : CK(2958) : AC(2075), Tumor Suppressor Protein p53 Upregulation : CK(293) : AC(202)

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## Vanilloid Receptor-1 Modulator (AC 1) (CK 1)

**Cannabinoids have potent and efficacious modulatory effects on TRPA1 and TRPM8 mediated intracellular Ca<sup>2+</sup>**

## elevation.

**Pubmed Data** : J Pharmacol Exp Ther. 2008 Jun ;325(3):1007-15. Epub 2008 Mar 19. PMID: [18354058](#)

**Article Published Date** : May 31, 2008

**Authors** : Luciano De Petrocellis, Vittorio Vellani, Aniello Schiano-Moriello, Pietro Marini, Pier Cosimo Magherini, Pierangelo Orlando, Vincenzo Di Marzo

**Study Type** : In Vitro Study

### Additional Links

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338), [Cannabinoids](#) : CK(816) : AC(310), [Delta-tetrahydrocannabinol \(THC\)](#) : CK(1135) : AC(342)

**Pharmacological Actions** : [Vanilloid Receptor-1 Modulator](#) : CK(2) : AC(2)

# Vascular Cell Adhesion Molecule-1 Inhibitor (AC 2) (CK 6)

**Data suggest that activity at the BBB could represent an as yet unrecognised mechanism of CBD-induced neuroprotection in ischaemic stroke**

**Pubmed Data** : Br J Pharmacol. 2015 Oct 24. Epub 2015 Oct 24. PMID: [26497782](#)

**Article Published Date** : Oct 23, 2015

**Authors** : William H Hind, Timothy J England, Saoirse E O'Sullivan

**Study Type** : Human In Vitro

### Additional Links

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Stroke: Attenuation/Recovery](#) : CK(347) : AC(75), [Stroke: Ischemic](#) : CK(218) : AC(31)

**Pharmacological Actions** : [Neuroprotective Agents](#) : CK(2360) : AC(1099) , [Vascular Cell Adhesion Molecule-1 Inhibitor](#) : CK(117) : AC(30)

**Additional Keywords** : [Blood Brain Barrier](#) : CK(34) : AC(13)

**These findings highlight the anti-inflammatory effects of cannabidiol in this viral model of multiple sclerosis.**

**Pubmed Data** : Neurobiol Dis. 2013 Nov ;59:141-50. Epub 2013 Jul 11. PMID: [23851307](#)

**Article Published Date** : Oct 31, 2013

**Authors** : M Mecha, A Feliú, P M Iñigo, L Mestre, F J Carrillo-Salinas, C Guaza

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Inflammation : CK(3240) : AC(882), Multiple Sclerosis : CK(964) : AC(184)

**Pharmacological Actions** : Anti-Inflammatory Agents : CK(4861) : AC(1630), Interleukin-1 beta downregulation : CK(478) : AC(205), Vascular Cell Adhesion Molecule-1 Inhibitor : CK(117) : AC(30)

## Vascular Endothelial Growth Factor A Inhibitor (AC 2) (CK 4)

**Activation of cannabinoid receptors could be a new therapeutic approach for the treatment of skin tumors.**

**Pubmed Data** : J Clin Invest. 2003 Jan ;111(1):43-50. PMID: [12511587](#)

**Article Published Date** : Dec 31, 2002

**Authors** : M Llanos Casanova, Cristina Blázquez, Jesús Martínez-Palacio, Concepción Villanueva, M Jesús Fernández-Aceñero, John W Huffman, José L Jorcano, Manuel Guzmán

**Study Type** : Animal Study, In Vitro Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Skin Cancer : CK(736) : AC(293)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Antineoplastic Agents : CK(1158) : AC(639), Apoptotic : CK(2958) : AC(2075), Vascular Endothelial Growth Factor A Inhibitor : CK(132) : AC(71), Vascular Endothelial Growth Factor Regulator : CK(31) : AC(14)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

