

## Chimeric Antigen Receptor T-cell (CAR-T Cell) Therapy

### CAR T-cell Therapy

This is a living drug that uses your own infection-fighting white blood cells (called T-cells) to seek out and destroy cancer cells.

### How it Works

First, we remove some of your T-cells from your blood. We will send these T-cells to a lab where the cells are altered to produce proteins called chimeric antigen receptors (CARs) on the surface of the cells. These receptors allow the T-cells to help find and attack cancer cells. These “super-charged” T-cells are multiplied and grown at the lab, then frozen and shipped back to UW Health. We will then infuse the CAR-T cells back into your body.

### Treatment Requirements

To receive CAR-T at UW Health you must meet **both** of the requirements below:

1. You have large B-cell lymphoma, mantle cell lymphoma, multiple myeloma or acute lymphocytic leukemia.
2. You did not respond to, or who have relapsed after, at least 2 other treatments.

Your oncologist will refer you to the UW Health Bone Marrow Transplant (BMT) program. The BMT program will decide if you meet the requirements for CAR-T therapy.

### Treatment Process

#### Phone Call

The Bone Marrow Transplant coordinator will call you to:

- Talk about your health history
- Figure out if you may be a candidate for CAR-T cell therapy
- Ask for your insurance information and our financial team will confirm that your insurance plan covers CAR-T cell therapy
- Set-up a consult visit to confirm you are a candidate for CAR-T cell therapy

#### Consult Visit

At this visit, we will confirm if CAR-T cell therapy is right for you. We will also review:

- Treatment process
- Tests you need to complete, which may include labs, echocardiogram, bone marrow aspiration, lumbar puncture, echocardiogram, pulmonary function tests, CT scan, and others.
- Insurance approval
- The CAR-T cell products

Test	Date Completed

## Planning Your CAR-T cell Therapy

Your Bone Marrow Transplant team will create a plan for your CAR-T cell therapy. This plan includes:

- Choosing the CAR-T cell product that will be used
- Working with your oncologist to decide if you also need chemotherapy
- Planning when your T-cells will be collected (leukapheresis)

Once we receive approval from your insurance and your tests confirm you are a candidate for this treatment, we will start the leukapheresis process.

## Leukapheresis

Your treatment uses the T-cells in your bloodstream. Your T-cells will be removed from your body through a process called **apheresis**. This process takes 3-4 hours.

For apheresis, you will go to the Infusion Center (C5/350) at University Hospital. We will be checking your blood pressure and pulse throughout the collection and watch for any side effects.

## Apheresis Process

1. We will insert two intravenous (IV) lines into your vein. We may need to place a central line instead if your veins are hard to find.
2. We will connect these lines to a machine that performs apheresis.
3. The apheresis machine will take small amounts of blood out of your body. The machine then spins the blood and pulls out the T-cells.
4. The machine will then return the rest of your blood back to you.

## Side Effects of Leukapheresis

Some patients will have side effects during apheresis. Your nurse can help you manage these. You may feel:

- Dizzy
- Lightheaded
- Nauseous
- Tingling in the lips, toes and fingers (which can be caused by the anti-clotting medicine)

## Wait Time (3-4 Weeks)

It may take about 3-4 weeks for the lab to prepare your T-cells for treatment. Your oncologist will still be in charge of your care during this time. The Bone Marrow Transplant team will stay in contact with your oncologist to stay informed about your health. Some patients will need chemotherapy during this wait time.

## Conditioning Therapy and Infusion

Our team will contact you when your CAR-T treatment is ready.

## Chemotherapy

Before the infusion of your CAR-T cells, you will receive chemotherapy. Most often, we will use Fludarabine and Cyclophosphamide. You will receive the chemotherapy as an outpatient or inpatient.

## CAR-T Cell Infusion

You will then have the CAR-T cell infusion 2-14 days after you finish the chemotherapy. The infusion takes about 30 minutes. You will have the infusion as an outpatient or inpatient depending on the CAR-T cell product you receive. Your Bone Marrow Transplant Coordinator will tell you where your infusions will happen.

## Treatment Schedule

Treatment Day	1 Date:	2 Date:	3 Date:	4 Date:	5 Date:	6 Date:	7 Date:
Cyclophosphamide							
Fludarabine							
CAR-T cells							
Visit Length*	3 hours	2 hours	1 hour	1 hour			Outpatient: 4 hours  Inpatient: Admission

\*This schedule and the visit length may change

## After Your Infusion

### Follow-up Visits

You will have daily follow-up visits in the clinic for about 2 weeks. After that, you will have at least 1 visit a week for 3-6 more weeks. Each visit will take 2-8 hours depending on lab, infusion and transfusion needs. You may need to stay in the hospital on and off for the 8 weeks after the infusion.

### Cytokine Release Syndrome (CRS)

CRS is a potentially serious side effect of CAR-T therapy. Cytokines are produced when the CAR-T cells multiply. You may have **flu-like symptoms**, such as:

- Fever (100.4°F or greater)
- Chills
- Headache
- Extreme fatigue
- Nausea
- Shortness of breath

### Immune Effector Cell Associated Neurotoxicity Syndrome (ICANS)

ICANS is another potentially serious side effect of CAR-T therapy. It can usually be reversed. Common symptoms include:

- Trouble speaking
- Confusion
- Irritability
- Lethargy
- Delirium
- Involuntary muscle twitching
- Hallucinations
- Seizures
- Unresponsiveness

CRS and ICANS symptoms most often occur within **14 days** after infusion of the T-cells but can occur up to **8 weeks** after your infusion.

## **Safety Guidelines**

Due to the risk for CRS and ICANS you must follow certain safety guidelines.

- **Do not** drive, operate heavy machinery or do other dangerous things for 8 weeks.
- Stay in Madison, or within a 2 hours' drive of University Hospital for at least 4 weeks (up to 8 weeks).
- Have a caregiver with you 24 hours a day to watch for signs and symptoms of CRS and CRES.

## **Work**

You will likely need to take off work for 6 months after your infusion.

## **When to Call**

Call the BMT team right away if you have any of symptoms of CRS or ICANS or if you have other questions or concerns.

## **Who to Call**

**Carbone Cancer Center**  
**608-265-1700**

Ask to speak to the BMT attending on call.