

DNDi and Four Pharmaceutical Companies Announce ‘Drug Discovery Booster’ Experiment to Accelerate and Expand Discovery of New Drugs for Two Highly Neglected Diseases – Leishmaniasis and Chagas disease

First multi-company engagement in a single project with DNDi to tackle neglected tropical diseases, supported by the Japanese Global Health Innovative Technology Fund

[Geneva, Switzerland; Osaka and Tokyo, Japan; London, United Kingdom – 28 May 2015] The Drugs for Neglected Diseases initiative (DNDi) and four pharmaceutical firms, Eisai Co Ltd, Shionogi & Co Ltd, Takeda Pharmaceutical Ltd, and AstraZeneca plc have announced the start of a ground-breaking initiative to accelerate and cut the cost of early stage drug discovery for two of the world’s most neglected diseases, leishmaniasis and Chagas disease. The ‘Neglected Tropical Diseases Drug Discovery Booster’ consortium, through a carefully engineered *modus operandi*, will circumvent early stage commercial barriers between the four pharmaceutical participants, allowing DNDi, for the first time, to search millions of unique compounds simultaneously, in the hunt for new treatment leads for leishmaniasis and Chagas disease.

‘This experimental approach to radically modernize drug development for neglected diseases is the result of a decade of growing partnerships with pharmaceutical companies’, said Dr Bernard Pécoul, Executive Director of DNDi. *‘This experiment could significantly reduce the time and money it takes to find new, promising treatment leads, and echoes the great potential of innovative research and development collaborations.’*

Traditionally, early stage drug discovery to find new treatments has been an expensive and time-consuming process. To identify promising new compounds for neglected diseases, DNDi has worked bilaterally with a range of pharmaceutical partners, searching through segments of their vast compound libraries, and testing them against infected cells. The Drug Discovery Booster is a new approach, using a multilateral, simultaneous search process across participating companies, thus allowing DNDi access to compounds generated over many decades of research. State-of-the-art technology will be used to pinpoint compounds that have promising characteristics for further testing.

The innovation of the Drug Discovery Booster not only lies in the multilateral approach, but also in the iterative nature of the search, meaning companies will continually examine their libraries for better matches as the search is refined. The Drug Discovery Booster has the potential to cut up to two years from the early drug discovery process, which takes approximately five years or more, and improve cost-efficiency across research activities.

The new process starts with DNDi providing all four companies with a common chemical starting point, the ‘seed’ compound. This compound will have shown promising results against *Leishmania* or *Trypanosoma cruzi*, the parasites that cause leishmaniasis and Chagas disease, but may not yet be optimal for use as a future treatment. The four companies will then search their own full collections of high-quality chemical compounds for similar and potentially better molecules, and will select and send the most promising to DNDi, which will then have them screened for potential effectiveness against these two deadly parasitic diseases. The aim is to continually improve the effectiveness of the compounds.

DNDi will then select the best ‘hits’ for further testing. This process will be repeated up to three times, with each new iteration – or round – starting from an improved seed compound identified from within one of the four partner’s collections and shared with all. The initial project goal is to explore the consortium’s compound libraries for at least four promising seed compounds for each disease. It is expected that at least two of the resulting novel series of compounds will move to the next stage of development towards a new medicine.

Any progress or successful new treatment for leishmaniasis or Chagas disease resulting from the Drug Discovery Booster will be attributed to the collective effort of all partners, which have also agreed that no intellectual property barriers will be imposed to a new treatment if successful.

The GHIT Fund, launched in 2013, stimulates and supports such international global health research and development partnerships. Through a grant of EUR 640,000 or 79.5 million Japanese Yen provided to DNDi, GHIT will support the involvement of the three Japanese companies in this project. The remainder of the project, including the involvement of AstraZeneca plc, is being supported by DNDi core funds.

‘The Drug Discovery Booster could be a game-changing milestone in the fight against diseases that destroy the health and livelihoods of the world’s poorest’, said Dr BT Slingsby, GHIT Fund CEO. *‘Industry’s innovative leadership for the most neglected of the neglected diseases will be essential to accelerate progress toward creating life-saving medicines, and GHIT is proud to support the important contribution of Japanese pharmaceutical companies to make this possible.’*

Additional quotes from Drug Discovery Booster consortium partners

Eisai Co., Ltd

'The consortium announced today marks a new step forward in our challenge to combat neglected diseases. As a human health care company addressing unmet medical needs around the world, Eisai is proud to join this consortium that will combine resources and expertise from partners to develop new treatments for leishmaniasis and Chagas disease, two significant global health issues affecting over 18 million people worldwide.' Haruo Naito, Representative Corporate Officer and CEO Eisai Co., Ltd

