About CAR T Cell Therapy

Chimeric antigen receptor (CAR) T cell therapy uses your body’s immune system to fight cancer. CAR T cell therapy is a type of immunotherapy.

There are 3 main steps during CAR T cell therapy:

1. **T cell collection**: Some of your T cells, which are a type of white blood cell, will be collected.

2. **T cell modification**: The T cells will be sent to a laboratory to have a new gene added to them. The new gene will help them find and destroy cancer cells. Once the T cells have this new gene, they are called CAR T cells.

3. **CAR T cell infusion**: After the CAR T cells are ready, they will be returned back into your body where they can attack the cancer cells.

T Cell Collection

Your T cells will be collected using 2 intravenous (IV) catheters. An IV catheter is also called an IV line.

Your collection procedure will be done in the Blood Donor Room. The Blood Donor Room is located at:

MSK Schwartz Building Lobby
1250 First Avenue (between East 67th and East 68th Streets)
New York, NY 10065
212-639-7643
Before your collection
Blood donor room appointment

You will have an appointment in the Blood Donor Room to see if your veins are large enough for your T cell collection. If your veins aren’t large enough, a type of IV catheter called a leukapheresis (loo-kuh-feh-ree-sis) catheter will be used for your collection.

The donor room nurse will tell your healthcare team if you need a leukapheresis catheter. The catheter will be put into a large vein in your upper chest before your collection. It’s usually removed a few hours after your collection. If you need a leukapheresis catheter, your healthcare team will give you more information.

Talk with your nurse about your medications

Before your collection, your nurse will talk with you about your medications. Don’t stop taking any of your medications unless your doctor or nurse tells you to.

Eat high-calcium foods

For 1 to 2 days before your collection, eat dairy products and other foods that are high in calcium. You should also bring a high-calcium snack to eat during your collection. This can help keep the level of calcium in your blood from getting too low during your collection. Your nurse will give you a list of foods that are high in calcium.

During your collection

Your collection will be done while you’re on a bed or in a recliner chair. If you wish, you can watch TV or read during your procedure. A family member or friend may sit with you. You might feel cold during the procedure, so blankets will be available to make you comfortable.

You will be connected to a machine by your IV catheter, leukapheresis catheter, or CVC. The machine will take the T cells out of your blood then return the rest of your blood to your body. You will get medication (blood thinner) in your catheter during this time to make sure your blood doesn’t clot.

Your collection will take about 2 to 4 hours. During this time, your donor room nurse will watch for side effects and give you medications if you need them.
you get numbness or tingling in your fingertips or around your mouth, tell your donor room nurse. These are signs that your calcium level is low. Your donor room nurse can give you calcium tablets to help with this.

**After your collection**

If you had an IV line in your arm(s), your donor room nurse will remove it and apply a bandage to prevent bleeding. They will tell you when you can remove the bandage. If it’s still bleeding when you remove the bandage, apply gentle but firm pressure on the site for 3 to 5 minutes. Call your doctor if the bleeding doesn’t stop.

If a leukapheresis catheter was used for your collection, your donor room nurse will schedule an appointment for it to be removed soon after your collection.

After the collection, most people can go back to doing their regular activities.

**T Cell Modification**

After your T cells are collected, they will be sent to a laboratory. There, they will have a new gene added to them that allows them to recognize the cancer. This is called modification. T cells that have been modified are called CAR T cells.

Your CAR T cells will be ready about 1 to 2 months after your collection.

**CAR T Cell Infusion**

Your CAR T cells will be put into your body through either an IV catheter or your CVC. This process is called an infusion.

**Before your infusion**

While your T cells are being modified, your healthcare team will work with you to get you ready for your CAR T cell infusion. You will have a physical exam, other tests, and your doctor will monitor you. You will also get chemotherapy (chemo) to get your body ready. Your healthcare team will give you more information about the chemo and side effects.

You will have your CAR T cell infusion about 2 to 14 days after you finish the chemo.
During your infusion

You may get your infusion as an outpatient or you may be admitted to the hospital. Your healthcare team will talk with you about the plan that’s right for you.

Side effects

Side effects can start a few hours to a few days after your CAR T cell infusion. You may have some or none of the side effects listed below.

Common side effects include:

- A temperature of 100.4° F (38° C) or higher
- Flu-like symptoms, such as:
  - Muscle aches
  - Headaches
  - Chills
- Feeling dizzy or lightheaded
- Confusion
- Difficulty breathing

Other side effects include:

- Low blood pressure
- Nausea or vomiting
- Diarrhea
- Trouble speaking
- Seizures

If you notice any side effects or any other changes, call your healthcare team. They can treat these side effects using medications or procedures. You may be admitted to the hospital or the intensive care unit (ICU) for these treatments.

After your infusion

You will need to stay within 1 hour of Memorial Hospital (1275 York Ave) for at
least 4 weeks after you get your infusion. You will also need to have a caregiver with you. You may be in the hospital for some of that time.

You will have tests to check to see if the treatment is working. Your healthcare team will talk with you about what tests you will have and when they will be scheduled.

Don’t drive or operate heavy machinery after you receive CAR T cell therapy until your doctor tells you it’s okay. This is because you may be weak, dizzy, or sleepy. Your healthcare team will talk with you about other things you shouldn’t do after your infusion.

If you have any questions, contact a member of your healthcare team directly. If you're a patient at MSK and you need to reach a provider after 5:00 PM, during the weekend, or on a holiday, call 212-639-2000.

For more resources, visit www.mskcc.org/pe to search our virtual library.

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