

Agency for Science, Technology and Research
Chugai Pharmaceutical Co., Ltd.

Chugai - A*STAR Joint Development Project for Anti-Dengue Virus Antibody Selected as Grant Recipient by the GHIT Fund

TOKYO/SINGAPORE, March 30, 2017 -- [Chugai Pharmaceutical Co., Ltd.](#) (TOKYO: 4519) and [the Agency for Science, Technology and Research, Singapore \(A*STAR\)](#) announced today that a joint research project between Chugai and A*STAR for an anti-dengue virus antibody has been selected as a grant recipient by the Global Health Innovative Technology Fund (GHIT Fund). Chugai and A*STAR have been engaged in the joint research since 2015.

This project was born through the collaboration of [Chugai Pharmabody Research Pte. Ltd. \(CPR\)](#), a research center of the Chugai Group in Singapore, and A*STAR's [Singapore Immunology Network \(SIgN\)](#). The dengue virus that causes dengue fever is known to have four different serotypes. SIgN researchers identified a new human antibody that is highly effective in neutralizing the activity of all four dengue virus serotypes, and CPR applied Chugai's proprietary antibody engineering technologies to optimize the antibody. This project seeks to create a new antibody drug against the dengue virus. It has been selected to receive US\$5.3 million grant based on its recognition by the GHIT Fund for contributing to the "fight against neglected tropical diseases in developing countries."

Dengue fever is a mosquito transmitted febrile disease that is rapidly spreading in tropical and subtropical urbanized regions. In severe cases, it progresses to the serious and lethal dengue hemorrhagic fever or dengue shock syndrome. This disease is a leading cause of hospitalization and death in many countries in Asia and Latin America. According to the World Health Organization (WHO), approximately 390 million people globally are infected with the dengue virus each year, and although an estimated 500,000 of these cases become severe and require hospitalization, there is currently no effective drug for the treatment of dengue fever.

In order to contribute to the healthcare and health of the people in the regions where the disease is rampant, which includes many developing countries, this project seeks to establish treatment methods for dengue fever such as the early alleviation of the symptoms and prevention of lethal, severe cases of the disease.

"Dengue research has always been a top priority at SIgN. Our scientists are working to improve the diagnosis, prevention, and therapies for dengue, and other mosquito-borne diseases. This has led to the creation of a Lab-on-Chip for tropical infectious diseases detection and has helped to explain why certain human skin cells may facilitate the spread of dengue virus infection," said Lim Chuan Poh, Chairman of A*STAR. "A*STAR's collaboration with Chugai will continue to

advance treatment for dengue and create impactful healthcare outcomes. GHIT's support for this public-private partnership is an endorsement of the strength of this research project to combat one of the world's major infectious diseases.”

“Our mission is to ‘dedicate ourselves to adding exceptional value through the creation of innovative medical products and services for the benefit of the medical community and human health around the world,’ and we are implementing initiatives to contribute to global health,” said Osamu Nagayama, Chairman and CEO of Chugai. “Our project selected for this grant is the result of the collaboration of our proprietary antibody engineering technologies and SgN's expertise in the biology of the dengue virus. It is our hope that this completely new antibody will put a stop to the spread of the dengue virus.”

About Global Health Innovative Technology Fund (GHIT Fund)

The Global Health Innovative Technology Fund (GHIT Fund) was established in April 2013 with contributions from the Japanese government, pharmaceutical industries, the Bill & Melinda Gates Foundation, and the United Nations Development Programme with the aim of taking control of infectious diseases spreading particularly in developing countries such as AIDS, tuberculosis, malaria, and “neglected tropical diseases (NTDs)”. The GHIT Fund supports and promotes the research and development of new drugs, vaccines, and diagnostic drugs by promoting collaboration between Japanese and overseas research organizations and providing grants.

Detailed information on the GHIT Fund is available on the Internet at <https://www.ghitfund.org/>

About Neglected Tropical Diseases (NTDs)

Neglected Tropical Diseases (NTDs) are parasitic, bacterial and viral infections spread mainly in tropical areas. It has been reported that approximately one billion individuals are infected with NTDs and half a million people die each year worldwide. NTDs are quite rare in advanced countries so that they did not catch world's attention. Many NTDs are parasitic diseases and may cause severe physical impairment such as deformity and blindness. Nonetheless, they can be often prevented or treated.

About the Agency for Science, Technology and Research (A*STAR)

The Agency for Science, Technology and Research (A*STAR) is Singapore's lead public sector agency that spearheads economic oriented research to advance scientific discovery and develop innovative technology. Through open innovation, we collaborate with our partners in both the public and private sectors to benefit society.

