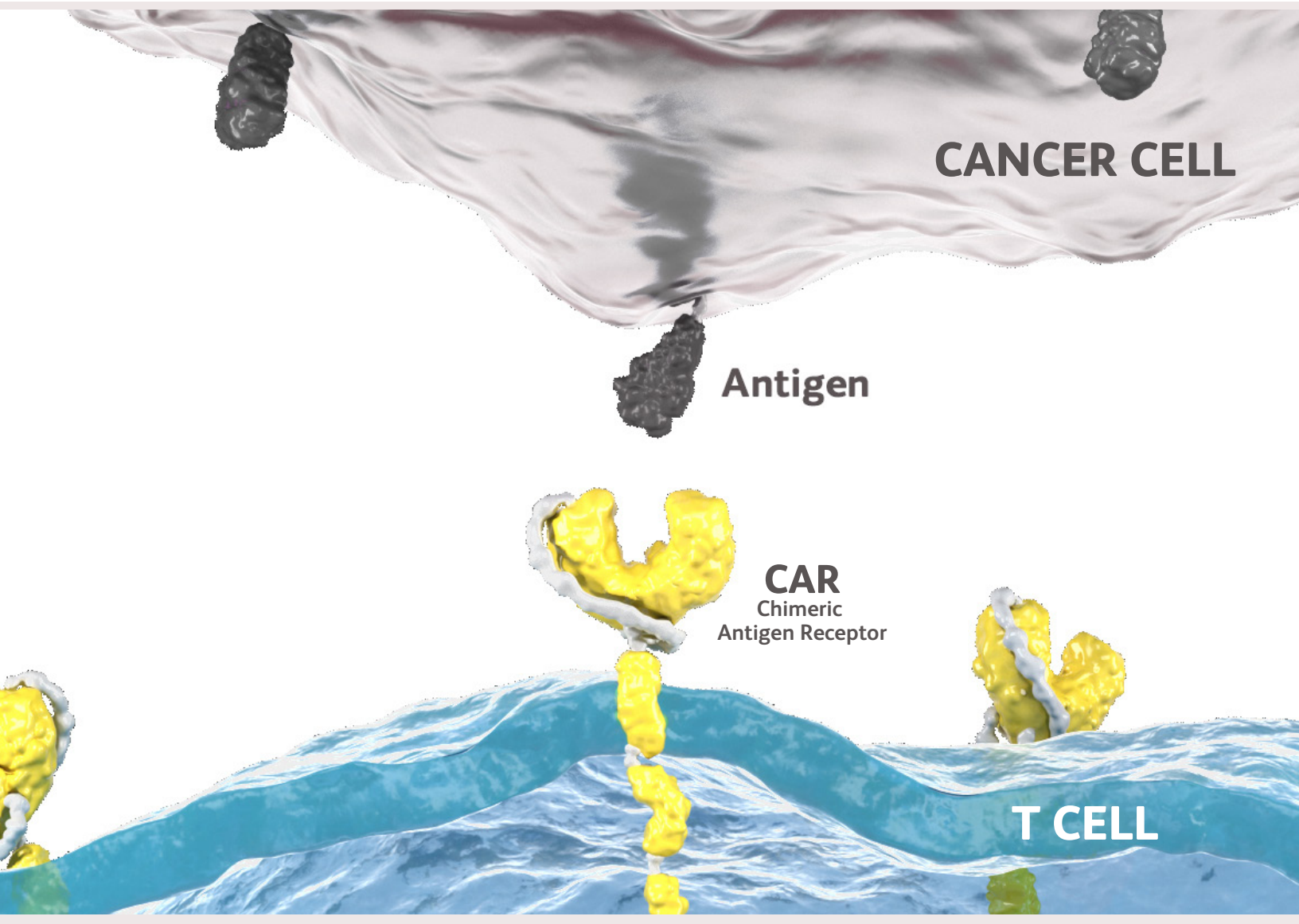
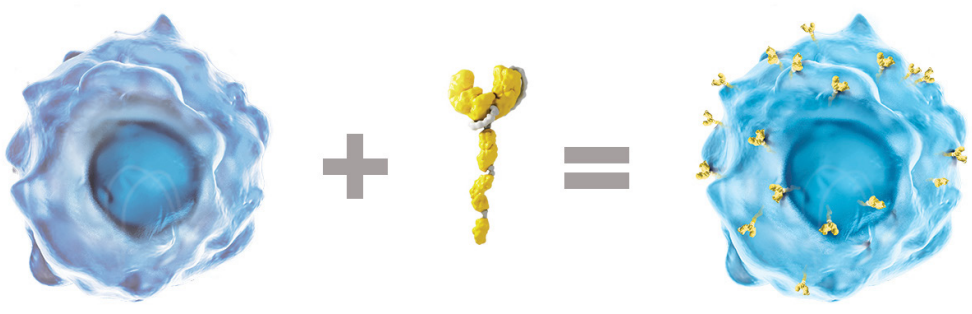
Bristol Myers Squibb™

Targeting Cancer with Cell Therapy



CAR T cell therapy reprograms immune cells for a personalized attack on cancer

Autologous chimeric antigen receptor (CAR) T cell therapy is a type of immunotherapy that has the potential to work with a patient's immune system by reprogramming their T cells (or fighter cells) to recognize and bind to proteins (tumour-associated antigens) found on the surface of certain cells, including cancerous and/or healthy cells that may also express the tumour-associated antigen.



