

ADDITIONAL SAMPLE COLLECTION

DONATION OF STEM CELLS FROM BLOOD, BONE MARROW OR LYMPHOCYTES

Why become a donor of haematopoietic stem cells (HSC)?

Every year, thousands of people need stem cell transplants because of blood disorders that cause the destruction or failure of their bone marrow.

These patients are treated with high doses of chemotherapy or a combination of chemotherapy and radiation. Sadly, this treatment does not just destroy the abnormal cells, but also the progenitor cells of blood production -also known as stem cells. It is therefore crucial that these patients receive a stem cell transplant following this treatment, taken from a healthy HLA-compatible volunteer donor. This is referred to as a transplant of allogeneic stem cells. These stem cells can be extracted from bone marrow or from blood.

Being a stem cell donor is a commitment. It is a personal, considered decision that creates a genuine commitment, as your donation can save a life.

- During an interview, a doctor assesses your current and prior health, your personal life and any factors that may form an obstacle to donation.
This information is strictly confidential. It is essential that you answer honestly during this interview in order to safeguard your own safety and that of the patient who may receive your stem cells.
- You provide a blood sample which we use to ascertain your blood group and to test for infection parameters (incl. HIV, hepatitis, syphilis and CMV). We also carry out tissue typing, known as HLA typing, as this typing determines any similarity between the patient and donor. The HLA typing and blood tests are carried out at the donor centre's expense.
- You are and will remain available in order to ensure that the collection takes place efficiently.
- You undertake to inform the donor centre where you registered of any change in your health. Please also inform the donor centre if your contact details change.
- The donation is voluntary, anonymous and unremunerated and is intended for a Belgian or international patient.
- You sign a consent form to confirm your registration.
- You can retract your commitment at any time without having to provide a reason.

Who can donate HSC?

Anyone aged between 18 and 40 who is in good physical health and meets the criteria for blood donation can register as a stem cell donor. You may be asked to donate your stem cells up to the age of 60. Beyond this age you will automatically be removed from the registry. If you are pregnant or breastfeeding, you are temporarily barred from donating stem cells. Are you unsure if you are eligible to become a donor? Just speak to the doctor at the donor centre!

Why donate stem cells from blood rather than from bone marrow?

Extracting stem cells from blood rather than bone marrow has a number of benefits for patients. For example, blood production and the body's defence mechanism recover more quickly following the transplant. This also contributes to the effectiveness of the transplanted cells.

On the other hand, the transplantation of stem cells from blood can increase the risk of illness resulting from rejection. In this case, the donor's immune cells attack the patient's tissue. This is known as graft-versus-host disease. However, this disease can also have a positive effect if it manifests in a mild form: the risk of relapse can decrease.

For you as a donor, the risks of donation are minimal. General anaesthetics are not required. Furthermore, you can always decide whether to donate stem cells from blood or bone marrow - regardless of the preference of the doctor treating the patient.

Before you donate stem cells from blood, bone marrow or lymphocytes

Once you have registered as a stem cell donor, you may be called upon to actually donate stem cells. In order to 'harvest' these stem cells, you follow a step-by-step plan. The first step is a consultation with the doctor responsible for collecting the stem cells. This doctor will ask you about your current health, possible allergies and prior illnesses (such as asthma, high blood pressure, diabetes, tropical diseases etc.). We also check whether you have spent time in a country where malaria or zika virus are prevalent. We also look into your history: have you undergone any operations? Are you on any regular medication? Is there a history of vascular disease in your family? Are there any indications of behaviour with an increased risk of transmission of infectious diseases (drug addiction, new or mixed sexual contacts etc.)? Finally, we carry out a clinical examination (potentially with lung radiography and/or an electrocardiogram) and a blood test. We test this blood sample once again for HIV, hepatitis B and C and syphilis.

How does donating stem cells from blood work?

In order to be able to collect as many stem cells as possible, you are administered a growth factor: G-CSF or Granulocyte Colony Stimulating Factor. This substance occurs in our blood naturally. You will receive a higher dose of this substance in the form of an injection. This growth factor increases the production of certain white blood cells in the bone marrow and blood and, most importantly, ensures that the progenitor cells or stem cells are released into the blood.

In consultation with the doctor, this treatment starts four or five days before the stem cell collection. You will be given a subcutaneous injection to the lower abdomen or upper legs every day. In general, the growth factor is well-tolerated but eight out of ten donors experience occasional headaches, nausea, or pain in the bones or muscles. The injection itself can also cause a slight burning sensation at the moment of injection. If you suffer from these side effects, a simple painkiller will relieve these symptoms. Allergic reactions such as fever, shivering or rash are very rare.