Shionogi & Co Ltd

'Based on our strong partnership with DNDi, Shionogi is leveraging its experience and strengths in the infectious disease field to deliver new drugs to patients who are struggling against leishmaniasis and Chagas Disease as soon as possible. This is part of our wider mission as a pharmaceutical company to contribute to the health of people in developing countries and around the world.' Dr Isao Teshirogi, President & CEO of Shionogi & Co Ltd

Takeda Pharmaceutical Limited

'We are pleased to join this consortium with support through the GHIT Fund and to contribute to global health through utilizing our proprietary compound library for drug discovery that might lead to improve access to medicine and provide meaningful solutions for the treatment of neglected tropical diseases.' Yasuchika Hasegawa, the Representative Director, Chairman of the Board of Takeda

AstraZeneca plc

'We are delighted to be working in partnership with DNDi, Eisai, Shionogi and Takeda Pharmaceuticals to advance the development of new medicines for the treatment of Chagas disease and leishmaniasis. AstraZeneca is committed to establishing open innovation partnerships with charity, academic and industry partners to push the boundaries of science to benefit patients worldwide.' Dr Garry Pairaudeau, Head of External Sciences at AstraZeneca

About the Drug Discovery Booster Consortium Partners

Drugs for Neglected Diseases *initiative* (DNDi)

A not-for-profit research and development organization, DNDi works to deliver new treatments for neglected diseases, in particular leishmaniasis, human African trypanosomiasis, Chagas disease, malaria, specific filarial infections, and paediatric HIV. Since its inception in 2003, DNDi has delivered six treatments: two fixed-dose antimalarials (ASAQ and ASMQ), nifurtimox-eflornithine combination therapy (NECT) for late-stage sleeping sickness, sodium stibogluconate and paromomycin (SSG&PM) combination therapy for visceral leishmaniasis in Africa, a set of combination therapies for visceral leishmaniasis in Asia, and a paediatric dosage form of benznidazole for Chagas disease. In addition, DNDi has established regional disease-specific platforms, which bring together partners in disease-endemic countries to strengthen existing clinical research capacity, as well as to build new capacity where necessary. www.dndi.org

Global Health Innovative Technology Fund (GHIT Fund)

The Global Health Innovative Technology Fund (GHIT Fund), a public-private partnership between six Japanese pharmaceutical companies, the Japanese Government and the Bill & Melinda Gates Foundation, will support the three Japanese companies contributing to the Booster through a grant of €640,000 or 79.5 million Japanese Yen. The first of its kind in Japan, GHIT taps R&D to fight neglected diseases, mobilizing Japanese pharmaceutical companies and academic research organizations to engage in the effort to get new medicines and vaccines to people who need them most, with Japan quickly becoming a game-changer in global health. The booster complements GHIT's ongoing investments into new tools to tackle Chagas disease and leishmaniasis, now totalling ¥1,131,760,559 (\$1USD = ¥100).

Eisai Co., Ltd

Eisai Co., Ltd is a leading global research and development-based pharmaceutical company headquartered in Japan. We define our corporate mission as "giving first thought to patients and their families and to increasing the benefits health care provides," which we call our *human health care (hhc)* philosophy. With over 10,000 employees working across our global network of R&D facilities, manufacturing sites and marketing subsidiaries, we strive to realize our *hhc* philosophy by delivering innovative products in various therapeutic areas with high unmet medical needs, including Oncology and Neurology. As a global pharmaceutical company, our mission extends to patients around the world through our investment and participation in partnership-based initiatives to improve access to medicines in developing and emerging countries. For more information about Eisai Co., Ltd., please visit www.eisai.com.

Shionogi & Co., Ltd.

Shionogi & Co., Ltd. is a major research-driven pharmaceutical company dedicated to placing the highest value on patients. Shionogi's research and development currently targets two therapeutic areas: infectious diseases, and pain/CNS disorders. In addition, Shionogi is engaged in new research areas such as obesity/geriatric metabolic disease and oncology/immunology. Contributing to the health of patients around the world through development in these therapeutic areas is Shionogi's primary goal. For more details, please visit www.shionogi.co.jp.

Takeda Pharmaceutical Company Limited

Located in Osaka, Japan, Takeda is a research-based global company with its main focus on pharmaceuticals. As the largest pharmaceutical company in Japan and one of the global leaders of the industry, Takeda is committed to strive towards better health for people worldwide through leading innovation in medicine. Additional information about Takeda is available through its corporate website, www.takeda.com.

AstraZeneca

AstraZeneca is a global, innovation-driven biopharmaceutical business that focuses on the Discovery, development and commercialization of prescription medicines, primarily for the treatment of cardiovascular, metabolic, respiratory, inflammation, autoimmune, oncology, infection and neuroscience diseases. AstraZeneca operates in over 100 countries and its innovative medicines are used by millions of patients worldwide. For more information, please visit: www.astrazeneca.com.

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