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Joint Press Release

Grünenthal and UniQuest partner to develop novel drug candidates for chronic neuropathic pain

Aachen, Germany, and Brisbane, Australia, 3. September 2019 – Grünenthal, a global leader in pain research and management, and UniQuest, The University of Queensland's commercialisation company, today announced they have entered into a collaboration to develop novel, non-opioid drug therapies derived from the group of alpha-conotoxins as analgesic and disease modifying treatments of chronic neuropathic pain. The project's scientific foundation was laid at The University of Queensland (UQ) by Dr. Richard Clark from the School of Biomedical Sciences in the Faculty of Medicine. The collaboration combines the expertise of UQ in target and peptide – specifically conotoxin – drug discovery and Grünenthal's long-standing expertise in bringing innovative treatments to people living with pain worldwide.

Within the framework of the collaboration, UniQuest and Grünenthal intend to identify novel peptidic drug candidates and to progress them towards clinical development. Grünenthal will provide its expertise and technical capabilities in pain research and drug development, working closely with researchers from UQ and the University of Wollongong. Furthermore, Grünenthal will fund and coordinate the discovery activities and will assume full responsibility for the development of drug candidates derived from the collaboration.

Neuropathic pain, also called nerve pain, is caused by damage, disease or dysfunction that affects the nervous system – nerves, brain and spinal cord. Commonly reported as the most severe form of pain, it is characterised by a range of unpleasant symptoms, such as stabbing or burning pain; a sensation of heat or coldness; the feeling of pins and needles or electric shocks; or even numbness^{1,2}. General population studies, using validated screening instruments, have found that 7-10% of adults currently have chronic pain with neuropathic characteristics. Standard analgesics are relatively ineffective in neuropathic pain².

Grünenthal's CEO Gabriel Baertschi said, "As a global leader in pain management for nearly 50 years, we're fully aware that patients are still hugely underserved in this area. We're driven to transform this field through our own research, as well as by drawing on external innovation, collaborations and networks." The company has pinpointed the crucial unmet medical needs within its focus areas, including chronic neuropathic pain, and strives to provide patients with innovative, disease modifying treatments. As part of its strategy, Grünenthal is expanding into new modalities, driving projects by a broad network approach, combining its own capabilities with external expertise to deliver meaningful solutions. "We are focussing all of our efforts on moving towards our vision of a world free of pain. Teaming up with academia allows us to leverage basic research to potentially create treatments that address patients' unmet needs. Thus, we look

¹ IASP Taxonomy Working Group. Classification of Chronic Pain, Second Edition (Revised). Part III Pain Terms. IASP Press; 2011

² Colloca L et al. Nat Rev Dis Primers. 2017 Feb 16



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forward to working with The University of Queensland on innovative, first-in-class clinical candidates”, added Baertschi.

UniQuest CEO Dr. Dean Moss said “UniQuest’s partnership with Grünenthal on the development of a potential first-in-class pain treatment was strong recognition of the university’s global reputation for research excellence.” The University of Queensland is ranked among the world’s top universities for life sciences research and has a strong history in pain research. To date, UQ’s research activities have led to several new drug candidates which have reached clinical development. “We are very pleased to be able to leverage our expertise in pain research in the collaboration with Grünenthal,” Dr. Moss said.

About conotoxins

The venom of prey hunting cone snails consists of a complex mixture of numerous biologically active components, including a wide variety of neuroactive peptides called conotoxins. Individual conotoxins, generally consisting of 10 to 30 amino acids, often exhibit extraordinary potency and selectivity for neuronal targets. This has sparked increased pharmacological interest and made them valuable leads for developing innovative therapeutics, such as novel analgesics.^{3 4}

About chronic neuropathic pain

Neuropathic pain is defined as pain that arises as a direct consequence of a lesion or diseases affecting the somatosensory system, i.e. a complex system of sensory neurons and pathways that responds to changes at the surface or inside the body. Neuropathic pain can result from nerve injury or disease affecting the peripheral or central nervous system. It is characterised by symptoms, such as shooting or burning pain, numbness, altered sensation, and sensations that are very difficult to describe. General population studies, using validated screening instruments, have found that 7-10% of adults currently have chronic pain with neuropathic characteristics². According to International Association for the Study of Pain (IASP), this pain is generally more severe, and is associated with worse health, in every measured dimension compared to non-neuropathic pain⁵. 17% percent of those who had pain with neuropathic characteristics had health-related quality of life scores equivalent to “worse than death” in a U.K study, compared to only 3% of those without neuropathic characteristics⁶. Patients with neuropathic pain generally do not respond to analgesics such as acetaminophen, NSAIDs or weak opioids such as codeine⁶. Despite the availability of various treatment options as well as guidelines, treatment remains to be a challenge².

³ Richard T. Layer, and J. Michael McIntosh, Conotoxins: Therapeutic Potential and Application, Mar Drugs. 2006 Apr; 4(3): 119–142.

⁴ Mir R, Karim S, Kamal MA, Wilson CM1, Mirza Z2., Conotoxins: Structure, Therapeutic Potential and Pharmacological Applications, Curr Pharm Des. 2016;22(5):582-9.

⁵ IASP, Factsheet “Epidemiology of Neuropathic Pain”, 2014, <https://s3.amazonaws.com/rdcms-iasp/files/production/public/AM/Images/GYAP/Epidemiology%20of%20Neuropathic%20Pain.pdf>

⁶ Torrance N et al 2014 Oct; 155 (10) :1996



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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 30 countries across Europe, Latin America and the US. Our products are available in more than 100 countries. In 2018, Grünenthal employed around 4,900 people and achieved sales of € 1.3 bn. More information: www.grunenthal.com

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About UniQuest

UniQuest is Australia's top university-based commercialisation company, managing the intellectual property of The University of Queensland. Since 1984, it has created more than 100 startups based on UQ research and raised more than \$700 million. UniQuest benchmarks in the top 10 per cent globally for university commercialisation, generating more licence income than other Group of Eight universities combined. UniQuest manages an extensive intellectual property portfolio, including the HPV vaccine Gardasil and the world-renowned Triple P- Positive Parenting Program. Gross sales of products licensed by UniQuest have surpassed \$US20 billion. More than \$625 million in revenue has been returned to UQ. More information: uniquest.com.au

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