



PATIENT
EDUCATION

Allogeneic Stem Cell Donation

patienteducation@aub.edu.lb

www.aubmc.org



AMERICAN UNIVERSITY of BEIRUT MEDICAL CENTER
المركز الطبي في الجامعة الأميركية في بيروت

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What is allogeneic stem cell donation?

Allogeneic stem cell donation is a procedure whereby you donate stem cells to be transplanted in another person. Stem cells are immature cells located in the bone marrow (soft spongy tissue inside the bones). They divide and generate all your blood cells (white blood cells, red blood cells and platelets).

There are two methods of donation:

- Peripheral blood stem cell collection
- Bone marrow harvesting

How can I donate my stem cells?

If you would like to donate your stem cells, you will do a blood test to check your Human Leukocyte Antigen (HLA), a marker found on most of your white blood cells. HLA provides you with your unique tissue type. Your tissues have to match those of a recipient in order to be considered as a suitable donor.

Once you are identified as a suitable donor, the transplant coordinator will explain all the steps that you will go through.

- You will complete the "Donor Health Questionnaire" that includes questions about your medical history and your present health condition. Your complete honesty in answering all the questions is very important for your safety and the safety of the person receiving your cells. All the information you provide will remain confidential.
- You will undergo a number of tests, such as blood tests, chest X-ray, electrocardiogram (EKG), etc.
- You will meet a doctor other than the one treating the recipient. The doctor will explain the two donation methods and the best option for you and your recipient.
- After discussing the risks and benefits of the chosen procedure, you will sign an informed consent.

Please note that female donors must not be pregnant and should avoid becoming pregnant during this period.

What is peripheral blood stem cell collection?

Peripheral blood stem cell collection is the donation of immature blood cells that contain stem cells. It is similar to platelet donation.

A. What happens before peripheral blood stem cell collection?

- A few days before the collection day, you should pass by the Blood Bank Unit (third floor of the main AUBMC building). A Blood Bank staff member will assess the veins of your arms. If these cannot be easily accessed; you may need to be admitted to the medical center and a central line will be inserted for the collection procedure.
- You will receive several injections of a medication known as the “growth factor” or Granulocyte Colony Stimulating Factor (G-CSF). This medication will stimulate your bone marrow to release and increase the number of stem cells into the peripheral blood.
 - An injection will be inserted under your skin once or twice per day. The injection dose is calculated according to your weight.
 - You will start receiving the injections five days before the collection day.
 - You should receive the first injection in the bone marrow transplant unit (eighth floor of the main AUBMC building). You can receive the remaining injections at the unit or at a pharmacy outside the medical center.
 - This medication may cause few side effects, such as headache, bone or muscle pain. These symptoms usually disappear within a couple of days after you stop the injections. You can take a painkiller as prescribed by your doctor.
- You will do a blood test two times while you are receiving the injections to check your blood count level. Make sure that the staff drawing your blood will not use your upper arms’ veins. Save them for the collection.

B. What happens on the donation day?

- The transplant coordinator will explain all the instructions.
- You should be present at the transplant unit at 8:00 am.
- You should eat a light meal and empty your bladder before the collection. Then, you should go to the Blood Bank Unit where you will undergo a complete blood cell count test.
- The doctor at the Blood Bank will explain the expectations of the procedure and its possible side effects.
- You will be asked again about your medical history, travel history, allergies, and current health status.
- You will sign an informed consent for the collection procedure.

- Your blood pressure, temperature, pulse and respiratory rate will be checked before and after the donation.
- The Blood Bank staff member will use an antiseptic solution to clean the collection site. Please inform him/her if you are allergic to iodine.
- The Blood Bank staff member will connect you to the collection machine through inserting a needle in the veins of each of your arms. The machine will separate your blood cells, draw out some of your white blood cells, and pass the rest of the blood back to your body.
- The collection time will take around three to four hours.
- Usually one collection session is enough to collect an adequate number of stem cells. Sometimes more than one collection session is needed. In this case, you will receive additional injections of growth factor and the collection procedure will be repeated on the following day.
- During the procedure, you will be fully awake; you can watch television or listen to music.
- If you were admitted to the medical center, a central line will be inserted in a large vein (usually in the femoral area) under local anesthesia. You may feel pain at the area of insertion.

