

Collaborative research centres on kidney and brain prolonged

On 25 November, the German Research Foundation (DFG) announced the continued funding of two existing Collaborative Research Centres (CRC) at the University of Freiburg's Faculty of Medicine. In CRC 1453 Nephrogenetics (NephGen), doctors and researchers are using genetic information to search for mechanisms underlying kidney diseases. NephGen will receive 12 million euros in funding over the next four years. Transregio 167 NeuroMac will also be funded for four years with 12 million euros, around five million of which will go to Freiburg. The Transregio's researchers from Freiburg, Munich and Israel are investigating how immune cells in the brain interact with cells in the blood vessels of the central nervous system, and what role they play in healthy and diseased brains. Scientists from the Faculty of Medicine at the University of Freiburg are involved in a total of 13 Collaborative Research Centres and Transregios, and are the speakers for eight of them.

"The renewed funding confirms the excellence of our research. Our scientists are making valuable contributions both in the investigation of kidney diseases and in research into the immune cells of the brain, and this will find its way into clinical application in the long term," says Professor Lutz Hein, Dean of the Faculty of Medicine at the University of Freiburg and member of University Medical Centre Freiburg's Board of Directors.

Kidney diseases: common, but difficult to treat

Kidney disease is a huge health problem worldwide, with around one in ten adults suffering from chronic kidney disease. Dialysis or a donor organ are the only treatment options for kidney failure. There are also people with kidney cancer. "Over the past four years, we at NephGen have succeeded in finding new target structures for kidney function and kidney diseases and gaining a better understanding of the underlying mechanisms. The next step now is to push on with the search for pharmaceutical drug candidates that intervene in these mechanisms," says Professor Anna Köttgen, speaker for the network and director of the Institute of Genetic Epidemiology at the University Medical Centre Freiburg. "Pharmacological agents that target structures with human genetic evidence are twice as successful in clinical development as others," explains Köttgen. NephGen is therefore researching target molecules based on hereditary kidney diseases and testing them for their therapeutic potential. This has already involved the successful establishment of large patient and population studies as well as molecular biological investigations and methods for analysing large amounts of data. In addition to the University of Freiburg and the University Medical Centre Freiburg, the University Medical Center Hamburg-Eppendorf (UKE) is also participating.

How phagocytes communicate in the brain: transfer into clinical practice as a goal

Transregio 167 NeuroMac has already been funded twice by the German Research Foundation. Its researchers are investigating the interaction of immune cells – in particular macrophages known as scavenger cells – with smooth muscle cells of the cerebral arteries, nerve cells and other cellular players. In this third funding period, the members of NeuroMac want to improve understanding of the communication between the macrophages known as the scavenger cells that form the immune system of the human brain, and various other cell types in the brain. "Now the aim of our research network is to translate the knowledge gained about scavenger cells in the central nervous system into clinical practice," says the Freiburg co-speaker of the Transregio, Professor Marco Prinz, Medical Director of the Institute of Neuropathology at the University Medical Centre Freiburg. "To do this, we need to increase our understanding of the basic mechanisms of macrophage cell biology in healthy and diseased brains. This requires us to work with laboratory-grown organoids and patient samples, among other things." In addition to the University and University Medical Centre Freiburg and the Technical University of Munich, the Charité – Universitätsmedizin Berlin and the Weizmann Institute of Science in Rehovot, Israel, are also involved in the research network.

Further information

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