

# What is CAR T cell therapy?

**CAR T cell therapy** is being researched as a potential treatment for some cancers. It is called an **immunotherapy** because it uses cells from **within the human immune system** that are then modified in a laboratory to recognize and attack cancer cells.

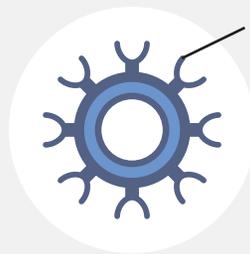
There are different types of CAR T therapies; some have been approved for the treatment of specific types of cancer by health authorities. There are others that are still in the investigational stage being studied in clinical trials where the safety and efficacy have not been established.

## What are CAR T cells and how are they designed to kill cancer cells?

To understand what CAR T cell therapy is and how it works, it's important to understand what each part of the name means.



**T cells** are a type of immune system cell that finds and attacks other cells that may be infected by a virus or should not be in the body.<sup>1</sup>



When researchers develop CAR T therapies, they modify the DNA of the T cell so that the T cell expresses **chimeric antigen receptors**, or **CARs**, on its surface.<sup>2</sup>



A CAR is like a key that locks to a specific protein on the surface of another cell, such as a cancer cell.<sup>2</sup>



A **CAR T cell** finds a cancer cell with the specific protein (or lock) on its surface.<sup>2</sup>



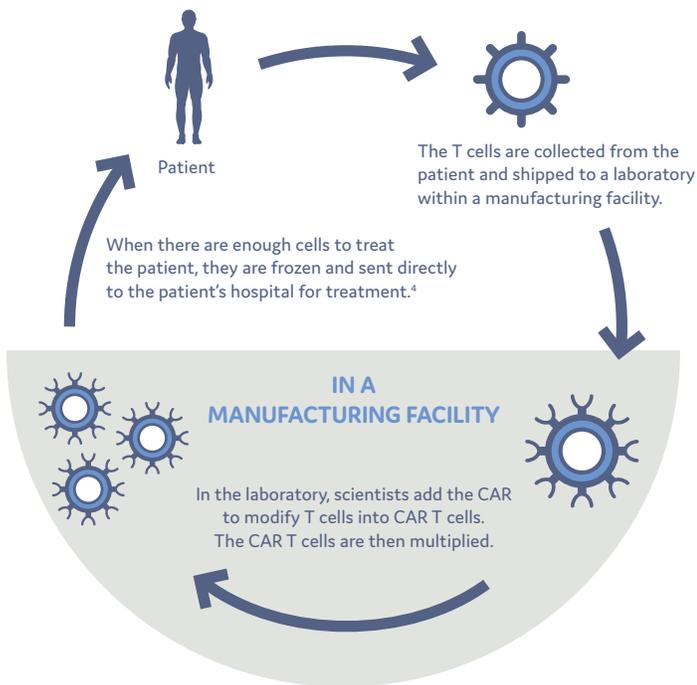
The CAR T cell attacks and potentially kills the cancer cell.<sup>2</sup>

## How are CAR T cells made?

To create CAR T cells, scientists add the CAR to T cells in a laboratory.<sup>3</sup> The first step is for scientists to collect T cells from patients or healthy donors. There are two ways scientists do this:

### Autologous CAR T Cell Therapy

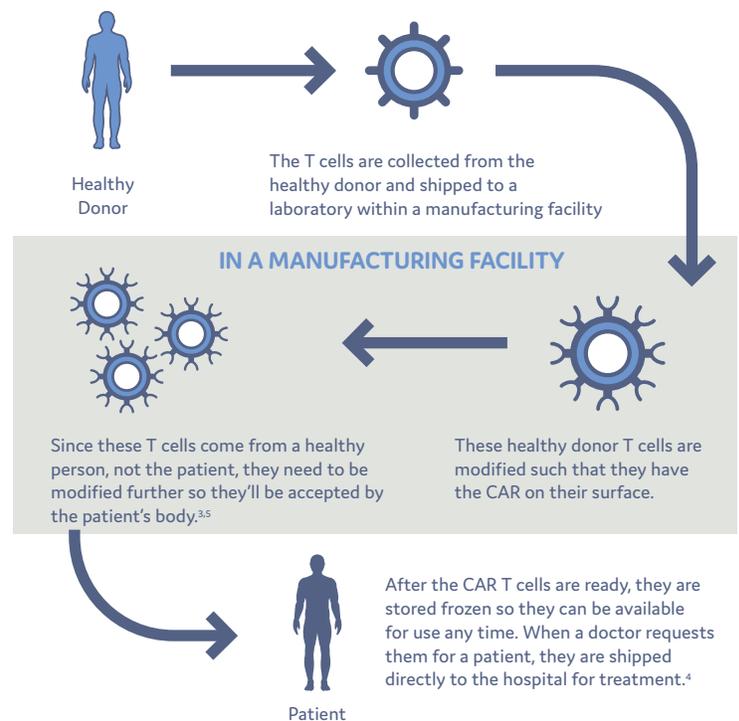
One way to make CAR T cells is to use a patient's own T cells. These cells are used only for this patient.



It typically takes 3 to 4 weeks for a patient's own T cells to be made into CAR T cells.

### Allogeneic CAR T Cell Therapy

A second way to make CAR T cells is to use cells from a healthy person who has donated their T cells, like other people donate their blood or bone marrow.



Allogeneic CAR T cells can be prepared in advance, so the time it takes to be ready for a patient is reduced.

Talk to your healthcare provider to learn more about CAR T cell therapy and how it is being studied to treat certain types of cancer.

#### REFERENCES

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