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Grünenthal, Uniklinik RWTH Aachen and RTWH Aachen University collaborate to advance pain research

Aachen (ots) -

Grünenthal, Uniklinik RWTH Aachen and RWTH Aachen University announced a collaboration to advance the development of next-generation pain medicines. The collaboration involves the institutes of Dr Angelika Lampert, Professor of Physiology at the Uniklinik RWTH Aachen and Dr Marc Spehr, Lichtenberg-Professor for Chemosensation at the RWTH Aachen University. The partners strive to develop a range of translational research tools and humanised preclinical models to enhance target validation.

Under the terms of the agreement, Grünenthal will support the institutes led by Professor Lampert and Professor Spehr with approximately € 1 million of funding. Part of the funding allows for establishing two new post-doc positions. The exploratory efforts at the Uniklinik RWTH Aachen and RWTH Aachen University will, if successful, enable their subsequent integration into drug development activities at Grünenthal.

Chronic pain is a considerable burden that impacts up to one in five people worldwide[1]. As one of the most common reasons people seek medical help[2], it affects health care systems and economies, significantly contributing to disability retirement. [3]Various indications come under the umbrella of chronic pain, and patients frequently experience limited efficacy from available medicines.

Despite extensive research, limited progress has been made to bring new medicines that address this unmet medical need. Scientists have used rodent models to investigate the cellular and molecular mechanisms involved in pain. However, the successful translation of these preclinical findings into new treatments for patients with chronic pain has proven difficult. The pathophysiology of chronic pain depends on a range of aspects that have not been well modelled in preclinical species yet, due to fundamental differences in molecular, cellular and genetic mechanisms of pain across species.

"To enhance target validation and translational potential of novel analgesics, we want to address two gaps," explains Jan Adams, MD, Chief Scientific Officer Grünenthal. "First, we would like to increase our ability to validate our hypothesis in human cells and tissue, and second, we want to create models to investigate cell-to-cell interactions."

Grünenthal and the Uniklinik RWTH Aachen will work together to create a shared local infrastructure to ethically and reliably source human Dorsal Root Ganglia (DRGs) and other tissues of interest. The collaboration will also include comparing non-human models to human models and investigating complex model systems and neuropathic pain mechanisms.

Human Dorsal Root Ganglia represent key communication nodes in transmitting signals from the peripheral somatosensory nervous system to the central nervous system and ultimately the brain, where one perceives the signals as pain. "Investigating high-quality human DRGs will enable us to understand crucial disease mechanisms in neuropathic pain", says Dr Angelika Lampert, Professor of Physiology, Uniklinik RWTH Aachen. "Furthermore, we will run a comparative approach between human and non-human DRGs. One of our key goals is to identify the best surrogate species for supporting mechanistic translation into the clinic as efficiently as possible."

Recent scientific progress allows researchers to investigate sensory neurons at the level of an individual cell to analyse the mechanisms involved in pain. "While these insights are beneficial, it remains vital to preserve cell-to-cell interaction in the preclinical setting to appropriately mimic the disease mechanisms in a living organism and receive translatable data", says Dr Marc Spehr Lichtenberg-Professor for Chemosensation, RWTH Aachen University. "Through this collaboration, we will establish translational models in which we can measure precisely these interactions via specialised electrophysiological methods. These have the potential to improve the reliability of target validation and the quality of compound testing."

Grünenthal and Professors Spehr and Lampert share a common research interest in pain and neuroscience. Dr Angelika Lampert is a leading researcher in the field of voltage-gated sodium channels, studying the structure and function of these channels and how to possibly prevent peripheral pain by their pharmacological modulation. Dr Marc Spehr is dedicated to investigating how chemical stimuli are transduced into a cell-specific response via complex biochemical signalling cascades and thus built an understanding of how these signalling mechanisms work on a molecular and cellular level.

Grünenthal is a global leader in pain research and management and has delivered six essential treatment options for pain patients in the last decades. Today, the company is dedicated to creating innovative non-opioid pain treatments that address unmet medical needs. For R&D, Grünenthal executes a distinctive therapeutic area strategy and focuses its efforts on four key pain indications: peripheral neuropathic pain, chronic post-surgical pain, chronic low back pain, and osteoarthritis.

About Uniklinik RWTH Aachen

The Uniklinik RWTH Aachen is a supramaximal care provider that combines patient-oriented medicine and nursing, teaching and

research at an international level. With 35 specialist clinics, 30 institutes and six interdisciplinary units, the University Hospital covers the entire medical spectrum. Excellently qualified teams of doctors, nurses and scientists are competently committed to the health of the patients. The bundling of patient care, research and teaching in one central building offers the best conditions for intensive interdisciplinary exchange and close clinical and scientific networking. Around 9.000 employees provide patient-oriented medicine and care according to recognised quality standards. With 1.400 beds, Uniklinik RWTH Aachen treats around 50.000 inpatient and 200.000 outpatient cases per year.

About RWTH

RWTH Aachen University exploits strong research networks and the intellectual curiosity of its staff to address bold scientific questions, transfer forefront knowledge and drive innovative discoveries that impact global challenges. The Excellence Initiative of the German federal and state governments provided RWTH with a unique opportunity to boost its research profile by strengthening the natural sciences and fostering interdisciplinary research. Topics include sustainable synthetic fuels, data mining, computational science, production technology, high-performance materials, health, renewable resources and mobility. The University educates over 47,000 students enrolled in 170 courses. This includes more than 13,354 international students from 138 countries.

About Grünenthal

Grünenthal is a global leader in pain management and related diseases. As a science-based, privately-owned pharmaceutical company, we have a long track record of bringing innovative treatments and state-of-the-art technologies to patients worldwide. Our purpose is to change lives for the better and innovation is our passion. We are focusing all of our activities and efforts on working towards our vision of a world free of pain.

Grünenthal is headquartered in Aachen, Germany, and has affiliates in 28 countries across Europe, Latin America and the US. Our products are available in more than 100 countries. In 2021 Grünenthal employed around 4,500 people and achieved sales of € 1.5 bn.

More information: www.grunenthal.com

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[1] Treede et al Pain 2015 Jun;156(6):1003-1007.

[2] Breivik, H. et al., Survey of chronic pain in Europe: Prevalence, impact on daily life, and treatment, European Journal of Pain 10 (2006) 287–333.

[3] Saastamoinen, P. et al., 2012, Pain and disability retirement: a prospective cohort study.

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