As a Science and Technology Organization, A*STAR bridges the gap between academia and industry. Our research creates economic growth and jobs for Singapore, and enhances lives by contributing to societal benefits such as improving outcomes in healthcare, urban living, and sustainability.

We play a key role in nurturing and developing a diversity of talent and leaders in our Agency and Research Institutes, the wider research community and industry. A*STAR oversees 18 biomedical sciences and physical sciences and engineering research entities primarily located in Biopolis and Fusionopolis.

For more information on A*STAR, please visit <https://www.a-star.edu.sg/>

About A*STAR's Singapore Immunology Network (SIgN)

The Singapore Immunology Network (SIgN), officially inaugurated on 10 February 2006, is a research consortium under the Agency for Science, Technology and Research (A*STAR)'s Biomedical Research Council. The mandate of SIgN is to advance human immunology research and participate in international efforts to combat major health problems. Since its launch, SIgN has grown rapidly and currently includes 200 scientists from 25 different countries around the world working under 18 renowned Principal Investigators. At SIgN, researchers investigate immunity during infection and various inflammatory conditions including cancer and are supported by cutting edge technological research platforms and core services.

Through this, SIgN aims to build a strong platform in basic human immunology research for better translation of research findings into clinical applications. SIgN also sets out to establish productive links with local and international institutions, and encourage the exchange of ideas and expertise between academic, industrial and clinical partners and thus contribute to a vibrant research environment in Singapore.

For more information about SIgN, please visit <https://www.a-star.edu.sg/sign/>

About Chugai

Chugai Pharmaceutical is one of Japan's leading research-based pharmaceutical companies with strengths in biotechnology products. Chugai, based in Tokyo, specializes in prescription pharmaceuticals and is listed on the 1st section of the Tokyo Stock Exchange. As an important member of the Roche Group, Chugai is actively involved in R&D activities in Japan and abroad. Specifically, Chugai is working to develop innovative products which may satisfy the unmet medical needs, mainly focusing on the oncology area.

In Japan, Chugai's research facilities in Gotemba and Kamakura are collaborating to develop new pharmaceuticals and laboratories in Ukima are conducting research for technology development for industrial production. Overseas, [Chugai Pharmabody Research](#) based in Singapore is engaged in research focusing on the generation of novel antibody drugs by utilizing Chugai's proprietary innovative antibody engineering technologies. [Chugai Pharma USA](#) and [Chugai Pharma Europe](#) are engaged in clinical development activities in the United States and Europe.

The consolidated revenue in 2016 of Chugai totaled 491.8 billion yen and the operating income was 80.6 billion yen (IFRS Core basis).

Additional information is available on the internet at <https://www.chugai-pharm.co.jp/english>.

About Chugai Pharmabody Research Pte. Ltd. (CPR)

Chugai Pharmabody Research (CPR) was established in Singapore as a wholly-owned subsidiary of Chugai Pharmaceutical Co., Ltd. (“Chugai”), Japan’s leading biopharmaceutical company, in January 2012. CPR conducts research on the generation of new antibody drug clinical candidates focusing on high value First-in-Class and Best-in-Class antibodies for a variety of targets, and utilizing Chugai’s proprietary innovative antibody engineering technologies such as the “Recycling Antibody” technology and the “Sweeping Antibody” technology.

Additional information is available on the internet at <https://www.chugai-pharmabody.com/>.

Contact:

Agency for Science, Technology and Research (A*STAR)

For Media

Media Relations, Corporate Communications

Sunanthar Lu

Tel: +65-6517-1966

E-mail: Sunanthar_Lu@scei.a-star.edu.sg

Chugai Pharmaceutical

For Media

Chugai Pharmaceutical Co., Ltd.

Media Relations Group, Corporate Communications Dept.,

Koki Harada

Tel: +81-3-3273-0881

E-mail: pr@chugai-pharm.co.jp

For US media

Chugai Pharma USA Inc.

Casey Astringer

Tel: +1-908-516-1350

E-mail: pr@chugai-pharm.com

For European media

Chugai Pharma France SAS

Nathalie Leroy

Tel: +33-1-56-37-05-21

E-mail: pr@chugai.eu

For Taiwanese media

Chugai Pharma Taiwan Ltd.

Susan Chou, Osamu Kagawa

Tel: +886-2-2715-2000

E-mail: pr@chugai.com.tw

For Investors

Chugai Pharmaceutical Co., Ltd.

Investor Relations Group, Corporate Communications Dept.,

Toshiya Sasai

Tel: +81-3-3273-0554

E-mail: ir@chugai-pharm.co.jp

###