ADEN

Live For

More

WITH CANCER IMMUNOTHERAPY

CONTENTS

We Believe That Life Is Always Worth Fighting For And That A Life Beyond Cancer Is Not Wishful Thinking

With cancer immunotherapy, positive patient outcomes are at the heart of everything we desire.

More importantly, CAR T-Cell Immunotherapy empowers patients with the opportunity and fighting chance to overcome the odds in their cancer story.

OVERVIEW

Crossing The Finish Line With Cancer Immunotherapy

Cancer Immunotherapy has been hailed as the ‘fifth pillar’ of cancer treatment. At the forefront of this ‘fifth pillar’ is CAR T-Cell Immunotherapy, which is personalised to each patient using their own T-Cells. CAR T-Cell Immunotherapy aims to improve the immune system’s intrinsic capabilities to identify and attack cancer cells while leaving healthy cells undamaged.

THE MEANING BEHIND CAR T-CELL IMMUNOTHERAPY

CAR-T

Chimeric

The CAR protein is ‘chimeric’ as it is engineered to have receptors to target cancer cells, which T-Cells do not naturally possess.

Antigens

Antigens are proteins on the cancer cells which the T-Cells are engineered to target and bind to.

Receptor

The CAR protein that is added to the surface of the T-Cells, functions as a receptor to bind to the matching antigen on cancer cells and the CAR T-Cells destroy them.

T-Cells

The core of CAR T-Cell Immunotherapy, T-Cells are immune cells which are derived from the patient’s own blood.

HOW DOES CAR T-CELL IMMUNOTHERAPY WORK?

04

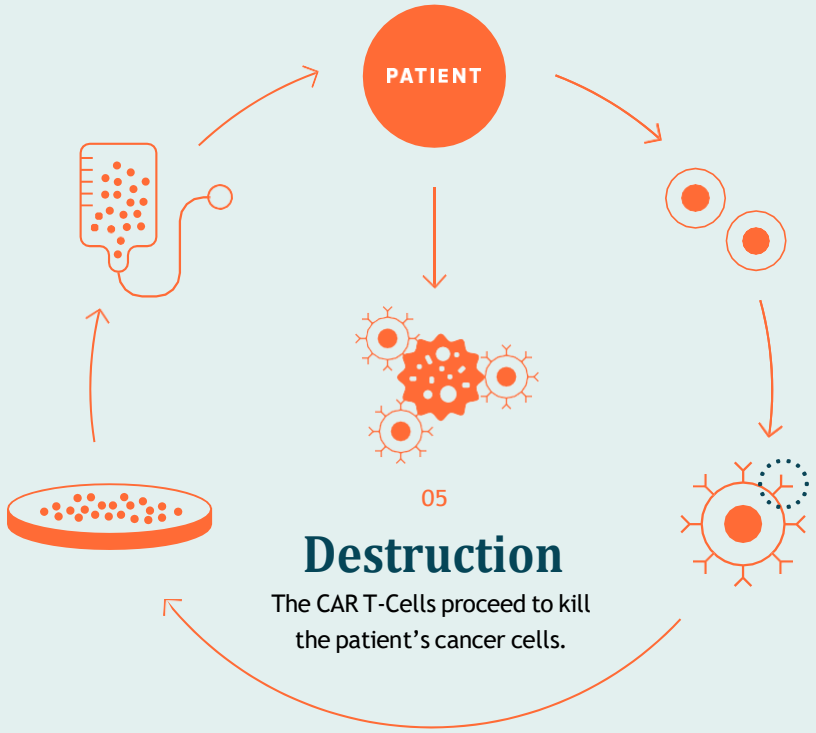
Infusion

The CAR T-Cells are infused back into the patient’s body.

01

Leukapheresis

Patient’s white blood cells, including T-Cells, are extracted.



05

Destruction

The CAR T-Cells proceed to kill the patient’s cancer cells.

03

Expansion

The number of cancer killing CAR T-Cells are multiplied.

02

Re-engineering

Patient’s T-Cells are engineered with chimeric antigen receptors (CAR).

PROMISING RESULTS

CAR T-Cell Immunotherapy Has Shown Some Incredible Promise In The Fight Against Cancer

- **Improve** — Improve the patient's immune system to search, identify and destroy cancer cells.
- **Reduce** — Reduce the patient's time under treatment.
- **Recover** — Recover faster in comparison to conventional cancer treatments.
- **Lessen** — Lessen the side effects from cancer treatment.
- **Remain** — Remain in remission as CAR T-Cells may persist in the body after therapy.

