Press Release

Notice Regarding the Signing of Basic Agreement of Business Partnership between SHIMADZU and SHIONOGI for Wastewater Surveillance for Viruses in the Field of Infectious Diseases, Including Novel Coronavirus

OSAKA, Japan, June, 2, 2021 - Shionogi & Co., Ltd. (hereafter "Shionogi") and Shimadzu Corporation (hearafter "Shimadzu") announced that we have concluded the basic agreement of business partnership to target an early social implementation of wastewater surveillance for viruses in the field of infectious diseases, including the novel coronavirus (SARS-CoV-2).

Shimadzu and Shionogi will progress to discuss of establishing a consortium toward the early social implementation of wastewater monitoring by PCR under this business partnership. Wastewater monitoring based on wastewater-based epidemiology has high expectations as a technology which can grasp the infection status of COVID-19. SARS-CoV-2 has been detected in the feces of a significant proportion of infected individuals.[1] In the United States and the Netherlands, the amount of SARS-CoV-2 contained in the sewage of facilities and cities is regularly monitored to detect epidemics at an early stage and determine convergence.[2, 3] Although the genetic material (RNA) of SARS-CoV-2 can be frequently detected in wastewater, the presence of infectious SARS-CoV-2 in influent wastewater has not yet been reported.[4]

Shimadzu has already started to provide facilities such as facilities for the elderly, educational institutions, and accommodation facilities with service named "Kyoto-Model" which is a PCR system that both wastewater and test in human through Shimazu Techno-Research Inc., it's subsidiary. The Kyoto-Model had demonstrated it's effectiveness by conducting the proof-of-concept study with the cooperation of prefectural government of Kyoto. The study had conducted with the technical supports of Kyoto University, Kanazawa University, and Toyama Prefectural University.

In Japan, there have been fewer reported cases of COVID-19 infection per capita compared to the United States and some European countries and regions, and therefore, for social implementation, the challenges had been to develop a virus detection method with increased sensitivity. Shionogi and Hokkaido University had developed a highly sensitive virus detection method. Currently, Shionogi has begun to monitor wastewater at wastewater treatment plants by utilizing this highly sensitive virus detection method with the cooperation of the Prefectural Government of Osaka.[5]

Based on this Basic Agreement of Business Partnership, Shimazu and Shionogi will combine their strengths and cooperate with academia and partner companies to enable automatic detection of viruses in wastewater, infection status, and outbreak trends of mutant strains at an early stage by utilizing wastewater monitoring data. Shimazu and Shionogi are aiming to build a social system for wastewater monitoring.

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About Shimadzu Corporation
Based on the corporate philosophy, "Contributing to society through science and technology," Shimadzu is engaged in the business of analytical and measuring instruments, medical systems, aircraft equipment, industrial machinery, and other products. Our medium-term management plan, launched in fiscal 2020, aims to become a company that solves challenges in society in collaboration with parters all around the world. In the Infectious Diseases Control Project, which we are particularly focusing on, we have been engaged in the development and sales of COVID 19 detection reagent kits and full-automatic PCR testing equipment for clinics, as well as support for the establishment of PCR testing centers at educational institutions. We will continue to strive to prevent the spread of COVID 19 and to realize a safe and secure society through a variety of products, technologies and services.

About Shionogi & Co., Ltd.
Shionogi is committed to "protect people worldwide from the threat of infectious diseases" as our key focus. We are not limiting ourselves to the research and development of therapeutics, but are also pursuing total care for infectious diseases, through pre-symptomatic, awareness building, prevention, diagnosis, and addressing exacerbations, as well as the treating the infection itself. As a leading company to fight infectious diseases, in order to contribute to the recovery of social security and safety through the early termination of COVID 19, we are working on the development of new therapeutic drugs and vaccines and maximizing the value of existing compounds. In addition, we will strengthen our efforts, including collaboration with external partners, to provide healthcare solutions to a larger number of patients.

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.

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References:
1. Duration of SARS-CoV-2 viral shedding in faeces as a parameter for wastewater-based epidemiology: Re-analysis of patient data using a shedding dynamics model, Science of The Total Environment, Vol. 769, 15 May 2021

2. COVID-19 containment on a college campus via wastewater-based epidemiology, targeted clinical testing and an intervention, Science of The Total Environment, Vol. 779, 20 July 2021
3. Coronavirus monitoring in sewage research : https://coronadashboard.government.nl/landelijk/rioolwater
4. World Health Organization. Water, sanitation, hygiene, and waste management for SARS-CoV-2, the virus that causes COVID-19. Available from : https://www.who.int/publications/i/item/water-sanitation-hygiene-and-waste-management-for-the-covid-19-virus-interim-guidance.
5. Shionogi Press Release on April, 14
Wastewater surveillance to monitor COVID-19 starts in Osaka Prefecture