

Bone marrow transplantation assists in acceptance of donated organs

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In an organ transplant the recipient protects himself with an immune reaction against the alien organ. This reaction is counteracted long-term with the use of immunosuppressants. In future this medication might no longer be necessary. If bone marrow belonging to the donor is also transplanted, no immune reaction occurs. However, this is still associated with undesirable side effects.

Thomas Wekerle from the University Department of Surgery, who on 1st April took up his position as the first Professor for Transplantation Immunology at the MedUni Vienna, is carrying out research on bone marrow models in order to eliminate these side effects.

The recipients concerned would of course have to be subjected to radiation beforehand and take cytostatics, synthetic substances that suppress cell growth or division. A treatment that is associated with hair falling out, nausea as well as a reduction in the white and/or [red blood cells](#) in the blood.

"If this toxicity could be eliminated, it would be revolutionary," says Wekerle. The latest research results give rise to the hope that this revolution is not too far away. Wekerle: "There are major advances in this direction due to the use of [regulatory T cells](#) from the recipient. These are so-called [suppressor cells](#), a subtype of the already known T cells."

Double bone marrow suppresses the immune defence

The additional transplantation of bone marrow is known as "chimerism." The term comes from the chimera in Greek mythology, which was a hybrid creature. In case of chimerism, the patients have two bone marrows – their own and that of the donor. Says Wekerle: "If the donor bone marrow successfully takes, the recipient does not identify the donor organ as alien. Consequently, there is no [immune defence](#). The patient's body tolerates it." Initial pilot studies with kidney transplants have shown that this method is very promising.

Provided by Medical University of Vienna

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