SIDE EFFECTS

Advisory On Possible Side Effects

Cytopenia

Blood consists of red blood cells, which carry oxygen and nutrients around the body, and white blood cells, which fight infection. Cytopenia occurs when the levels of one of these types of blood cells falls abnormally low.

B-Cell Aplasia

B-Cell aplasia occurs when anti-CD19 CAR T-Cells kill normal B lymphocytes that express CD19. These patients are typically at high risk of developing infections, because of their hypogammaglobulinemia. However, this can be treated with intravenous immunoglobulin (IVIG) replacement therapy.

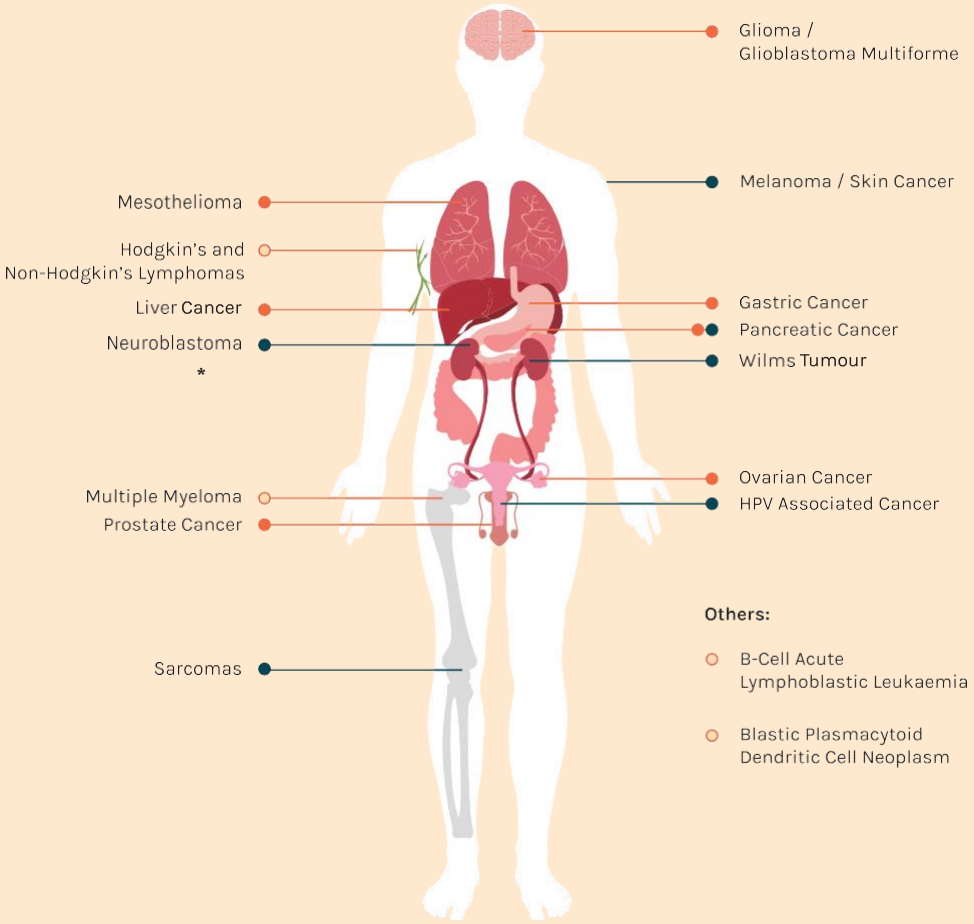
Cytokine Release Syndrome

Potentially life-threatening condition that results from the pathologic over-activation of T-Cells. It is an acute systemic inflammatory syndrome characterised by fever and multiple organ dysfunction.

Neurotoxicity

Damage to the brain or peripheral nervous system caused by exposure to natural or man-made toxic substances. These toxins can alter the activity of the nervous system in ways that can disrupt or kill nerves.

Various Cancers Targeted With MGRC's Immunotherapy Products



● CAR-T FOR SOLID CANCERS ○ CAR-T FOR LIQUID CANCERS ● OTHER IMMUNOTHERAPIES

Check with us for the latest updates or for other immunotherapy products for solid and liquid cancers.