T CELL
A key fighter in your immune system

CAR
A specific receptor is added to the T cell

CAR T CELL
The T cell with the CAR added helps find and fight specific targeted cells

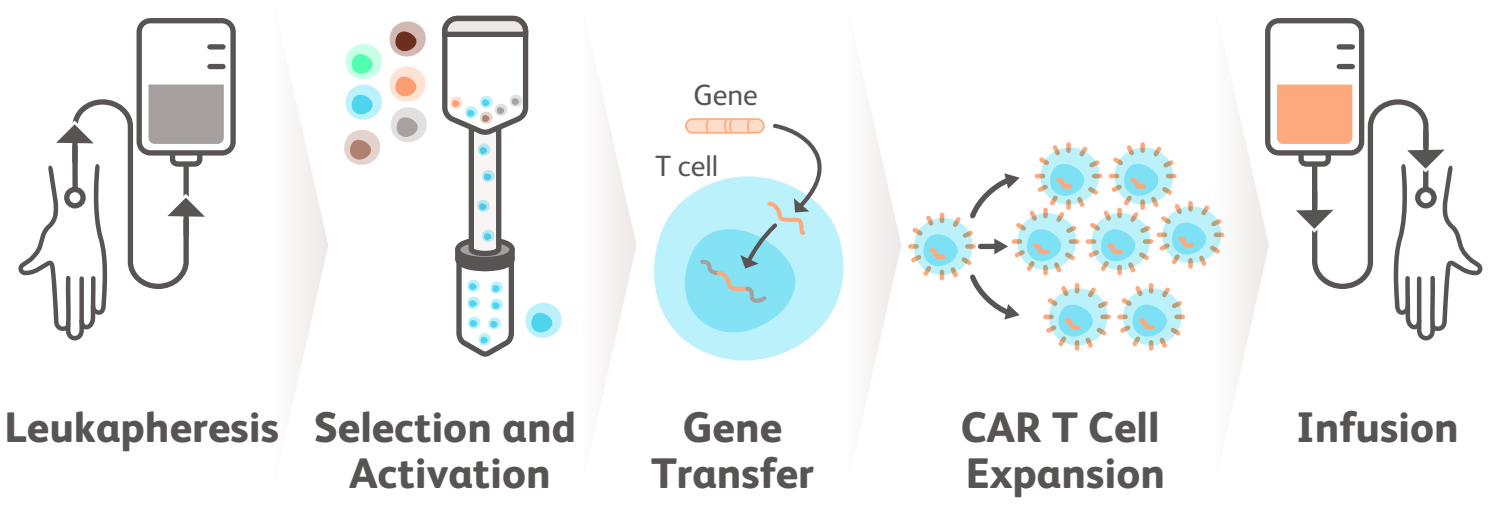
Unlike traditional small molecule or biologic treatments intended to treat a broad range of patients, autologous CAR T cell therapy is specifically manufactured for each individual patient using their own T cells. After a one-time infusion, the CAR T cells can continue to multiply in the patient's body after being administered.

Creating CAR T cell therapies involves a scientifically engineered manufacturing process

As autologous CAR T cells are manufactured for each individual patient, the complex engineering process starts with collection of the patient's T cells through a process called apheresis or leukapheresis. The collected sample is then shipped to the manufacturing facility for engineering of CAR T cells.

Next, a gene that encodes the CAR – which binds to a specific protein (tumour-associated antigen) found on cancer cells and is linked to T cell activation domains. It is inserted into the patient's T cells, thereby reprogramming them into CAR T cells that can bind to targeted tumour cells, resulting in CAR-positive T cell activation, expansion and tumour-killing activities once they are infused to the patient.

Millions of the engineered CAR T cells are then grown in the controlled manufacturing facility before they are infused in the patient.



Pursuing next-generation approaches to cell therapies

Research suggests that, with a single treatment CAR T cell therapy has been effective at producing clinically meaningful, deep and durable responses in patients where other treatment options have stopped working.

Because autologous CAR T cell therapies are made specifically for each individual patient, the manufacturing process is complex and involves close coordination across manufacturing facilities and healthcare teams.

Bristol Myers Squibb is evaluating ways to optimize CAR T cell design and manufacturing to advance next-generation cell therapies.

For example, BMS is investing in new CAR engineering to improve function, and other approaches, such as NEX T, which incorporates a new manufacturing process that may reduce costs and provide faster manufacturing.

To reduce the time and travel burden on patients associated with receiving CAR T cell therapies at certified referral institutions, BMS is also researching ways to bring CAR T cell therapy closer to patients safely and effectively.

In addition, BMS is conducting early research into multiple diverse approaches to cell therapy, such as allogeneic CAR T cells, which are made from T cells of healthy donors instead of using the patient's own reprogrammed T cells, as in the autologous approach.