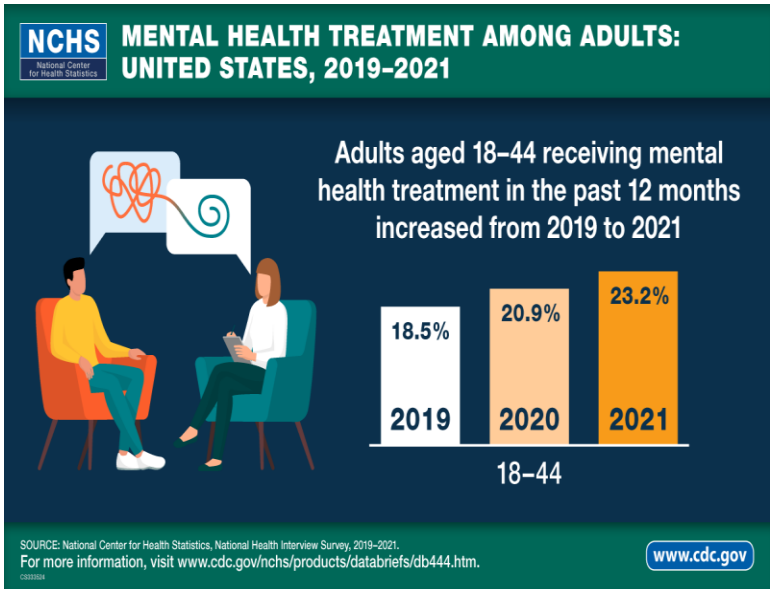
Revolutionizing Depression Treatment: The Role of AAV6.2FF Mediated 5HT4R Gene Therapy in Serotonin Modulation

Background



Nearly 1 in 5 American adults will have a diagnosable mental health condition in any given year - an estimated **21 million adults** in the US had at least one major depressive episode in 2021.[1] Depression remains a leading cause of disability worldwide, with conventional pharmacotherapies, such as dopamine and serotonin receptor agonists, offering substantial relief to many. However, a significant proportion of patients exhibit treatment-resistant profiles or endure adverse side effects. The advent of gene therapy, particularly the use of AAV6.2FF vectors for the upregulation of dopamine and serotonin receptors[2], presents a novel approach to reducing the dosage of these agonists required for therapeutic effect and hence also reduce the side effects of treatment.

AAV6.2FF Mediated Dopamine and Serotonin Receptor Gene Therapy

Pathways Neuro Pharma, Inc. (Pathways) is exploring the implications of AVV6.2FF mediated dopamine and serotonin gene therapy on current paradigms of depression treatment. Current dopamine and serotonin agonists have good clinical outcomes. However, these treatments often require dosage ranging to balance therapeutic benefits with serious side effects, a process that can be lengthy and complex. The side effects contribute to serious patient compliance issues with the use of these drugs.

By enhancing the expression of a specific dopamine or serotonin receptor, this gene therapy potentially allows for:

- Reduced Dosages: Lowering the need for high doses of traditional medications, thereby minimizing side effects. Enhanced Efficacy: Potentially improving treatment outcomes in patients with treatment-resistant depression by directly altering dopamine or serotonin receptor dynamics.

- Long-Term Benefits: Offering sustained effects compared to the transient nature of pharmaceutical interventions.

Product development

The AAV6.2FF mediated expression of the dopamine or serotonin receptor represents a significant advancement in the quest for more effective, tolerable, and personalized depression treatments. By potentially reducing the reliance on high-dose dopamine or serotonin receptor agonists, this gene therapy paves the way for a paradigm shift in how depression is treated. As research progresses, it holds the promise of transforming the lives of millions suffering from this debilitating condition, marking a new era in mental health care.

About the team

Pathways Neuro Pharma, Inc. is developing the first pharmaceutical treatments that target the pathways in the brain that regulate and control the root causes of alcoholism, substance abuse, depression and associated neurological conditions. Pathways is led by Bradley Thompson, Chief Technology Officer (CTO), with over 43 years experience in autoimmune disease, oncology, and infectious disease, and Anthony Mack, Chief Executive Officer (CEO), with 35 years experience in the pharmaceutical and biotech industries as a C-level executive overseeing the successful development, licensure, and approval of several innovative, non-addictive pain medications.

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References:

1. https://www.samhsa.gov/data/release/2021-national-survey-drug-use-and-health-nsduh-releases
2. Neuroreceptor Compositions and Methods of Use, US Patent Number: 11760788