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Where does chronic pain come from?

Professor Dr. Rohini Kuner from the Medical Faculty of Heidelberg University receives the Leibniz Prize of the German Research Foundation (DFG).

Prof. Dr. Rohini Kuner has been awarded the Gottfried Wilhelm Leibniz Prize of the German Research Foundation (DFG). The DFG is thus recognizing Kuner's groundbreaking work on the mechanisms underlying chronic pain. The aim of her research is to identify the causes and thus provide targeted treatment. Professor Rohini Kuner is Managing Director of the Institute of Pharmacology, which is based at the Medical Faculty in Heidelberg. The most important research prize in Germany is endowed with prize money of 2.5 million euros.

Recognition and incentive

"We are delighted for Rohini Kuner to receive this fantastic award," says Professor Michael Boutros, Dean of the Heidelberg Medical Faculty and Member of the Board at Heidelberg University Hospital. "Her work benefits numerous people with chronic pain, who can now be better helped. As Vice Dean for Research, Professor Kuner is also a valuable colleague who infects young people in particular with her enthusiasm for science!"

Professor Rohini Kuner is naturally also delighted with the Leibniz Prize: "It is recognition for our work and also spurs us on. Collaboration with colleagues from other medical disciplines is extremely important for my research. This is possible in a special way here in Heidelberg, because there are outstanding experts in all fields and there is a collaborative spirit," emphasizes Rohini Kuner.

Impaired nerve regeneration

Professor Rohini Kuner already turned her attention to the topic of pain research during her doctorate in the USA. She is interested in how pain signals are transmitted and transferred to the central nervous system. She discovered how pain becomes chronic and developed new therapeutic approaches based on her findings. In particular, she is researching neuroplasticity - how the connections in the nervous system change, for example after injury or inflammation, and how this results in chronic pain. "Using experimental approaches such as neurogenetic and optogenetic techniques or methods such as in vivo imaging and three-dimensional electron microscopy, she was able to determine central neural pathways of pain transmission," emphasizes the German Research Foundation.

Most recently, the scientist has been working on neuropathic pain, which occurs after the severing of nerves. "We discovered a new form of neuropathic pain that does not occur directly owing to the injury, but during regeneration," explains Rohini Kuner. "The culprit is incorrect wiring of the peripheral nerves, which no longer know where to grow. This is exactly where we want to start."

Rohini Kuner studied pharmaceutical biotechnology in India and received her doctorate from the University of Iowa in the USA in 1994. She then continued her scientific career in Germany. From 1995 to 1998, she worked as a postdoctoral researcher at the Center for Molecular Biology at the University of Heidelberg and at the Max Planck Institute for Medical Research in Heidelberg. After working for two years in a bioscience company, she moved to the Institute of Pharmacology at Ruperto Carola in 2000. There she established a DFG-funded Emmy Noether Group and completed her habilitation at the Heidelberg Medical Faculty in 2005.In 2006, Rohini Kuner was appointed Professor of Pharmacology and Toxicology; Prof. Kuner has headed the Institute of Pharmacology since 2009.Since its establishment in 2015, she has been the spokesperson for the Collaborative Research Centre "From nociception to chronic pain: structure-function characteristics of neural pathways and their reorganization" (SFB 1158).Prof. Kuner has received a number of important research awards for her work, including an ERC Advanced Grant.

The Gottfried Wilhelm Leibniz Prize - the most important research funding prize in Germany - has been awarded annually by the German Research Foundation since 1986. Up to ten prizes can be awarded each year, each with a prize money of 2.5

million euros. The 2024 awards go to three female and seven male prizewinners, including Rohini Kuner and Jonas Grethlein. The aim of the Leibniz program, which was established in 1985, is to honour outstanding scientists, expand their research opportunities and facilitate the employment of particularly qualified researchers in the early stages of their careers. The award ceremony will take place on March 13, 2024 in Berlin.

Press release

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Further information

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