

## Stem Cell Donation

### Utah Blood and Marrow Transplant Program

Thank you for being willing to donate stem cells for a cancer patient's transplant. The Utah Blood and Marrow Transplant (BMT) team is grateful for your commitment to cancer treatment.

#### What is stem cell transplant?

In a healthy person, stem cells in the bone marrow develop into the cells that make up blood. A stem cell transplant replaces unhealthy stem cells with healthy stem cells.

#### What are the different types of transplants?

- Autologous transplant uses the patient's own stem cells.
- Allogeneic transplant uses the stem cells from another person.
- Cord blood transplant uses stem cells from the blood in the umbilical cord of a newborn baby.

#### Finding a stem cell donor

Human leukocyte antigen (HLA) typing is used to help match stem cell transplant patients with donors. Antigens help the body notice the difference between healthy cells and unhealthy cells, such as cancer.

HLA typing is done with the potential donor's saliva or blood sample.

The goal is to find a donor with 10 specific antigens that are the same as the patient's. The closest match between the HLA markers of the donor and the patient lowers the risk of the body rejecting the new stem cells (graft versus host disease).

These are the different types of donors:

- Matched Related Donor: biological sibling whose cells match 10 of the 10 antigens.
  - There is a 1 in 4 chance of being a full match.
- Matched Unrelated Donor: unrelated donor who is located through registries such as the National Marrow Donor Program.
- Haploidentical Donor: child or parent whose cells match 5 of the 10 antigens.
- Mismatched Donor: First-degree relative or unrelated donor who is not a full match.

- Their cells match some, but not all, of the 10 antigens.

The transplant doctor will select the best donor for the patient.

#### What are the commitments for donors?

Everything will take place at Huntsman Cancer Hospital in Salt Lake City, Utah. The total time commitment is 7–10 days.

The transplant patient's insurance covers the donor's medical costs for donor workup and collection. The donor's travel and lodging expenses may be covered by the patient's insurance by a travel and lodging benefit. The BMT social workers can provide you with a list of lodging options, some of which are discounted for patients and donors.

Being a stem cell donor is a serious and emotional commitment. Mixed feelings are common during this process. Stem cell transplants are not always successful and complications outside the donor's control can happen. Donors may need emotional support from family and friends. The transplant team and social workers are a resource to provide assistance.

We need your full commitment BEFORE the patient begins preparing for the transplant. If you change your mind after the patient has started the transplant process, he/she could face life-threatening outcomes without your stem cells.

#### How are stem cells collected from donors?

Stem cells are collected in two different ways:

- Peripheral blood stem cell (PBSC) collection
- Bone marrow collection.
  - The transplant team will choose the collection method depending on what is best for you and the patient.

#### PBSC Collection Process

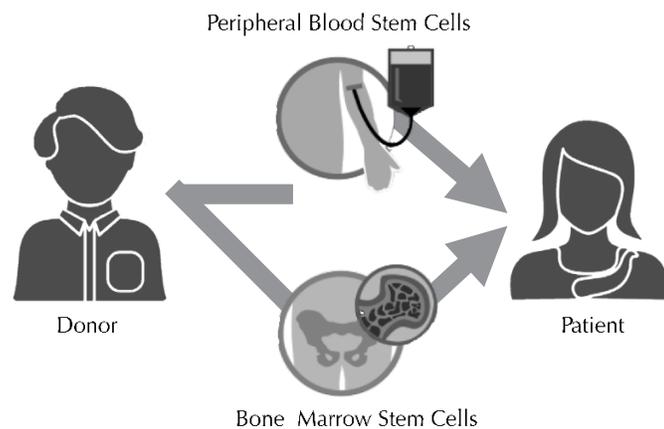
PBSC are stem cells in your bloodstream. PBSC donation is a nonsurgical procedure, called apheresis. In apheresis, your blood goes through a needle in one arm (IV) to a machine that collects the stem cells. The rest of your blood

returns to you through a needle in your other arm or temporary catheter.