CAR T-CELL IMMUNOTHERAPY	TYPES OF CANCER
IL13Rα2	• Glioma / Glioblastoma Multiforme
Claudin 18.2	• Gastric • Pancreatic
Mesothelin	• Mesothelioma • Pancreatic • Ovarian
GPC3	• Liver
PSMA	• Prostate
* CD-19/22/BAFF-R	• B-Cell Acute Lymphoblastic Leukaemia
* CD-19/79b	• Non-Hodgkin's Lymphoma: Diffuse Large B-Cell Lymphoma
BCMA	• Multiple Myelomas
* CD-30	• Hodgkin's Lymphoma; Anaplastic Large Cell Lymphoma
* CD123	• Blastic Plasmacytoid Dendritic Cell Neoplasm

* Immunotherapy products offered by Auxi Therapeutics Sdn Bhd

OTHER IMMUNOTHERAPIES	TYPES OF CANCER
Tumour-Associated Antigen T-Cell (TAA-T) Therapy	• Pancreatic • Neuroblastoma • Melanoma • Wilms Tumour • Sarcomas
T-Cell Receptor T-Cell (TCR-T) Therapy	• HPV-associated cancers, including cervical cancer
Tumour-Infiltrating Lymphocyte (TIL) Therapy, Short Chain Variable Fragment Immune Checkpoint Inhibitors (scFv ICI)-PD-1, CD47	• Various Advanced Cancers

WHAT IS THE DIFFERENCE?

Chemotherapy VS Immunotherapy

For starters, chemotherapy acts directly on cancerous tumours, whereas immunotherapy actually treats patients by acting on their immune system.

Side Effects

Chemotherapy: Side effects result from drugs attacking both cancerous and non-cancerous cells.

Immunotherapy: Side effects result from an overstimulated or misdirected immune response.

Post Treatment Protection

Chemotherapy: Its effect lasts as long as the drugs remain in the body.

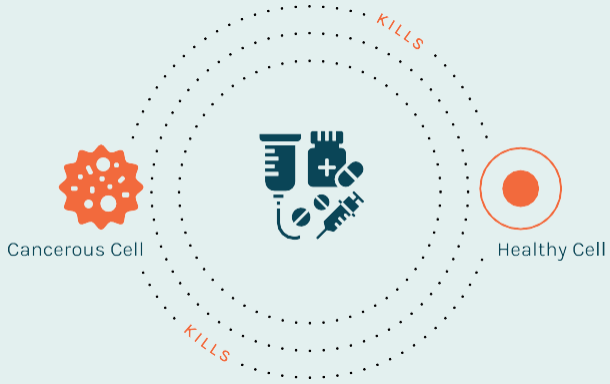
Immunotherapy: Provides long-term protection against cancer, due to the immune system's ability to recognise and remember what cancer cells look like.

Length of Treatment

Chemotherapy: Typically requires multiple cycles over several months/years.

Immunotherapy: Cell-based immunotherapies (e.g. CAR T-Cell) typically only require a single injection, although some immunotherapies may require several injections.

Chemotherapy

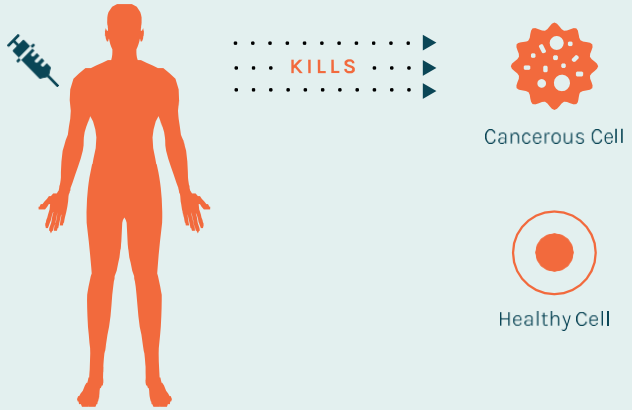


Side Effects

Post-Treatment Protection

Immunotherapy

Unleashes the patient's own immunue system



Side Effects

Post-Treatment Protection

Source: https://www.cancerresearch.org/blog/june-2016/difference-cancer-immunotherapy-andchemotherapy | https://scnow.com/news/health/immunotherapy-boosting-the-body-s-natural-defenses-to-fightcancer/article_f9a178b8-145e-5e6e-9317-79a3cb25ea4f.html

Access To Immunotherapy

IMMUNOTHERAPY PRODUCTS CAN BE ACCESSED ON A COMPASSIONATE USE BASIS

Patients with an immediately life-threatening condition or serious disease may be granted an expanded access pathway for CAR T-Cell or other immunotherapies, as provided by the USFDA and regulatory bodies in other countries, under their respective provisions for compassionate use of investigational treatment outside of clinical trials when no comparable or satisfactory alternative therapy options are available.