**Cannabidiol has a neuroprotective and blood-retinal-preserving effect in experimental diabetes.**

**Pubmed Data** : Int Urol Nephrol. 2004;36(4):591-8. PMID: [16400026](#)

**Article Published Date** : Jan 01, 2004

**Authors** : Azza B El-Remessy, Mohamed Al-Shabrawey, Yousuf Khalifa, Nai-Tse Tsai, Ruth B Caldwell, Gregory I Liou

**Study Type** : Animal Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Diabetes: Cataract : CK(22) : AC(14), Diabetes Mellitus: Type 1 : CK(1130) : AC(301), Diabetes Mellitus: Type 2 : CK(3572) : AC(624), Oxidative Stress : CK(3871) : AC(1382)

**Pharmacological Actions** : Neuroprotective Agents : CK(2360) : AC(1099), Tumor Necrosis Factor



(TNF) Alpha Inhibitor : CK(1823) : AC(669), Vascular Endothelial Growth Factor A Inhibitor : CK(132) : AC(71)

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## Vascular Endothelial Growth Factor Inhibitors (AC 2) (CK 11)

**Cannabidiol exerts a potent anti-angiogenic effect by widely affecting several pathways involved in this process.**

**Pubmed Data** : Br J Pharmacol. 2012 Nov ;167(6):1218-31. PMID: [22624859](#)

**Article Published Date** : Oct 31, 2012

**Authors** : M Solinas, P Massi, A R Cantelmo, M G Cattaneo, R Cammarota, D Bartolini, V Cinquina, M Valenti, L M Vicentini, D M Noonan, A Albin, D Parolaro

**Study Type** : In Vitro Study

**Additional Links**

**Substances** : Cannabidiol : CK(1115) : AC(338)

**Diseases** : Cancers: All : CK(14773) : AC(4596)

**Pharmacological Actions** : Anti-Angiogenic : CK(197) : AC(137), Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1823) : AC(669), Vascular Endothelial Growth Factor Inhibitors : CK(123) : AC(61)

**Delta9-tetrahydrocannabinol administration led to the inhibition of the VEGF Pathway in Two Patients with Glioblastoma Multiforme.**

**Pubmed Data** : Cancer Res. 2004 Aug 15 ;64(16):5617-23. PMID: [15313899](#)

**Article Published Date** : Aug 14, 2004

**Authors** : Cristina Blázquez, Luis González-Feria, Luis Alvarez, Amador Haro, M Llanos Casanova, Manuel Guzmán

**Study Type** : Animal Study, Human Study

**Additional Links**

**Substances** : Cannabinoids : CK(816) : AC(310), Delta-tetrahydrocannabinol (THC) : CK(1135) : AC(342)

**Diseases** : Glioblastoma Multiforme : CK(200) : AC(88)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Vascular Endothelial Growth Factor Inhibitors : CK(123) : AC(61)

**Additional Keywords** : Gene Expression Regulation : CK(431) : AC(214)

# Vascular Endothelial Growth Factor Regulator (AC 2) (CK 4)

## Activation of cannabinoid receptors could be a new therapeutic approach for the treatment of skin tumors.

**Pubmed Data** : J Clin Invest. 2003 Jan ;111(1):43-50. PMID: [12511587](#)

**Article Published Date** : Dec 31, 2002

**Authors** : M Llanos Casanova, Cristina Blázquez, Jesús Martínez-Palacio, Concepción Villanueva, M Jesús Fernández-Aceñero, John W Huffman, José L Jorcano, Manuel Guzmán

**Study Type** : Animal Study, In Vitro Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Skin Cancer : CK(736) : AC(293)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Antineoplastic Agents : CK(1158) : AC(639), Apoptotic : CK(2958) : AC(2075), Vascular Endothelial Growth Factor A Inhibitor : CK(132) : AC(71), Vascular Endothelial Growth Factor Regulator : CK(31) : AC(14)

**Additional Keywords** : Cannabinoid Receptors : CK(67) : AC(37)

## Cannabinoids inhibit the growth of gliomas in vivo by targeting both tumor cells and vascular endothelial cells.

**Pubmed Data** : FASEB J. 2003 Mar ;17(3):529-31. Epub 2003 Jan 2. PMID: [12514108](#)

**Article Published Date** : Feb 28, 2003

**Authors** : Cristina Blázquez, M Llanos Casanova, Anna Planas, Teresa Gómez Del Pulgar, Concepción Villanueva, María J Fernández-Aceñero, Julián Aragonés, John W Huffman, José L Jorcano, Manuel Guzmán