The stem cells are harvested using a special blood cell collecting machine: a cell separator. To this end, an IV line is placed in both forearms, generally in the elbow fold. One catheter ensures the blood leaves your body and flows into the machine, so that it can flow back into your body via the other catheter. In rare cases, we have to use a central - and therefore thicker - catheter. This only occurs when a donor's arteries are not wide enough to allow stem cell collection in the usual manner. In this case, a wider catheter is inserted into the throat, groin or breast under local anaesthetic. Complications are extremely rare during the placement of the central catheter, but include localised bleeding or infection, or collapsed lung. In order to collect the stem cells, your blood is pumped through the cell separator where we filter the stem cells we need for the patient from your blood. The substances that are not required are returned to you immediately.

Apart from the pricking sensation of the catheter, this procedure is completely painless. No blood is lost. Stem cell donors occasionally experience light-headedness, chills, numbness or a tingling feeling around the mouth. Some donors also experience cramp in their hands. These symptoms disappear immediately after the donation.

Collecting blood cells takes approximately four hours and is usually completed in one day. If insufficient stem cells were collected during the first session, it is sometimes necessary to give the stem cell donor an additional injection of growth factor G-CSF. In this case the rest of the stem cells required are harvested the next day. On very rare occasions, another collection is required after that.

It usually takes one to seven days before you can continue your normal routine. However it can take a week or two before you feel completely recovered. After ten days, the number of stem cells in your blood and bone marrow is the same as it was before the start of your treatment with growth factor.

We will continue to monitor you following your donation. We ask you to attend the centre one week, one month and five years later so that a doctor can examine you. If you experience any changes to your health or any side effects in the interim, don't hesitate to contact your doctor. If necessary, further medical examination will take place.

How does donating stem cells from bone marrow work?

Donating stem cells from bone marrow is slightly different to donating from blood. If you decide to have stem cells harvested from your bone marrow, you will be admitted to a hospital for 36 to 48 hours. You are administered a general anaesthetic to the pelvis. This is also the most significant risk of a bone marrow donation. The collection team doctor takes a mixture of blood and bone marrow - the quantity varies from 1 to 1.5 litres. This takes 1 to 2 hours. If everything goes to plan, you may leave the hospital the day after the procedure.

In physical terms, you may suffer from a sore throat following donation (32% of donors), muscle pain (24% of donors), insomnia (15%), headache (14%), dizziness (10%) reduced appetite (10%) and nausea from the anaesthetic (9%). You may also experience pain and/or bruising at the puncture site, pain around the pelvis (84% of donors) or fatigue (61%). These symptoms disappear after a few days.

We advise you to rest for a week following donation. In most cases, you will be able to return to your routine within 1 to 7 days. It can take several weeks before you feel completely recovered. The average time for complete recovery following a bone marrow donation is 20 days (5% of donors felt fully recovered after 2 days, 18% within 7 days, 71% within 30 days, 97% within 6 months and 99% within a year).

In very rare cases, local infection may occur, requiring appropriate treatment. There is a very small risk of phlebitis, for which you may be preventively administered with heparin during and possibly after the general anaesthetic. In certain situations, mild anaemia may occur. In order to remedy this, you may be given blood to compensate for your donation.

To this end, we take 1 to 3 bags of blood from you during the month prior to your bone marrow collection. If necessary, you will receive this blood at the end of the bone marrow collection to compensate for the volume of extracted bone marrow. The preparation and storage of the blood is safeguarded by the blood transfusion centre.

We will continue to monitor you following your donation. We ask you to attend the centre one week, one month and five years later so that a doctor can examine you. If you experience any changes to your health or any side effects in the interim, don't hesitate to contact your doctor. If necessary, further medical examination will take place.

How does donating lymphocytes work?

If you are asked to donate lymphocytes, it means that the haematopoietic (blood-forming) stem cells that were previously collected were not able to (fully) help the patient. This could be because the cells were rejected or the patient has relapsed, which can have fatal consequences for the patient. The ideal treatment in this case is to administer lymphocytes from the same donor as the stem cells.

Lymphocytes are among the most important groups of white blood cells. If the patient has relapsed, the donor's cells can identify, attack and destroy the patient's tumour cells. If the stem cells are rejected, the donor's cells attack the patient's immune system and prevent the stem cells from being rejected. It is essential that the lymphocytes come from the same donor.

In order for these lymphocytes to be collected, you must not take medication again. The immune cells are collected in the same way as stem cells are collected from blood. Donation takes around four hours. In some cases, only a small number of cells are required and a bag of approximately 450ml blood is sufficient – without the blood having to be filtered with the cell separator. In that case, it is simply a regular blood donation.

What do we do with your personal data and how do we protect it?

- Who is responsible for processing your personal data?