ELIGIBILITY CRITERIA

In Order to Be Eligible for CAR T-Cell Immunotherapy, Patients Must Meet the Following Criteria:

1. Patients must be well enough to receive CAR T-Cell Immunotherapy.
2. The tumour must express the appropriate marker e.g. CD19.
3. An Eastern Cooperative Oncology Group (ECOG) performance status of 0 or 1.
4. No disease complications or chemo-toxicity; such as, infection, active GVHD, hyperleucocytosis, severe extra medullary disease.
5. The last dose of chemotherapy and/or steroid is at least 2 weeks prior; when in doubt, a T-Cell activation test will be performed.
6. Patient's tumour burden is as low as possible. In patients with uncontrolled or accelerating tumour burden, bridging chemotherapy should be performed first (apheresis can be done prior to commencing the chemotherapy).

T-Cell Cryopreservation Option For Future Use

If any of the above requirements are not met, there is an option for the patient to freeze their T-Cells for future use once treatment can proceed.

PROCESS

Pre-assessment And Administration Process

Oncologist

1. Baseline clinical status assessment to determine patient's eligibility.
2. Consent and compassionate use approval from hospital, where necessary.

Hospital

3. Apheresis is conducted.

MGRC

4. Peripheral blood mononuclear cells (PBMC) isolation and CAR T-Cell manufacturing.

Oncologist

5. Pre-treatment conditioning, where necessary.
6. CAR T-Cell infusion.
7. Combination treatment (ICI, IL2, etc.), where necessary.
8. Post-treatment monitoring.
9. End of treatment. Efficacy assessment at months 3 and 6.

SUPPORT

Comprehensive Support For You And Your Patient

Patient Education Materials

Product and treatment information, videos, and specialist consultations.

Pre-Treatment Assessment

Specialist review of case history and reports, and assistance in baseline evaluation for treatment candidacy.

Post-Treatment Monitoring

Assistance with adverse effect management and efficacy monitoring.

SCIENTIFIC PUBLICATIONS

Additional Reading

YEAR	JOURNAL	TITLE
2019	Jour. Molecular Therapy	Phase I Study of Lentiviral Transduced CAR-Modified T-Cells Recognizing Mesothelin in Advanced Solid Cancers
2019	Journal of Clinical Oncology	Phase 1 Trial of Claudine 18.2 – Specific CAR T-Cells for Advanced Gastric and Pancreatic Adenocarcinoma
2017	Journal of Clinical Oncology	A Phase 1 Study of Anti GP3 Chimeric Antigen Receptor Modified T-Cell (GP3 CAR-T) in Chinese Patients with Refractory or Relapsed GPC3+ Hepatocellular Carcinoma (r/r GP3+ HCC)
2016	The New England Journal of Medicine	Regression of Glioblastoma After Chimeric Antigen Receptor T-Cell Therapy
2016	Jour. Blood Reviews	Chimeric Antigen Receptor T-Cell Therapy: 25 Years in the Making

All data is up to date as of time of print. These are some of the numerous studies that are being conducted on CAR T-Cell Immunotherapy. Please visit **www.immunotherapy.life** to access the above or updated publications, other information, and news.

ABOUT US

AC Genotec x Malaysian Genomics Resource Centre

Backed by the leading genomics and biopharmaceutical company in Southeast Asia, we have pioneered genome sequencing, bioinformatics analysis, genetic screening services, and cancer immunotherapies in the region.

We have an established track record of delivering on large-scale projects for the Government of Malaysia, as well as local and international research centres, public institutes, academia and corporations from pharmaceutical and various other sectors. Some notable customers have included Novartis, Brigham & Women's Hospital (of Harvard Medical School) and Washington University of Medicine, among many others.

Our extensive experience in healthcare, especially in genomics, genetics and clinical diagnostics extends to translational medicine, which is the transferring of knowledge and technology from research domains to clinical use by doctors in clinics and hospitals.

With our high-throughput sequencing lab, advanced microarray facility and new state-of-the-art cell processing lab, we are committed to continually providing improved access to the latest immunotherapy and healthcare solutions for our customers.

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