

About CAR T cell therapy

CAR T cell therapy is a type of immunotherapy commonly given to individuals who have specific types of cancer. CAR T cell therapy is now being evaluated in study participants for its potential effectiveness in treating a wider variety of cancers, including blood cancers.

T cells → CAR T cells

T cells are a type of white blood cell, which the immune system uses to fight off foreign invaders in the body. When removed from the body through a process called leukapheresis,* T cells can be combined with a chimeric antigen receptor (CAR), which teaches them how to attack a specific type of cell. They are then referred to as CAR T cells and can be reintroduced to the bloodstream at a later time.

In the case of certain cancers, CAR T cell therapy is used to teach a patient's T cells how to target and destroy the cancerous cells in their body.¹

*Blood is circulated through a machine to remove T cells and then returned to the body.

CAR T cell therapy is FDA approved to address several types of blood cancers, including multiple myeloma, leukemia, and lymphoma.²

The CAR T cell therapy process



Collection: Individuals will spend a few hours undergoing leukapheresis to have T cells removed from their bloodstream.



Making CAR T cells: Removed T cells are taken to a laboratory and modified to target and attack a specific type of cell. Scientists then multiply the CAR T cells in the laboratory.



Infusion: CAR T cells are returned to the same individual's bloodstream through an intravenous (IV) infusion at a later time.

All individuals undergoing CAR T cell therapy are monitored closely for possible side effects or complications.

1. [dana-farber.org/cancer-care/treatment/cellular-therapies/car-t-cell-therapy/faq](https://www.dana-farber.org/cancer-care/treatment/cellular-therapies/car-t-cell-therapy/faq)
2. [cancer.org/cancer/managing-cancer/treatment-types/immunotherapy/car-t-cell](https://www.cancer.org/cancer/managing-cancer/treatment-types/immunotherapy/car-t-cell)¹

CAR T cell therapy for blood cancers

Blood cancer occurs when abnormal cells develop and grow uncontrollably in blood-forming tissue, such as bone marrow. Even with well-established therapy options, many patients' disease relapses or continues to progress. With each relapse, tumors typically develop more aggressively, leading to less positive outcomes from available therapies. For patients with relapsed* or refractory[†] blood cancers, these therapy options may not be enough.

Researchers believe there may be potential in CAR T cell therapy for combating blood cancers, as it fights the cancer in a different way. By teaching a patient's immune system to target the disease-causing cells directly, there may be potential for CAR T cell therapy to lead to disease improvement or remission.

*Relapsed cancer occurs when the disease goes into remission and comes back.

[†]Refractory cancer occurs when the disease stops responding to treatment and continues to progress.

Side effects

There are certain risks that individuals should consider carefully before choosing to pursue a new therapy. In the case of CAR T cell therapy, there are several possible side effects.²

Cytokine release syndrome (CRS): CAR T cells may release chemicals called cytokines, which can cause a reaction from the immune system. This may lead to:

- High fever
- Fatigue
- Nausea or vomiting
- Headaches
- Difficulty breathing
- Low blood pressure

Neurological difficulties:*

- Loss of balance or consciousness
- Difficulty speaking or understanding
- Confusion
- Seizures
- Tremors

Other side effects:

- Low white blood cell counts (neutropenia)
- Allergic reactions

*These neurological symptoms often last for only a short time.