… performing in Excellence

Objectives

We are focusing on enhancing drug delivery, developing organ culture models to test new therapeutic approaches and improving the treatment of retinal ganglion cell diseases.

For pharma, bio- and medtech companies we offer a wide range of biocompatibility, safety and efficacy tests for new drugs or medical devices.

As a clinical research group one of our objectives is to closely collaborate with the physicians working at the eye hospital to transfer research from bench to bedside.

Research areas

- Glaucoma models: ex-vivo & in-vivo
- Drug delivery via nanotechnology
- Organotypic retinal degeneration models
- Neuroprotective strategies
- Cornea organ culture model
- Primary ocular cells
- Biocompatibility & safety testing

Expertise

Our lab is well experienced in various techniques of molecular biology, biochemical assays, histology as well as in physiological or imaging techniques like ERG and ex-vivo OCT and most ophthalmic surgical procedures.

Contact

Institute for Ophthalmic Research
Clinical Research

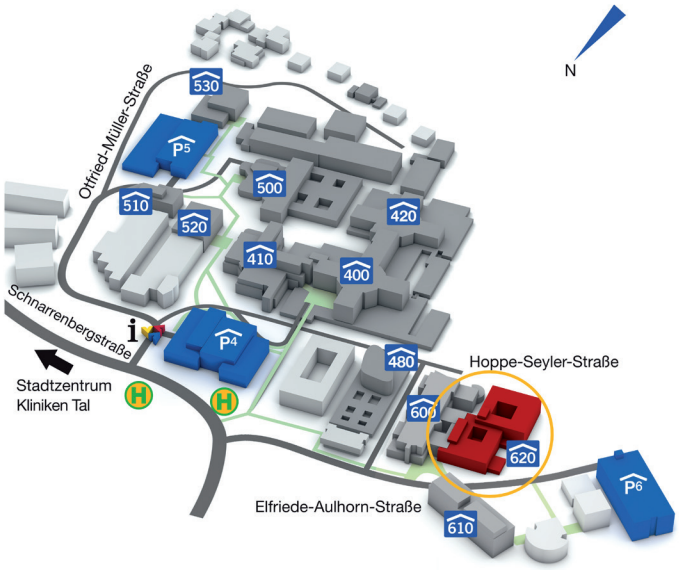
Head: Dr. Sven Schnichels

University of Tübingen
Centre for Ophthalmology

Elfriede-Aulhorn-Straße 7
72076 Tübingen
Germany

Phone: +49 7071 29 87888
Fax: +49 7071 29 25241
E-mail: sven.schnichels@med.uni-tuebingen.de
Web: eye-tuebingen.de/schnichelslab

How to find us:



Institute for Ophthalmic Research
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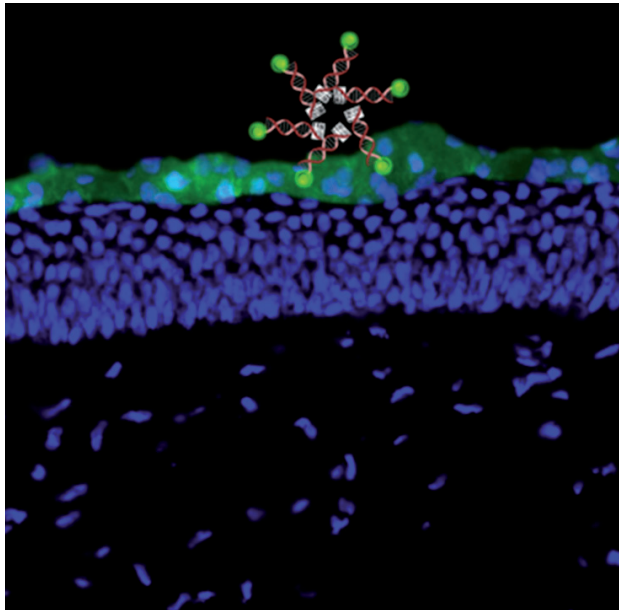
UNIVERSITÄTS KLINIKUM TÜBINGEN

Schnichels Lab
Clinical Research



Clinical Research

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EBERHARD KARLS UNIVERSITÄT TÜBINGEN

Retinal ganglion cell (RGC) diseases

Death of RGCs is a key factor in several ocular diseases, including optic nerve injury, retinal ischemia and glaucoma. All of the currently available treatments only slow down or stop the progression of glaucoma. Therefore, we are searching for novel therapies to provide a cure for these diseases.

Ocular Disease Models

To analyze the underlying pathomechanisms and test new treatments of eye diseases we use several ex-vivo and in-vitro models. Especially porcine eyes are very similar to the human eye and offer excellent opportunities for testing potential therapies, while reducing the usage of laboratory animals since they can be obtained from the food industry.

Sven Schnichels

- Dr. rer. nat.
- Head of Clinical Research

José Hurst

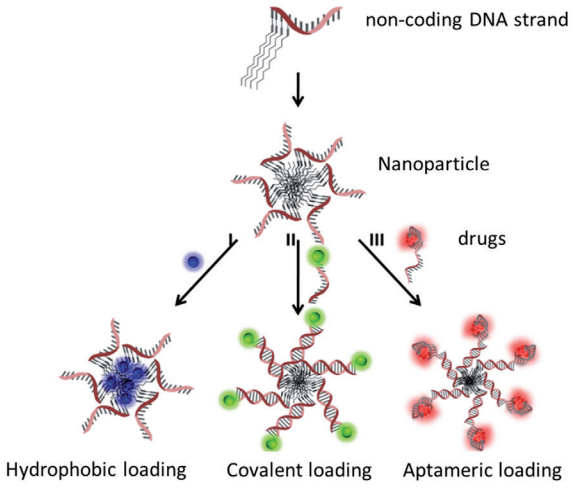
- Dr. rer. nat.
- Deputy Head of Clinical Research

Drug delivery via DNA Nanoparticles

In case of many eye conditions, including corneal infections or glaucoma, the only effective medication is very frequent administration of highly concentrated eye drops.

In general, efficiency of any treatment with eye drops is severely hindered, as only 1-5% of the applied drug stays on the eye long enough to be effective.

We have developed a novel, patent protected DNA-based carrier system for efficient delivery of drugs to the eye. This **nano-I-drops** technology consists of cornea-adhering, biocompatible nanoparticles which can be loaded with various active compounds using different loading strategies (see figure). By using our carrier system a much lower concentration of the drug is needed and less frequent administration can be achieved.



Research to See

The Institute for Ophthalmic Research

Seeing is an essential part of human life. As a leading centre for vision research we conduct rigorous research in order to break new ground in understanding the principles of vision and the mechanisms of blinding diseases. We are confident that this research will enable us to rationally develop effective treatments that ultimately retain or restore vision.

Within the Center for Ophthalmology at the University of Tübingen Medical Centre, we and our colleagues at the University Eye Hospital jointly strive for scientific excellence, for speed in translating the advancements into patient's benefit, and for training and mentoring the next generation of leaders in our field.

As leaders and partners in multi-national collaborations, we work for continuous strengthening our ties to fellow international scientists in the public and private sector and to foundations, industry and patient organizations.

As an integral part of Tübingen's biomedical and neuroscience campus, we offer a scientific environment that favors creativity for generating groundbreaking ideas, their transfer into reality and their translation into diagnostics and therapy to help those that suffer from vision loss.