

# DONATING BLOOD STEM CELLS

what you  
should know



BLUTSPENDE SRK SCHWEIZ  
TRANSFUSION CRS SUISSE  
TRASFUSIONE CRS SVIZZERA



# WHO WE ARE

Swiss Transfusion SRC is a non-profit organisation within the Swiss Red Cross. It has two main areas of operation: one department, the Blood Transfusion Service, works with the regional blood transfusion services to secure the blood supply in Switzerland. The other department, Swiss Blood Stem Cells, runs the Swiss registry of blood stem cell donors, recruits blood stem cell donors in Switzerland and facilitates donations for patients in our country and abroad.

Swiss Transfusion SRC's vision: "The right donation for every patient."

## Four principles for blood stem cell donation

The donation of blood stem cells is based on four principles:

### SOLIDARITY

Registered persons are available as potential donors for patients all over the world. It is not possible to register only for one specific recipient.

### VOLUNTARY PARTICIPATION

Blood stem cell donation is always voluntary. Donors can withdraw their consent at any time.

### ANONYMITY

Donor and patient remain anonymous at all times, and the two cannot meet face to face.

### NON-REMUNERATION

Donors do not incur costs of any kind. At the same time, the donation of blood stem cells does not give rise to any entitlement to financial remuneration. Ethical concerns dictate that no one should benefit financially from the donation of blood stem cells.

# YOUR REGISTRATION GIVES HOPE

Every day, children and adults are diagnosed with life-threatening blood diseases like leukaemia. Many of these patients could be helped through the transplantation of blood stem cells. It is very difficult to find a matched donor though. This means that every single person who registers as a blood stem cell donor gives patients hope for a cure.

## The essentials at a glance

Thinking about registering but haven't quite made up your mind? Or perhaps you are already in the register and would like to deepen your understanding of blood stem cell donation? In this brochure you will find the most important information relating to blood stem cell donation:

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## VITAL ROLE OF BLOOD STEM CELLS

Blood stem cells are responsible for the production of red blood cells, white blood cells and blood platelets. Though found chiefly in bone marrow, they are also present in low concentrations in the blood.

A blood stem cell transplant often represents the only chance of a cure for people suffering from leukaemia or another life-threatening blood disorder. The transplantation of new blood stem cells can enable a patient's bone marrow to start carrying out its blood-producing function again.

### Bone marrow

Making up the haematopoietic system (the system which produces blood cells), bone marrow is concentrated primarily in the axial skeleton, i.e. in the bones of the skull, the pelvic bones, the ribs, and the bodies of the vertebrae. Bone marrow and spinal marrow are not the same thing. Hence, no injury to the spinal cord can result from a bone marrow donation.

## WHY YOU ARE NEEDED

For a blood stem cell transplant to be successful, the tissue markers (HLA markers) of the donor must closely match those of the recipient. HLA markers are inherited. Countless different combinations exist, making it very difficult to find suitable donors for patients.


The probability of finding an ideal donor within the patient's family is between 20 and 30%. Patients who do not have a donor in their family must hope that a donor will be found somewhere in the world.

The more people who register and are willing to donate, the greater the chance of finding suitable donors for patients in time.

### Key tissue markers

Human tissue displays certain markers that are characteristic for each individual. These markers are called human leukocyte antigens, HLA markers for short. They enable our immune system to distinguish between foreign tissue and our own tissue.

A close match between the donor's HLA markers and those of the recipient is therefore crucial for the success of a blood stem cell transplant, as it reduces the risk that the patient's immune system will reject the donated cells.

A portrait of Dr. Gayathri Nair, a woman with short dark hair, smiling. She is wearing a light blue cardigan over a white top. The background is a solid dark blue.

*“There are going to be more and more patients who need blood stem cell transplants.”*

**Dr Gayathri Nair**  
Chief Medical Officer,  
Swiss Blood Stem Cells

## WHO IS ELIGIBLE TO REGISTER?

To be eligible to register as a donor, you must be between the ages of 18 and 40, be in good health and have health insurance in Switzerland or in Liechtenstein.

Individuals with any of the following disorders are not eligible for registration:

- blood disorder or haematopoietic system disorder (bleeding disorders, high risk of thrombosis)
- severe heart or lung disease (e.g. heart attack, severe bronchial asthma)
- severe neurological or psychological disorder
- autoimmune disease (e.g. rheumatism, multiple sclerosis)
- severe transmissible infectious disease (e.g. HIV, hepatitis C)
- cancer
- body weight below 50 kg
- substantial excess weight, with BMI > 40

To go directly to  
online registration:  
[blutstammzellspende.ch/  
registrierung](https://blutstammzellspende.ch/registrierung)



You will receive a donor card upon successful completion of the registration process, and your donor profile will be encrypted and entered into our database. From then on until your 60th birthday, you will be available as a donor to patients throughout the world.