The Marrow Donor Program Belgium – Registry, Motstraat 42, 2800 Mechelen, a subsidiary of the Belgian Red Cross, a public utility institution with legal status under the Act of March 30th 1891, is the controller of your personal data, together with the cooperative centre with regard to the personal data collected from you by the cooperative centre.

Cooperative centres are:

- The donor centre where the initial sample is taken;
- The hospital/collection centre where stem cells can be collected if a match is found; and
- The stem cell bank receiving the stem cells from hospitals.

The bone marrow registry and the cooperative centres have entered into an agreement to this effect. If you would like more information on the essential content of this agreement, please contact the DPO of your cooperative centre or the DPO of the bone marrow registry (see below).

- Which of your personal data do we process?

As a (prospective) stem cell donor, we process the following of your data:

- Standard personal data such as name, address, national registration number, telephone number etc.
- Sensitive personal data such as genetic data (DNA), ethnicity, health data (incl. blood group, infectious diseases, HLA results etc.).

- What are the purposes of and legal grounds for the processing of your personal data?

We process your personal data for various purposes:

- To assist persons in finding suitable human tissue in order to be able to perform the transplant that is vital to these persons, to provide healthcare and/or for reasons of public interest in terms of public health.
- To provide sufficient safe stem cells, including informing and contacting people with regard to the donation of stem cells. This is required in order to provide healthcare and/or for reasons of public interest in terms of public health;
- We also process this data for the purposes of scientific research in relation to transfusion, for epidemiological purposes or with the aim of gaining greater insight into medical conditions and their treatment, for internal validation and to optimise reporting on operational processes related to our task as a bone marrow registry or cooperative centre in the service of public interest and public health;
- To call on you to donate blood and/or plasma if necessary for the treatment of a specific patient. This takes place on the grounds of public interest in terms of public health; and
- Finally, we process your personal data for the purposes of the management of complaints and disputes. This takes place on the grounds of our legitimate interest in being able to deal with a complaint or dispute and to indemnify our rights and interests.

- Who receives your personal data?

We share your data with:

- Processors who provide support services such as the World Marrow Donor Association, an external data platform and portal, call centres, text and email services, software suppliers etc.
- Domestic and foreign bone marrow registries and cooperative centres (in encrypted form) in order to be able to connect patients with suitable stem cell donors or to allow them to carry out scientific research in the context of transfusion, for epidemiological purposes or for the purpose

- of better understanding medical conditions and their treatment;
 - Hospitals/doctors that may be able to facilitate stem cell donation;
 - Hospitals/doctors that may be able to facilitate stem cell transplantation (in encrypted form);
 - Insurance companies in order to provide cover in the case of complications that are not among the expected side effects of donation or for any physical harm arising from the donation;
 - The Federal Agency for Medicines and Health Products in the scope of their blood monitoring authorisation;
 - Recognised laboratories with whom we work.
- Do we share your data with countries or organisations outside the European Economic Area?

We share your data with stem cell registries and cooperative centres outside the European Economic Area in encrypted form in order to be able to connect patients outside the European Economic Area with suitable stem cell donors. This also allows those stem cells registries and cooperative centres to carry out scientific research in the context of transfusion, for epidemiological purposes or for the purpose of better understanding medical conditions and their treatment.

We also use processors (external data platform and portal, software suppliers etc.) outside the European Economic Area. We provide suitable safeguards through standard clauses regarding data protection or other appropriate safeguards. These are available from us for review.

- For how long do we keep your data?

Your data will be stored in accordance with the legal requirements, namely for a period of at least 30 years and no longer than 50 years.

- What are your rights as a data subject?

You have several rights:

- You have the right to **access** your personal data. In this way you can check which of your personal data we process.
 - You have the right to the **rectification** of your personal data. In this way you can have incorrect personal data about you corrected.
 - You have the right to the **erasure** of your personal data. This right allows you to have us 'forget' you and delete any details we have about you. We are not always obliged to erase your data at your request. This is only required in the cases determined by law.
 - You have the right to **restrict** processing concerning you. In this way, you can ask us to limit the processing we carry out. We will then continue to store your data, but its use will be made stricter. We are not always obliged to grant such requests. This is only required in the cases determined by law.
 - You have the right to **object** to the processing. In this way you can refuse the further processing of your data by Belgian Red Cross-Flanders. We are not always obliged to grant such requests. This right can only be exercised when we are processing your data on the grounds of legitimate interest or to fulfil a duty in the public interest.
 - You have the right to withdraw your **permission** if the processing takes place on the basis of your permission.
 - You have the right to **object** to the processing of your personal data for recruitment and communication purposes.
 - You have the right to **data portability**. In this way you can quickly move, copy or pass on your data from one controller to another. This right complements the right to access. It offers you a way to easily control your own data and use it again. This right can only be exercised when the processing relies on your permission or on an agreement you have entered into with us.
- Who can you contact with questions regarding the processing of your personal data?

