



## Shionogi & Co., Ltd. and Grünenthal GmbH Enter a License Agreement to Commercialize Injectable Resiniferatoxin for Osteoarthritis in Japan.

**OSAKA, Japan, August 4, 2022** - Shionogi & Co., Ltd. (Head Office: Osaka, Japan; Chief Executive Officer: Isao Teshirogi, Ph.D.; hereafter "Shionogi") and Grünenthal GmbH (Head Office: Aachen, Germany; Chief Executive Officer: Gabriel Baertschi; hereafter "Grünenthal") announced that they have entered into a licensing agreement to commercialize injectable resiniferatoxin (hereafter "RTX"), a pipeline product of Grünenthal, in Japan for the treatment of pain in patients with osteoarthritis of the knee.

RTX, which is currently being developed by Grünenthal, is a highly potent Transient Receptor Potential Vanilloid 1 (TRPV1) agonist, which can reversibly desensitize TRPV1-expressing nociceptors. This mechanism may result in long-lasting pain relief. A prior clinical trial shows a significant analgesic effect compared to placebo, with the effect persisting for about a half year after a single injection. RTX is currently in Phase III clinical development for the treatment of patients with moderate to severe pain associated with knee osteoarthritis in Europe, the US, Latin America, South Africa and Japan.

Under the terms of the agreement, Shionogi obtained the exclusive rights to commercialize RTX in Japan. Grünenthal will conduct the development, manufacturing and supply of RTX, and Shionogi will be responsible for distribution and commercialization of RTX, after obtaining an approval of Marketing Authorization in Japan. Shionogi will make an upfront payment to Grünenthal, and Grünenthal will be eligible to receive additional milestones for a total consideration of > \$500 million, including an upfront payment of \$75 million. Grünenthal will receive tiered royalties on sales of RTX, if the sales in Japan exceed a certain amount.

Osteoarthritis is a joint disease in which the tissues in the joint break down over time due to cartilage loss and tissue inflammation, and is common among people aged 65 and over. Current approaches to management of osteoarthritis pain include exercise regimens, systemic non-steroidal anti-inflammatory drugs (NSAIDs), intra-articular treatments such as hyaluronic acid, and surgery, but considerable medical needs remain and new treatment options are in demand.

Shionogi has declared in STS2030 that it will focus on CNS diseases and pain, and infectious disease, as its priority disease area. We are dedicated to improving the health and wellbeing of the patients we serve by providing innovative healthcare solutions. As part of this mission, we anticipate that our partnership with Grünenthal will allow us to bring forward a new approach to osteoarthritis pain to patients in Japan.

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### About Grünenthal

Grünenthal is a global leader in pain management and related diseases. As a science-based, fully-integrated pharmaceutical company, they have a long track record of bringing innovative treatments and state-of-the-art technologies to patients worldwide. They are focusing all of activities and efforts on working towards their 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. For more information, please visit <http://www.grunenthal.com/>

### **About Injectable Resiniferatoxin (RTX)**

RTX is an intra-articular injection of resiniferatoxin developed for the treatment of pain in patients with moderate to severe pain associated with knee osteoarthritis. RTX is a highly potent TRPV1 agonist. Its administration can reversibly desensitize TRPV1-expressing nociceptors. This may result in long-lasting pain relief and improvement of the quality of life in patients.

### **About Osteoarthritis**

Osteoarthritis is the most common joint disease in people aged 65 and over, in which the tissues in the joint break down over time. Common symptoms of osteoarthritis include joint pain, stiffness and swelling, as well as changes in how the joint moves and a feeling of instability or looseness in the joint. Although its etiology is not fully understood, risk factors include age, female gender, genetics, metabolism, and excessive mechanical stress. There are no therapeutic agents with high therapeutic efficacy and steady adherence, leaving a large unmet medical need.

### **Forward-Looking Statements**

*This announcement contains forward-looking statements. These statements are based on expectations in light of the information currently available, assumptions that are subject to risks and uncertainties which could cause actual results to differ materially from these statements. Risks and uncertainties include general domestic and international economic conditions such as general industry and market conditions, and changes of interest rate and currency exchange rate. These risks and uncertainties particularly apply with respect to product-related forward-looking statements. Product risks and uncertainties include, but are not limited to, completion and discontinuation of clinical trials; obtaining regulatory approvals; claims and concerns about product safety and efficacy; technological advances; adverse outcome of important litigation; domestic and foreign healthcare reforms and changes of laws and regulations. Also for existing products, there are manufacturing and marketing risks, which include, but are not limited to, inability to build production capacity to meet demand, lack of availability of raw materials and entry of competitive products. The company disclaims any intention or obligation to update or revise any forward-looking statements whether as a result of new information, future events or otherwise.*

### **For Further Information, Contact:**

SHIONOGI Website Inquiry Form : <https://www.shionogi.com/global/en/contact.html>