

Botond Roska was born on December 17, 1969 in Budapest. He was preparing for a career in classical music in his childhood, but due to an injury he turned to studying the natural sciences. He graduated *summa cum laude* in medicine from Semmelweis University in 1995, and he also received at the same time a degree in mathematics from Eötvös Loránd University. During his studies, he carried out work in the students' scientific association at the Department of Medical Biochemistry, under Veronika Ádám.

He started his PhD studies in the United States, in the Frank Werblin laboratory at the University of California, Berkeley, where he studied the electrophysiology of the mammalian retina. He received his PhD in neurobiology in 2002.

He continued his career as Harvard Junior Fellow in Boston from 2002 to 2005.

He returned to Europe in 2005 where he set up his first independent workgroup at the Friedrich Miescher Institute in Basel, Switzerland, focusing on the complex study of the visual system. In addition to the retina, the multinational research group also studied the structure and the function of the thalamus and the visual cortex. The breakthrough genetic experiments aimed at restoring vision that were conducted here quickly became the focus of interest from the global scientific community.

Since 2014, he is a Professor at the University of Basel.

As a result of his achievements and high recognition, together with ophthalmology professor Hendrik Scholl, he founded the Institute of Molecular and Clinical Ophthalmology Basel at the end of 2018, with \$200 million in support from the city of Basel, the University of Basel and Novartis. The objective of the institute is to harmonize laboratory work and clinical research, and promote research in the area of translational human ophthalmology.

Botond Roska's areas of study concentrate on five connected topics. These are the genetic characterization of neurons in the retina; the study of neuronal circuit function in the retina; neuronal circuit development and neurodevelopmental diseases of the retina; degenerative retinal diseases and cell-type-targeted optogenetic therapy; and the study of neuronal circuit function in the thalamus and visual cortex.

His gene therapy experiments aimed at restoring vision are unique due to the direct translational opportunities they offer, as well as their significance from the point of view of patient outcomes and the national economy. Some of the experiments are now in the clinical trial phase.

Botond Roska's research is linked in many ways to the scientific work being conducted at Semmelweis University. The Retina Laboratory of the Department of Anatomy, Histology and Embryology, led by Arnold Szabó, has been in constant and increasing cooperation with Botond Roska since 2014. The third partner in this collaboration is the Department of Ophthalmology led by Zoltán Zsolt Nagy, which takes part in experiments aimed at the genetic and functional characterization of the human retina, and in the laboratory testing of gene therapy procedures. As a result of the collaboration, an article was published in *Neuron* in 2016, and in *Nature Neuroscience* in 2019.

The achievements of Botond Roska are indicated by several prestigious publications, industry awards and honors.

The vast majority of his 67 publications are as senior author and are high-impact. His publications include among others 4 *Cell*, 3 *Science*, 2 *Nature*, 2 *Nature Methods*, 3 *Nature Communications*, 1 *Nature Biotechnology*, 1 *Nature Nanotechnology*, 13 *Nature Neuroscience* and 13 *Neuron* scientific articles.

He is member or chair of the scientific advisory board of 9 international scientific organizations and 2 biotechnology companies.

There are 38 scientific patents under his name.

His breakthrough work is underlined by the fact that of the 31 post-docs that have worked in his lab, 14 already are professors or independent group leaders now. Additionally, Botond Roska has trained 13 graduate students to get their doctoral degrees.

He has received a significant number of scientific awards and honors. These include several ERC Grants, the Alcon Award, the Alfred Vogt Award in Ophthalmology, the Cogan Award of ARVO, the Bressler Prize in Vision Science, the Alden W. Spencer Award for Neuroscience, the Louis-Jeantet Prize for Medicine and the Cloëtta Prize. On August 20, 2019, he was awarded the Order of Saint Stephen of Hungary.