### Data protection

Data protection has top priority for us. Your personal data is recorded in the database of Swiss Transfusion SRC. Only data relevant to donor searches is transmitted to the international registries, such as the donor number, HLA markers, age and sex. Persons who are registered can request their HLA data from Swiss Transfusion SRC.




## WHEN YOU ARE IDENTIFIED AS A POTENTIAL DONOR

If your tissue markers match those of a patient, we will contact you to request your consent for further testing and a possible donation. At this point, you should decide whether you intend to make yourself available as a donor. Whether or not you will then actually be put on the shortlist of potential donors will be determined primarily by the results of the detailed analysis of your HLA markers.

If a donation is possible from a medical perspective, a medical professional will take samples of your blood at the regional blood transfusion service of your choice for the purposes of verifying your HLA markers (confirmatory HLA typing) and testing for transmissible diseases.

If you are selected as the blood stem cell donor, you will be requested to meet with a specialist for an in-depth informational session. This session will take place at the responsible collection centre, i.e. in Zurich, Basel or Geneva. Afterwards, you will undergo an extensive physical examination to minimise the risks associated with collection and transplantation for both you and the patient.

The actual preparations for the donation will not begin until you have given your written consent.



*“I rejoice in  
each new day  
that I get to  
experience.”*

Thanks to a blood stem cell donation,  
**Lisa Steffen, who suffered from an  
acute lymphoblastic leukaemia,**  
is still alive.

## FROM THE INITIAL CONTACT TO THE DONATION

### Potential donor is called

with a request to come in for further testing.



### Blood samples taken at the regional blood transfusion service:

HLA markers are verified and the blood is tested  
for infectious diseases.



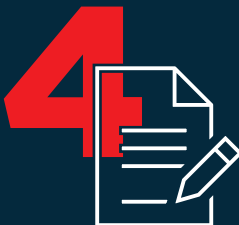
### The transplant physician selects the donor

and the required type of donation: bone marrow  
or peripheral blood stem cell donation.\*



### Donor is notified

and issues consent to the donation itself  
and to the type of procedure.



### Donor attends informational session

on blood stem cell donation in responsible  
collection centre (Zurich, Basel or Geneva).



### Health check:

medical examination of the donor in the  
collection centre.



### Collection of blood stem cells.



### Transport and transplantation of blood stem cells

within a maximum of 72 hours..



### Donor withdrawal

The donation of blood stem cells is always  
voluntary. Even after you have issued your  
informed consent, you are still entitled to  
change your mind.

**IMPORTANT:** Deciding not to donate shortly  
before the collection procedure can have  
serious or even life-threatening consequences  
for the patient. Patients undergo strong chemo-  
therapy to prepare them for transplants. This  
process destroys the patients' blood stem cells,  
and immune defences and haematopoietic  
systems no longer function.

\* For details on types of donation see p. 12 f.

## TWO DIFFERENT COLLECTION PROCEDURES

Blood stem cells can be collected either from the peripheral blood or directly from bone marrow. Currently, collection of peripheral blood stem cells are performed in 90% of the cases in Switzerland, collection of bone marrow in 10%.

The physician performing the transplant decides on the type of collection procedure best for his or her patient. If the donor does not consent to this type of procedure, the transplant physician may decide to opt for a different donor.

### Peripheral blood stem cell donation

For a few days before the donation, the donor receives growth factors to stimulate the proliferation of blood stem cells in the bone marrow and their release into the blood. The growth factors are administered by subcutaneous injections over a period of four to five days before the donation procedure.

For the donation procedure itself, a short thin tube (cannula) is inserted into a vein in each of the donor's arms. Blood flows from one arm into a machine called a cell separator and back into the body via the second cannula in the other arm. The cell separator removes blood stem cells and white blood cells from the blood; all of the other parts of the blood flow back into the donor. Blood loss is therefore minimal. The procedure lasts three to six hours.

In rare cases, the first procedure does not yield a sufficient quantity of blood stem cells. In such cases, a second collection procedure is necessary on the following day.

Donors can usually leave the collection centre on the day of the procedure. Donors should expect to miss two to three days of work, depending on the physical demands of their occupation.

### Bone marrow donation

In a bone marrow collection procedure, bone marrow is collected by punctures of the iliac crest at several sites. This procedure is performed in hospital under general anaesthesia and takes about one and a half to two hours. The blood loss involved can be relatively high, i.e. 10 to 20% of total blood volume, which is acceptable for a healthy donor.

As a rule, the donor is able to leave hospital on the following day. Donors should expect to be signed off work for a period of three to ten days. The bone marrow will regenerate fully within about four weeks.

### Growth factors

These growth factors are physiologically present in small quantities in the human body and influence the production and development of blood stem cells.

