

English version of our article in the “Bündner Woche”, June 17, 2020

## Research in Graubünden

### **A life without side effects?**

Medication-free after organ transplantation



*In 2019, 582 people in Switzerland received one or more organ transplants. Image: Swisstransplant*

As head of the Department of Internal Medicine and member of the management team, Thomas Fehr primarily treats patients and deals with management tasks at the Cantonal Hospital Graubünden. Nevertheless, the expert in kidney diseases and immunology has not lost sight of his research interests. He is particularly interested in how the human immune system can be altered in such a way that it does not reject a transplanted organ. “If you transplant an organ and do nothing, it is rejected within a few days,” explains Fehr. Therefore, patients are usually dependent on medication for the rest of their lives to suppress a defensive reaction of the immune system. This intervention in the immune system has a price, says Fehr: “Over a period of about 10 to 20 years, these drugs promote tumor diseases and infections.”

Fehr is co-initiator of a Swiss pilot study called “Swisstolerance” ([www.swisstolerance.ch](http://www.swisstolerance.ch)) involving five patients. The medical researchers want to be the first in Europe to establish a method that has been developed over the last twenty years in Boston, Chicago, and Stanford. In the three centers there, about sixty patients have so far been able to benefit from the method. Fehr explains the procedure, which is exactly the same as Stanford’s: “In the course of a living kidney donation, we collect stem cells from the donor via the peripheral blood a few weeks before. We freeze the stem cells and transplant the kidney. The recipient is then treated for 10 days with radiation and drugs that allow the donor’s stem cells to be transferred. The immunological cells have receptors on the surface that tell them where to go. In the bone marrow and thymus of the recipient, they learn to distinguish foreign from endogenous structures. This leads to a repertoire of defense cells that are able to react normally to viruses and bacteria, but at the same time spare the recipient’s own

immune structures and the transplanted organ. If this so-called “chimerism” is stable, the patients can get along completely without medication after a few months.”

In order to participate in the “Swisstolerance” pilot study, recipients and donors must meet specific requirements. The study is limited to siblings who have so-called identical HLA antigens. This match is 25 percent among siblings and reduces the risk of a rejection reaction. The procedure promises great advantages for patients who meet all criteria. However, Fehr points out that the stem cell transplantation phase is stressful. In a next step, the procedure will be extended to non-HLA-identical patients.

1,435 people in Switzerland were waiting for a new organ in the first quarter of 2020, according to the current key figures of Swisstransplant. Not everyone will receive a new organ in time. In 2019, 46 people on the waiting list died without having received a donor organ in time. Swisstransplant, the National Foundation for Organ Donation and Transplantation, offers extensive information on its website ([www.swisstransplant.ch](http://www.swisstransplant.ch)) and the possibility of registering your personal decision free of charge and without complications in the National Organ Donation Register. By recording our decision for or against organ removal in the event of death, relatives and the doctors responsible can be relieved of the burden.

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*Thomas Fehr*

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