The bone marrow registry and all cooperative centres have a Data Protection Officer (DPO). It is the specific duty of this person to monitor how the data may be used and how it must be protected when

we process it.

In the case of any requests or queries concerning the processing of your personal data, you can contact the DPO of your cooperative centre:

- By post: *(To be completed by each center)*
- By email:
- By telephone:

The DPO of the bone marrow registry can be contacted as follows:

- By post: Rode Kruis-Vlaanderen, t.a.v. DPO, Motstraat 40, 2800 Mechelen;
 - By email: DPO@rodekruis.be
 - By telephone: 015-44 33 86
- Do you wish to submit a complaint to the Data Protection Authority?

If you have a complaint, this must be submitted to the supervising authority. In Belgium, this is:

Gegevensbeschermingsautoriteit
Drukpersstraat 35
1000 Brussel
contact@apd-gba.be
tel. 0032 2 247 48 00

Scientific research

We also use the data we collect during your tissue typing for scientific research in relation to transfusion, for epidemiological purposes or with the aim of gaining greater insight into medical conditions and their treatment, for internal validation and to optimise reporting on operational processes related to our duties as a bone marrow registry or cooperative centre to serve the public interest and public health.

Based on the data we collect during tissue typing, we may invite you for scientific research or innovative medical purposes such as regenerative medicine and immunotherapy. Naturally, we will also request your explicit permission in such cases.

You can decide yourself whether to allow residual fractions and samples from your donation, or the whole donation if your donation was not suitable for transfusion or transplantation, to be made available for scientific research¹ by the Marrow Donor Program Belgium (MDPB) cooperative centres or by third parties with the aim of gaining greater insight into medical conditions and their treatment, provided the research meets the objectives of the biobank of the MDPB cooperative centres as approved by an ethics committee, in accordance with the Royal Decree of January 9th 2018 concerning biobanks. The materials from your donation or samples may also be used for validation or educational purposes. With the exception of use for internal validation by the MDPB cooperative centres, the materials concerned will be anonymised in order to prevent them being traced back to you.

Other useful information on donating stem cells from blood, bone marrow or lymphocytes

Prior to the day of the medical examination and the period of incapacity for work due to the side effects of the donation, the collecting doctor can write you a sick note with the agreement of your employer. Usually, donation results in 1 to 7 days of incapacity for work. You will not receive any financial compensation from the registry or the transplant centre for the period in which you are unable to work.

¹ This permission can no longer be withdrawn from the point at which the scientific research commences.

Each donor is insured to cover any complications that are not included in the expected side effects of the donation or any physical injury sustained as a result of donating. More information on this is available in the attachment to this information letter (information letter on donor expenses and anonymous communication).

The donation is anonymous, free and voluntary and may not lead to any financial or other compensation whatsoever. The attachment to this information letter (information letter on donor expenses and anonymous communication) provides further information on the reimbursement of any expenses incurred by you.

The results of your blood tests are transmitted anonymously to the patient's transplant centre via the Belgian Bone Marrow Registry.

You can request these results if you wish. In case of abnormal results, you will be informed by the doctor as soon as possible.

If you have chosen to donate stem cells from blood, in exceptional cases (< 1) the mobilisation may fail. In this case you may be asked to donate bone marrow. You are free to decide whether or not to agree to this, without any obligation. You can also refuse this type of donation in advance on your consent form.

It is also possible that, in the months following your donation, you are asked to provide lymphocytes from blood for the same patient (no growth factor injections are necessary), or in rare cases to donate stem cells again from bone marrow or blood. The decision to make an additional donation is entirely yours to make, without any obligation.

If the collected quantity of HSC exceeds the quantity to be administered, the excess may be frozen and stored for up to 5 years at the transplant centre. These cells will only be used for the patient to whom they were donated. They will be compulsorily destroyed if that patient dies. The patient or his/her doctor will be contacted before they are destroyed.

If, due to sudden and unforeseen circumstances, the clinical condition of a patient rules out a transplant at the time agreed with you, your stem cells (with your approval) will be frozen and stored by the patient's hospital for later use. This procedure is exceptional.

News regarding the patient to whom you have donated can only be shared anonymously with the agreement of the Belgian Registry (MDPB-R), the patient and the transplant centre. This data will remain anonymous in any event.

The law states that the donor may change his/her mind and withdraw at any time. Nonetheless, it is self-evident that once the preparatory treatment (conditioning) has commenced, thereby destroying the recipient's own bone marrow, the donor's withdrawal can have fatal consequences for the recipient.

If you have registered as a donor with a particular donor centre, this does not necessarily mean that the collection will take place at the collection department of the same institution.