**Study Type** : Animal Study

### Additional Links

**Substances** : Cannabinoids : CK(816) : AC(310)

**Diseases** : Cancers: All : CK(14773) : AC(4596), Gliomas : CK(5) : AC(3)

**Pharmacological Actions** : Angiogenesis Inhibitors : CK(114) : AC(62), Matrix metalloproteinase-2 (MMP-2) inhibitor : CK(287) : AC(147), Vascular Endothelial Growth Factor Regulator : CK(31) : AC(14)

**Additional Keywords** : Disease Regression : CK(150) : AC(26)

# Vasodilator Agents (AC 3) (CK 27)

## Cannabidiol causes vasorelaxation of the human mesenteric artery.

**Pubmed Data** : Cardiovasc Res. 2015 Sep 1 ;107(4):568-78. Epub 2015 Jun 19. PMID: [26092099](#)

**Article Published Date** : Aug 31, 2015

**Authors** : Christopher P Stanley, William H Hind, Cristina Tufarelli, Saoirse E O'Sullivan

**Study Type** : Human In Vitro

### Additional Links

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Cardiovascular Diseases](#) : CK(7342) : AC(916)

**Pharmacological Actions** : [Vasodilator Agents](#) : CK(347) : AC(74)

**Additional Keywords** : [Cannabinoid Receptors](#) : CK(67) : AC(37)

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## O-1602 mediates its vasorelaxant effects partly by an endothelium-dependent pathway involving rimonabant- and O-1918-sensitive targets.

**Pubmed Data** : Eur J Pharmacol. 2015 Oct 15 ;765:107-14. Epub 2015 Aug 18. PMID: [26297305](#)

**Article Published Date** : Oct 14, 2015

**Authors** : Y M Al Suleimani, A S Al Mahruqi, C R Hiley

**Study Type** : Animal Study

### Additional Links

**Substances** : [Cannabinoids](#) : CK(816) : AC(310)

**Pharmacological Actions** : [Vasodilator Agents](#) : CK(347) : AC(74)

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## This meta-analysis and systematic review has highlighted the haemodynamic effects of CBD.

**Pubmed Data** : Front Pharmacol. 2017 ;8:81. Epub 2017 Feb 24. PMID: [28286481](#)

**Article Published Date** : Dec 31, 2016

**Authors** : Salahaden R Sultan, Sophie A Millar, Timothy J England, Saoirse E O'Sullivan

**Study Type** : Meta Analysis, Review

### Additional Links

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Stroke](#) : CK(1365) : AC(168)

**Pharmacological Actions** : [Vasodilator Agents](#) : CK(347) : AC(74)

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# interleukin-13 down-regulation (AC 1) (CK 2)

## Cannabidiol controls the exaggerated inflammatory response observed in an animal model of asthma.

**Pubmed Data** : Mediators Inflamm. 2015 ;2015:538670. Epub 2015 May 25. PMID: [26101464](#)

**Article Published Date** : Dec 31, 2014

**Authors** : Francieli Vuolo, Fabricia Petronilho, Beatriz Sonai, Cristiane Ritter, Jaime E C Hallak, Antonio Waldo Zuardi, José A Crippa, Felipe Dal-Pizzol

**Study Type** : Animal Study

### Additional Links

**Substances** : [Cannabidiol](#) : CK(1115) : AC(338)

**Diseases** : [Asthma](#) : CK(1157) : AC(190)

**Pharmacological Actions** : [Anti-Inflammatory Agents](#) : CK(4861) : AC(1630), [interleukin-13 down-regulation](#) : CK(2) : AC(1), [Interleukin-4 downregulation](#) : CK(119) : AC(34), [Interleukin-5 downregulation](#) : CK(25) : AC(4), [Interleukin-6 Downregulation](#) : CK(1137) : AC(354), [Tumor Necrosis Factor \(TNF\) Alpha Inhibitor](#) : CK(1823) : AC(669)

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