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Seeing better with transplanted photoreceptors  
Pro Retina Foundation funds study on integration of transplanted retina cells

Dresden. The Pro Retina Foundation funds a research project of Professor Marius Ader, group leader at the DFG-Research Center for Regenerative Therapies Dresden – Cluster of Excellence at the TU Dresden (CRTD), to identify systematically the factors which allow a successful integration of transplanted donor photoreceptors in recipient’s retina. The work group of Marius Ader has already demonstrated that photoreceptors can be transplanted into mouse retina und that they are fully functional afterwards. Nevertheless, the yield has not been sufficient. The foundation supports this project with 40,000 Euros for one year.

The loss of photoreceptors by retinal diseases such as age-dependent macular degeneration or retinitis pigmentosa leads to visual impairment and even to blindness. These diseases are one of the most frequent reasons for disabilities in industrial nations. Worldwide scientists try to regenerate photoreceptors for retina diseases with different cell based methods in animal models in order to restore the visual function. Various studies, also the ones from Professor Marius Ader of the CRTD, showed that transplanted photoreceptors can be integrated precisely into the retina of mice and they connect with the neural cells of the recipient via synapses in order to restore a certain visual function. However, the amount of the integrated photoreceptors is still too low to translate theses research results into clinical trials.

“Until now, there is no study that systematically analyzes possible factors in order to achieve a higher amount of transplanted photoreceptors which integrate correctly into the recipient’s retina”, says Marius Ader. This is exactly where the study funded by the Pro Retina Foundation comes in. The Dresden regeneration biologist reports: “We already defined first factors that influence how donor cells integrate into the retina.”

In the funded study, systematical analyses shall examine the surrounding of the retina of the host animal before and after the transplantation in order to achieve a more precise and target-oriented adaption in the eye that allows a more efficient cell therapy for retina degeneration in the future.

Photo
Professor Marius Ader’s study on systematical analyses of the retina surrounding at cell transplantations is funded by the Pro Retina Foundation. ©CRTD
The Center for Regenerative Therapies Dresden (CRTD) at the TU Dresden, founded in 2006, has passed the third phase of the excellence initiative as Cluster of Excellence and DFG Research Center. The director of this institute is Elly Tanaka, professor for Regeneration. Aim of the CRTD is to explore the capacity for regeneration of the human body and to develop novel regenerative therapies for so far incurable diseases. The center’s major fields of research are focused on hematology/immunology, diabetes, neurodegeneration, and bone regeneration. Currently, six professors and nine group leaders are working at the CRTD. They are integrated into a network of over 90 member labs at seven different institutions in Dresden. In addition, 18 partners from industry are supporting the network. The synergies in the network allow for a fast translation of results from basic research to clinical applications. [www.crt-dresden.de](http://www.crt-dresden.de)