Dr. Seeliger’s work bases on in-depth functional and morphological phenotyping of genetic models of blinding human neurodegenerative disorders with electroretinography (ERG), scanning-laser ophthalmoscopy (SLO), and optical coherence tomography (OCT), the same non-invasive techniques used in affected patients.

Key Technologies of the Group:

- Functional Assessment (ERG)
- Neuro-Imaging (SLO, OCT)
- Preclinical Therapy Unit

Contact

Institute for Ophthalmic Research
Division of Ocular Neurodegeneration

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Our mission is to uncover the pathophysiology of ocular neurodegenerative processes, to develop and test therapeutic strategies, and to understand and model normal retinal function.

In the field of Neurodegeneration Research, we investigate the causes of and the disease mechanisms in retinal degenerations, and relate the findings in human patients to those in animal models with homologous genetic defects. Also, we examine animal models generated by groups worldwide for their relevance in this regard.

In Systems Biology, we assess functional pathways, particularly in the outer retina, by means of mouse lines with specific defects in photoreceptor function and/or connectivity, as many aspects of normal retinal function are still unclear.

Cross-breeding of such lines enables us to investigate isolated pathways, to obtain new insights about their nature, and to model their behaviour.

The advancement of therapeutic research is also an important part of our work that we follow in many national and international collaborations. Molecular Therapy means for us the development of curative and symptomatic strategies in in vivo models and the translation to human studies.

Key Publications


The Institute for Ophthalmic Research
The Institute for Ophthalmic Research is headed by Prof. Marius Ueffing and cooperates closely with the University Eye Hospital (Prof. Karl-Ulrich Bartz-Schmidt) under the common roof of the Centre for Ophthalmology in order to perform translational research.

The Institute aims at uncovering the causes for degenerative, inflammatory and vascular diseases of the eye and the visual pathways at molecular, cellular and systemic levels.

The Institute houses several teams of scientists who work together to develop and evaluate concepts for therapy and treatment and optimise clinical and research diagnostics.

Thus, the Institute provides an efficient infrastructure which supports research and education and mediates contacts to other research institutions and to industry.

The Institute enjoys not only a variety of national and international scientific activities, like intense partnerships and cooperations, but also offers courses and seminar opportunities to students and young researchers.

The list of publications and sponsors are the evidence for the success of its activities.