For five days before the collection, you will get daily shots of a drug called filgrastim, also known as “Neupogen”. This drug increases the number of stem cells in your blood so they can be collected.

Filgrastim may cause headaches, or bone or muscle aches for several days before the collection. These will go away shortly after the filgrastim is stopped.

Your body replaces the stem cells within 24 hours of the collection. You can return to normal activities the next day.



The BMT program’s apheresis team does the procedure in the outpatient clinic. No anesthesia or hospital stay is needed. The collection session starts at 7 a.m. and lasts 4–6 hours. Typically, the collection is complete in one day. Sometimes it takes two days to get enough stem cells for the transplant. The transplant team will let you know in late afternoon of the first day if you will need to come back a second day.

## Bone Marrow Collection

Bone marrow donation is an outpatient surgery. It takes place in a hospital operating room. You do not stay overnight. You do not have to take filgrastim shots before the collection.

Doctors use needles to collect marrow from your hipbone. You will get medication so you will not feel pain during the collection.

The procedure itself takes 1–2 hours. You may need a blood transfusion after the stem cell collection.

Usually, donors leave the hospital the same day as the collection. It is important that you stay in Salt Lake City through the next day or until the medical team says it is safe for you to go home.

You will feel bruised and achy in the lower back and hips after the collection. The transplant team will give you medicine to ease the pain. Usually, you can return to normal activities in 3–4 days.

What happens if you are selected for donation?

Donors go through a screening process to ensure they are suitable for donation and the best donor for the patient.

The screening process includes:

- Donor Work-Up
- Physical Exam and Physician Clearance
- Collection Process

What is the donor workup?

This appointment takes 1–2 hours.

- Blood test which includes; complete blood count, chemistry/metabolic profiles, infectious disease markers and sickle cell testing.
  - Each blood collection for testing takes a few teaspoons of blood.
- Pregnancy test for female donors of childbearing potential.
  - This test is required prior to donation.
- Urine test.
- Vein assessment to ensure your veins are large enough for the stem cell collection.
  - You may need a temporary catheter in a larger vein in your neck instead of in the arm. If you need this, the transplant team will explain the procedure to you.
- Electrocardiogram and chest x-ray for donors 50 years and older.

## Before the appointment:

- Complete Donor Medical History Questionnaire.
  - Email the form to the transplant coordinator or bring it with you to the appointment.
- Eat meals as usual

A few days will pass between the donor work-up and the day of the physical exam. This allows time for the results of the blood tests to become available to the doctor.

## Physical exam appointment and Physician Clearance

- The transplant doctor will meet with you to review the following:
  - Medical history questionnaire
  - Donor work-up results
  - Perform a physical exam
  - Explain the collection procedure in detail and address questions
  - Donor will sign the consent form for donation

## Collection Process

### Before PBSC donation

- During the 24 hours before the collection, drink 64 ounces of water.
- Eat a good breakfast on the day of the collection.
  - If there is a potential you need a temporary line, you will receive instructions the day before whether you can eat or drink after midnight.
- The day before the collection, you will have another appointment with the transplant doctor for a medical history update and pre-surgery physical exam. The team will draw some of your blood for testing. You will sign a consent form for the surgical procedure.
- Do not eat or drink anything for 8 hours before the surgical procedure.

If you experience any side effects or have questions, call the transplant clinic at 801-585-2626

## Resources for information about stem cell transplants and donation

HCI's G. Mitchell Morris

Cancer Learning Center

Phone: 1-888-424-2100

E-mail: [cancerinfo@hci.utah.edu](mailto:cancerinfo@hci.utah.edu)

Visit: 6th floor HCI cancer hospital

National Marrow Donor Program

Phone: 1-800-627-7692

Website: [bethematch.org](http://bethematch.org)

Blood & Marrow Transplant

Information Network

Phone: 1-888-597-7694

Website: [www.bmtinfonet.org](http://www.bmtinfonet.org)