Institute of Molecular and Clinical Ophthalmology Basel

Media release

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Botond Roska wins highly competitive ERC Advanced Grant for project "HURET"

*Professor Botond Roska, Co-Director of the Institute of Molecular and Clinical Ophthalmology Basel (IOB) and Professor at the University of Basel, Faculty of Medicine, has won a € 2.5 million Advanced Grant from the European Research Council (ERC). The award is for a project called HURET: The **hu**man **ret**ina at single cell resolution: functional architecture, disease mechanism and therapy development. The grant call was highly competitive: the ERC received more than 1880 submissions.*

"I am very happy to be awarded this significant funding. It will enable our IOB teams to take major steps to accelerate development of novel therapies for currently untreatable ophthalmic diseases. This funding boosts our studies of disease mechanisms and contributes to developing therapies for restoring vision faster", says Botond Roska. "The grant also allows us further to grow our outstanding team of molecular researchers and clinicians, combining their strengths by working hand in hand daily."

About the HURET project
Vision starts in the retina, a powerful biological computer in our eyes. Understanding how the retina transforms images from the outside world into signals that the brain can interpret is crucial for developing therapies for blinding retinal diseases.

Photoreceptor cells in the retina capture the light that falls on the eye and transduce it into neuronal activity. The photoreceptors process images via retinal circuits built from more than a hundred different cell types. The information then flows from the retina to the brain – via the thalamus to a number of cortical areas. Despite the large number of cortical neurons involved in vision, most blinding diseases originate in the retina and are cell-type specific.

Only a few animal models of visual diseases reproduce the pathology found in humans. Specific understanding of both healthy and disease-affected human retinas is therefore essential. "My laboratory has recently developed new technologies enabling us to study the human retina, to understand its functional architecture and disease mechanism in its various cell types, and so to develop therapies", Botond Roska reports. "We grew thousands of human retinas in a dish, derived from small donor skin cell biopsies or donor blood samples. This allows us to study the functional diversity as well as the function and mechanisms of cell-type vulnerability in the retina. In HURET, we aim to provide proof of principle for cell type-targeted near infrared vision restoration in the human retina. Taken together, these findings will allow us to investigate a new approach to restoring vision in patients with blinding diseases."

The HURET project will run for five years.

Background

At the **Institute of Molecular and Clinical Ophthalmology Basel (IOB)**, basic researchers and clinicians work hand in hand to advance the understanding of vision and its diseases, and to develop new therapies for vision loss. IOB started operations in 2018.
The institute is constituted as a foundation, granting academic freedom to its scientists. Founding partners were the University Hospital Basel, the University of Basel and Novartis. The Canton of Basel-Stadt has granted substantial financial support to the new institute. www.iob.ch

A portrait and biography of Botond Roska can be downloaded from
https://iob.ch/contact/media-downloads/

Find more **about the ERC** and the **Advanced Grants** on www.erc.europa.eu

The official ERC press release with links to statistics and more info about the funded projects is posted here: https://erc.europa.eu/news/erc-2019-advanced-grants-results

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