

PRESS RELEASE

Lukas Kunz Receives ERC Starting Grant

The European Union is funding the neuroscientist's research project with approximately 1.5 million euros

Bonn, September 3 – How does the activity of nerve cells give rise to complex mental processes? This question drives the research of Prof. Lukas Kunz from the Department of Epileptology at University Hospital Bonn (UKB) and the Professorship “Cognitive and Translational Neuroscience” at University of Bonn. He is investigating how the human brain perceives the world from its own perspective and structures it spatially. For his NEUROSPACE project, the neuroscientist has received a Starting Grant from the European Research Council (ERC). The European Union is providing a total of approximately 1.5 million euros over five years to fund the project.

Through his research, Prof. Kunz aims to understand how individual neurons in the human brain support our experience and behavior. A particular focus is on the question of how we perceive our environment from our own perspective and orient ourselves within it. His ERC-funded project, “Making sense of space: Uncovering the roles of egocentric neurons for spatial behavior in humans (NEUROSPACE),” forms the core of his research vision: Prof. Kunz, who is also a member of the Transdisciplinary Research Area (TRA) “Life and Health” at the University of Bonn, is conducting the first comprehensive study of the nerve cells that may represent this first-person perspective in the brain, thereby providing new insights into fundamental mechanisms of human cognition. “We assume that specific neurons in the brain are involved in this process, known as egocentric neurons,” explains Prof. Kunz. “These neurons could represent the position of other people, objects, landmarks, and targets relative to one's own body, thereby generating an internal map of the environment from one's own perspective.”

Neurons for Spatial Perception

To investigate this hypothesis, Prof. Kunz's research team benefits from ideal conditions in Bonn. As one of Germany's leading epilepsy centers, the Department of Epileptology at UKB, led by Prof. Rainer Surges, has a unique infrastructure for recording the activity of individual nerve cells in humans. The single-cell recording techniques, established in Bonn by Prof. Florian Mormann, provide detailed insights into the processes occurring in the human brain. “The close integration of clinical care and basic neuroscientific research enables us to address research questions that can be investigated at only a few locations worldwide,” says Prof. Kunz. As part of the study, the researchers measure the activity of individual neurons in epilepsy patients who already have electrodes implanted in their brains for medical reasons. During these recordings, the patients perform various tasks both in the

**Chairman of the Management Board
and Medical Director**

Prof. Dr. Uwe Reuter, MBA

Tel.: +49 228 287-10900

Fax: +49 228 287-9010900

Uwe.Reuter@ukbonn.de

**Public Relations and Corporate
Communication**

Felix Heyder
Management

Tel.: +49 228 287-10469

felix.heyder@ukbonn.de

Bonn University Hospital
Venusberg Campus 1
Building 02
53127 Bonn

real world and in virtual environments. Through this, the researchers aim to understand the role that egocentric neurons play in perception, orientation, navigation, memory, and even in understanding spatial language.

“I’m motivated by the question of how complex mental processes arise from the activity of individual neurons. Spatial orientation is a particularly fascinating example of this because it is part of our daily lives and, at the same time, still leaves many scientific questions unanswered,” says Prof. Kunz. “My goal is to uncover fundamental principles of brain function and, in the long term, to apply these findings to our understanding of neurological disorders such as Alzheimer’s, in which orientation and memory are impaired.”

Scientific Contact:

Prof. Dr. Dr. Lukas Kunz
Department of Epileptology
University Hospital Bonn (UKB)
Professor of Cognitive and Translational Neuroscience
University of Bonn
Phone: +49 228 287 19369
Email: lukas.kunz@ukbonn.com

Images:



Caption: Neuroscientist Receives ERC Starting Grant: Prof. Lukas Kunz is investigating the fundamentals of our spatial perception and orientation.

Image credit: University Hospital Bonn (UKB) / Rolf Müller

Press contact:

Dr. Inka Väth

Deputy Press Officer at the University Hospital Bonn (UKB)

Public Relations and Corporate Communication at UKB

Phone: (+49) 228 287-10596

E-mail: inka.vaeth@ukbonn.de

About the University Hospital Bonn: As one of Germany's leading university hospitals, Bonn University Hospital (UKB) combines excellence in medical care and research with high-quality teaching. Every year, UKB treats more than half a million outpatients and inpatients. Around 3,500 students are enrolled in medicine and dentistry, and over 600 individuals receive training in healthcare professions annually. With around 9,900 employees, UKB is the third-largest employer in the Bonn/Rhein-Sieg region. In the „*Focus* hospital rankings“, UKB is rated the top university hospital in North Rhine-Westphalia and has the second-highest case mix index (an indicator of treatment complexity) of all university hospitals nationwide. In 2025, UKB secured nearly €100 million in third-party funding for research, transfer, and teaching. For the fourth consecutive year, the F.A.Z. Institute recognized UKB as both “Germany's Training Champion” and “Germany's Most Desirable Employer.” For current figures and further information, please refer to the annual report at:

geschaeftsbericht.ukbonn.de