NEWSLETTER

Tsukuba Digital-Bio International center

R&D Subject 4"Strengthening R&D Infrastructure for a Society Resilient to Infectious Diseases" Special Issue

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Participating Members

Professor Atsushi Kawaguchi

- University of Tsukuba Medicine and Medical Care, Division of Infectious Biology, Department of Molecular Virology and Food Research Organization
- Research and Development Task 4 Leader

As typified by the recent outbreak of the new coronavirus, pandemics have occurred once every decade or so since the 20th century. These emerging infectious diseases can cause tremendous damage in communities as well as individuals. In order to realize good and happy well-being, it is important to build a society that is resilient to infectious diseases, and it is essential to develop fundamental technologies that can respond to dynamic virus evolution and change. In this R&D project, we will establish a research system that can respond immediately to emerging infectious diseases by developing rapid infected small animal models using new genome editing technology, building a digital database of bioresources owned by the Tsukuba area, and establishing a supply system for SPF* primate models. In order to establish a testing system capable of responding to a new pandemic, we will also work to develop large-scale diagnostic methods and technologies that can solve last-one-mile issues through the use of digital technologies and new infrastructure.

*SPF：Specific Pathogen-free
An environment in which certain bacteria, viruses, parasites, and other pathogenic organisms are absent. and animals that grow and are maintained in these environments.

Atsushi Yoshiki, Office Manager

- RIKEN Bioresource Research Center Experimental Animal Division

With a history of more than 100 years as laboratory animals, mice support basic research into the causes of human diseases and the development of treatments. As a core institution of the National BioResource Project (NBRP) of the Ministry of Education, Culture, Sports, Science and Technology (MEXT), we collect and preserve the latest model mice that meet research and social needs and provide them to researchers in Japan and overseas after microbiological and genetic quality control. By establishing more efficient and accurate genetic modification techniques, developing new mice useful for research on infectious diseases using such techniques, and linking human diseases to model mice through phenotypic information and other metadata, we will contribute to solving problems through the international center.

Yasuhiro Yasutomi, Director of the Center

- National Institutes of Biomedical Innovation, Health and Nutrition
- Tsukuba Primate Research Center

The Tsukuba Primate Research Center of the National Institutes of Biomedical Innovation, Health and Nutrition in Japan is dedicated to medical research and is the only institution in the world that maintains a complete self-breeding strain of SPF laboratory primate crab-eating macaques. The COVID-19 pandemic has made known the importance of basic research and drug discovery research for infectious diseases. Furthermore,

appropriate animal models are essential for infectious disease research, and the need for primates as appropriate animal models is increasing worldwide. We are engaged in the development of animal models of infectious diseases and evaluation systems using crab-eating macaques, which are expected to have high extrapolation potential to humans, leading to clinical applications.

Professor Hiromichi Suzuki

- **University of Tsukuba Medicine and Medical Care Department of Infectious Diseases**

The importance of prompt pathogen development for emerging infectious diseases will increase in the future. In addition to contributing to the practical application of 18 reagents from 8 companies, we have developed a method to simultaneously detect up to 12 pathogens and resistance genes and have implemented this method in society. Our COVID-19 testing product was the first domestic fully automated genetic testing system to obtain approval as an *in vitro* diagnostic reagent and we have also commercialized a reagent for simultaneous detection of influenza and respiratory syncytial viruses, which was approved for insurance coverage. Currently, we are working on advanced products such as a multi-parametric simultaneous detection reagent for sexually transmitted diseases, including mpox.

The JST COI-NEXT Tsukuba International Center for Digital Biotechnology Project has appointed Toshinori Moriga as Deputy Project Leader.

Inaugural Greeting

I was fortunate to be appointed as the deputy project leader of the "Tsukuba International Center for Digital Biotechnology. It has been three months since I took up my new position, and I am struggling to grasp the full picture of the place of co-creation involving many stakeholders. From now on, JST site visits, mid-term evaluations, and other important events are coming up. We will strive to engage in dialogue with you and strengthen the horizontal functions of the Management Division (Secretariat). Please feel free to drop in at the Co-Creation Office (272, Medical Building) during the day.

When not working, Dr. Moriga likes to drink and socialize. Coming from an industrial background, his mottos are "work solemnly," "autonomy and improvement," and "team play". The photo of a statue of Genentech's founders (below) was taken at their headquarters just prior to his arrival in April. Dr. Boyer has long hair (right) and Mr. Swanson has short hair (left). Reflecting on his new job, he thinks of his new role as Swanson, the promoter and manager, so he stated to let his aspirations fit him to that role.

The Health and Life Survey for Tsukuba Citizens is being conducted again in 2023.

TOPICS

Health and Lifestyle Survey for Tsukuba Citizens" by Research and Development Project 2 Leader Professor Michihiro Ohkura of Tsukuba University will be conducted this year as well. The target population for this survey is 10,000 people, including those who responded to the survey conducted last year and a new random sample of those aged 45-89. The purpose of this study is to obtain the basic data needed to expand the support system for extending healthy life expectancy and, in turn, to develop health promotion programs. The goal is to develop health promotion programs. If you have received the survey form, we would appreciate your cooperation in order to create a community where everyone can live in good health and peace of mind.

For more information, please refer to the following video clip on the Tsukuba Happiness Life Study website, or read the QR code below.

https://tsukubadigitalbio.jp/info/1154/

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