C. What happens after peripheral blood stem cell donation?

If the donation was performed at the Blood Bank Unit, please follow the below instructions:

- Rest for 10 minutes before leaving the Blood Bank.
- Eat and drink a light snack provided at the Blood Bank.
- Do not smoke for at least one hour.
- Do not drive for at least 30 minutes.
- Drink more fluids than usual over the next 12 hours.
- Avoid drinking alcohol for at least 24 hours.
- Do not exercise or lift any heavy object for the next 24 hours.
- Resume all normal activities after two hours (if you have no symptoms).
- Remove the bandages after four hours.
- If you feel dizzy, either lie down and elevate your feet, or sit with your head between your knees.
- If dizziness persists, either call or visit your doctor or return to the Blood Bank Unit.

If the donation was performed at the inpatient unit, you will be requested to wait till the results of the collection are out. If the cell count obtained is enough, the central line will be removed by a doctor who will apply pressure and put a compressor to decrease the risk of bleeding. You should stay in complete bed rest for at least two hours after central line removal, before you are cleared to go home. In case the cell count is inadequate, you will have to stay at the medical center for another collection session.

Recovery time varies from one person to another. Most donors resume their normal life within two to three days after the donation.

What is bone marrow harvesting?

Bone marrow harvesting is the collection of bone marrow cells using a needle that is placed into the soft center of the hip bone. The procedure takes place at the operating room under general anesthesia.

A. What happens before bone marrow harvesting?

- Since the procedure is performed under general anesthesia, you will be assessed and cleared by an anesthesiologist before the procedure date.
- You have to inform the doctor of any anticoagulant medication you are taking. The doctor will inform you when to stop the medication before the procedure (and when to resume it).
- One day before the procedure, you will be admitted to the medical center.
- We will do some blood tests. Anesthesia assessment will be repeated.
- You will sign informed consents for the anesthesia and for the harvesting procedure.
- The night before the harvesting, you should stop eating and drinking at midnight.

B. What happens on the procedure day?

- Before you go to your operation, your nurse might give you a medication to make you feel sleepy and relaxed.
- Once you are in the operating room, you will lie on the bed on your stomach. The doctor will put you to sleep. Then the procedure will begin.
- The doctor will insert a special needle through the skin into the soft center of your hip bone. The doctor will then aspirate a certain volume of blood from the bone marrow.
- Once the doctor removes the needed amount, he/she will apply a small dressing over the puncture site.
- The procedure takes around one to two hour.

C. What happens after the harvesting procedure?

- You will be closely monitored in the Post Anesthesia Care Unit while the anesthesia wears off.
- Once you are fully alert and your medical condition is stable, you will be transferred back to the unit. Nurses will monitor your general health status before you are allowed to eat, drink, or ambulate.
- It is normal to feel tired or have a sore throat or dry mouth after the procedure. Inform your nurse if you feel any pain, dizziness, nausea or any bothering symptoms.

Usually one harvesting session is enough. In case a second session is needed, the procedure will be repeated on the following day.

You can go home when:

- The obtained cell count is sufficient.
- Your medical condition is stable.
- You do not have any oozing or bleeding on the procedure site.
- Your pain is controlled.

Most donors resume their normal life within two to three days after the donation.

What happens to the collected cells?

After your donation, the stem cells will be processed, counted, and checked for sterility at the Stem Cell Processing lab (SCPL). Then the product will be delivered to the transplant unit for the recipient to receive them. Any excess amounts will be frozen and stored in liquid nitrogen at the SCPL for future use by the same recipient up to twenty years.

When should I follow up with my doctor?

- Your doctor will prescribe iron supplementation and pain killers if needed.
- You should repeat the Complete Blood Cell count test two weeks after the donation.
- You have to schedule a follow-up appointment with your doctor one to three weeks after the donation. Your doctor will inform you of any follow up appointment.
- In case you live in another country and you find it difficult to be physically available for follow up after the donation, make sure you repeat the Complete Blood Cell count test two weeks after the procedure and check with your primary care doctor.
- Contact your doctor or the bone marrow transplant coordinator or directly drop by the Emergency Department if you notice any change in your health condition or experience symptoms such as prolonged fatigue, fever and/or oozing or bleeding at the site of the procedure.

For any questions or concerns before, during, or after the donation, please do not hesitate to call or visit the Bone Marrow Transplant Unit on the following number 01-350000 ext. 7090 or the Blood Bank on the following number 01-350000 ext. 5228. We are here to answer all your questions.



This educational material provides general information only. It does not constitute medical advice. Consult your health care provider to determine whether the information applies to you.

