

September 1, 2020

## **Start of Joint Research with Nagasaki University for the Novel Coronavirus Disease (COVID-19) Treatment**

RaQualia is pleased to announce that the company has started joint drug discovery research with Nagasaki University<sup>\*1</sup> (National Research Center for the Control and Prevention of Infectious Diseases<sup>\*2</sup> / Institute of Tropical Medicine<sup>\*3</sup>: Professor Jiro Yasuda and Assistant Professor Yasuteru Sakurai) to develop a new therapeutic for the novel coronavirus disease (COVID-19).

COVID-19 is currently a global public health threat, and discovering a therapeutic drug for COVID-19 is one of the most critical global challenges. At present, however, there are very few drugs that have been approved as COVID-19 therapeutic agents worldwide, such as “Remdesivir” developed by Gilead Sciences, Inc. of the United States. Against this backdrop, RaQualia has initiated industry-academia collaboration with Nagasaki University to create a therapeutic drug that strongly inhibits the growth of the new coronavirus (SARS-CoV-2) and suppresses the onset and severity of the disease.

Since SARS-CoV-2 should be handled at “Biosafety Level (BSL)<sup>\*4-3</sup>” laboratories according to the guideline of the Ministry of Health, Labor and Welfare, it is necessary to partner with a research institution capable of conducting virus experiments. Nagasaki University is in a leading position not only in Japan but also in the world for its research in tropical medicine and infectious diseases. Prof. Yasuda and Asst. Prof. Sakurai have achieved distinguished results in the field of emerging infectious diseases such as Ebola virus disease. Nagasaki University is currently developing a BSL-4 facility with the aim of contributing to world-class research and development on infectious diseases.

By combining Nagasaki University’s *in vitro/in vivo* virus experimental technology as well as the research results on emerging infectious diseases with RaQualia’s expertise in drug discovery research of small molecules, we will pursue the goal of delivering a breakthrough treatment for COVID-19.

Notes:

\*1 Nagasaki University

Nagasaki University is a national university founded in 1949. The campus was relocated and integrated in the 1950s and 1960s. The medical faculties and the university hospital along with affiliated research laboratories (the School of Medicine, the School of Dentistry, Nagasaki University Hospital, the Institute of Tropical Medicine, and the Atomic Bomb Disease Institute) are located on the Sakamoto Campus. Taking advantage of its geographical and historical background, Nagasaki University has accumulated outstanding achievements in the fields of tropical medicine, infectious diseases and radiation medical science. With unrivaled research results and human resources in Japan, the university continues to contribute as an educational research base for infectious diseases both at home and abroad.

Nagasaki University is engaged in various research/support activities and educational activities in the fight against COVID-19. In March 2020, the university announced that the team of Prof. Jiro Yasuda and Asst. Prof. Rokusuke Yoshikawa established a viral gene testing system capable of detecting SARS-CoV-2 in about 10 minutes, and they will initiate a clinical research study in cooperation with Nagasaki Prefecture.

\*2 National Research Center for the Control and Prevention of Infectious Diseases

The National Research Center for the Control and Prevention of Infectious Diseases was founded in April 2017 with the aim of providing BSL-4 facilities to foster infectious disease research and human resource development. Ebola virus and Lassa virus are classified as the highest risk level of BSL-4, and can be handled only at BSL-4 facilities with extremely strict containment structure. Currently, the only BSL-4 facility in operation in Japan is the Murayama Research Buildings of National Institute of Infectious Diseases (Musashimurayama City, Tokyo), which have glove box type laboratories. The National Research Center for the Control and Prevention of Infectious Diseases aims to function as a research hub for infectious diseases globally, contributing

to the safety and security of Nagasaki, Japan and the world through its core BSL-4 facility operation.

The BSL-4 facility being developed at Nagasaki University is a global standard facility called “suit laboratory”, where experimenters wear positive-pressure suits (so-called “space suits”) and operate relatively freely with front open safety cabinets.

### \*<sup>3</sup> Institute of Tropical Medicine

The Institute of Tropical Medicine was founded in 1942 as the East Asia Endemic Disease Research Institute affiliated with Nagasaki Medical School (currently Nagasaki University School of Medicine). In 1967, it became the Institute of Tropical Medicine attached to Nagasaki University and has played a central role in tropical medicine research in Japan. The institute is designed to overcome infectious diseases, which account for the most important area of tropical diseases, and the associated health problems. In collaboration with related institutions around the world, the Institute of Tropical Medicine will (1) lead research in tropical medicine and international health, (2) apply the research results to prevent tropical diseases and promote global healthcare, and (3) foster researchers and specialists involved in the above areas.

### \*<sup>4</sup> Biosafety Level (BSL)

The biosafety level is a classification of experimental facilities that handle bacteria and viruses. Based on the Laboratory Biosafety Manual published by the World Health Organization (WHO), each country divides pathogens into four risk groups and defines biosafety levels accordingly. Research on SARS-CoV-2 is limited to facilities at BSL-3 and above, and to laboratory personnel who have acquired appropriate levels of handling techniques. The BSL-3 is designed for work with microorganisms such as rabies virus, tubercle bacillus and avian influenza virus in addition to SARS-CoV-2. (Laboratory Biosafety Manual –Third Edition – WHO)