### Lifespan of blood stem cells

Collected blood stem cells have a maximum lifespan outside of a human body of 72 hours. It is therefore essential that they be transported under refrigeration to the patient and transplanted as quickly as possible. The blood stem cells are passed into the patient intravenously in a sterile isolation room.

# DONATION PROCESS

possible side effects and risks

## PERIPHERAL BLOOD STEM CELL DONATION

### 1. Preparation

Stimulation and proliferation of blood stem cells with growth factor G-CSF over five-day period.

### 2. Possible side effects

Flulike symptoms, such as headache, muscle/joint aches or increased temperature.

### 3. Collection

Collection of peripheral blood stem cells over three- to six-hour period, outpatient procedure in collection centre. Second collection procedure might be necessary on following day.

### 4. Possible side effects

Dizziness, sensation of coldness or burning in the veins, tingling around the mouth, bruising at the puncture sites.

### 5. Risks

- Infection at puncture sites
  - Formation of thromboses
- Research to date has uncovered no evidence of long-term side effects.

### 6. Temporary disability

Two to three days in total.



## BONE MARROW DONATION

### 1. Collection

Bone marrow collection in collection centre under general anaesthetics; procedure lasts one and a half to two hours; two- to three-day inpatient stay.

### 2. Possible side effects

Soreness at collection sites for a few days, bruising at puncture sites, anaesthesia-induced nausea, tiredness.


### 3. Risks

- General anaesthesia
- Infection at puncture sites

### 4. Temporary disability

Three to ten days in total.





*“Leukaemia can affect anyone. That is why I’m a blood stem cell donor.”*

**Thomas Hadorn donated blood stems** and hopes that many people will register.

## WHAT HAPPENS AFTERWARDS

You will be invited to come for a check-up one month after the blood stem cell donation procedure. You will be asked questions about your health, and a blood count will be carried out. Your health is important to us, so we will keep checking back with you at regular intervals to ask about your well-being.

Both donor and patient remain anonymous at all times, and the two cannot meet face to face. After the donation, one single, anonymous exchange of letters is permitted through the Swiss Transfusion SRC department Swiss Blood Stem Cells.

## NO COSTS FOR DONORS

Donating will not involve any costs for you. The patient's insurance will cover all of the expenses for the outpatient collection of peripheral blood stem cells or for your hospital stay if a bone marrow collection is performed. The same applies for all expenses associated with preparatory measures and the follow-up medical checks.

Swiss Transfusion SRC covers all additional donation-related expenses. These include loss of wages, travel expenses and childcare expenses.

In the event of complications related to the donation, the costs for all additional necessary examinations required until the conclusion of treatment will be covered by a follow-up care fee.

The donation of blood stem cells does not give rise to any entitlement to financial remuneration. Ethical concerns dictate that no one should benefit financially from the donation of blood stem cells.

## YOU ARE REGISTERED – WE’LL STAY IN TOUCH

Once entered, your data will remain in the registry until your 60th birthday.

You may get a call from us shortly after registering because you appear as a possible donor. However, this may not happen for a long time, or it might never happen at all. There is no way to know beforehand. But, one day, your blood stem cells may be a match for someone who is ill. It is therefore important that we stay in touch.

### When you should contact us

So that we can keep the registry up to date at all times and get in touch with you quickly if we need to, please notify us immediately if any of the following circumstances arise:

- your contact details change: name, address, e-mail address, phone number
- you move to another country
- longer-term unavailability (e.g. after an operation, in case of pregnancy or a longer period spent abroad)
- serious illness: determination as to whether blood stem cell donation is still possible
- uncertainty about whether registration is still right for you

**CONTACT:** [donorcenter@blutspende.ch](mailto:donorcenter@blutspende.ch)  
**Phone 031 380 81 81**

### If you have suggestions

We would be happy to hear from you should you have any general questions about blood stem cell donation.

**CONTACT:** [engagement@blutspende.ch](mailto:engagement@blutspende.ch)

## WOULD YOU LIKE TO DO EVEN MORE?



### Volunteer opportunities

Together, we can achieve a great deal. Help us raise awareness of the importance of blood stem cell donation: you could organise a flyer distribution campaign or host a lecture, for instance, or help by holding a charity run or by sharing information about blood stem cell donation on social media. We would be happy to assist you with your project.

**You will find more ideas and practical guidance here:**  
[www.blutstammzellspende.ch/engagement](http://www.blutstammzellspende.ch/engagement)

### Become a benefactor now

Support the growth of the registry of blood stem cell donors with a yearly donation of CHF 45. Should you fall ill and require a blood stem cell donation from an unrelated donor, we will be able to support you with immediate aid in the amount of CHF 10,000.

**Conclude an agreement on becoming a benefactor now:**  
[www.blutstammzellspende.ch/goennerschaft](http://www.blutstammzellspende.ch/goennerschaft)



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