

## **Astellas to Participate in “Neglected Tropical Diseases Drug Discovery Booster” Consortium with DNDi and Seven Other Pharmaceutical Companies**

Tokyo, March 29, 2018 - Astellas Pharma Inc. (President and CEO: Yoshihiko Hatanaka, “Astellas”) today announced an agreement for collaborative research with the Drugs for Neglected Diseases *initiative*<sup>1</sup> (DNDi) and seven other pharmaceutical companies<sup>2</sup> in a consortium called Neglected Tropical Diseases (NTD) Drug Discovery Booster. The consortium is supported by funding from the Global Health Innovative Technology Fund (GHIT Fund)<sup>3</sup>.

The NTD Drug Discovery Booster is a consortium whose purpose is to identify lead compounds<sup>4</sup> for new antiparasitic drugs (leishmaniasis<sup>5</sup> and Chagas disease<sup>6</sup>). As a part of the agreement, Astellas will screen focused sections of its compound library to find compounds with potential efficacy against protozoan parasites based on seed compounds<sup>7</sup> presented by DNDi and provide them for DNDi. DNDi will screen these compounds in order to identify improved hit compounds<sup>8</sup>. This cycle will be repeated up to three times per seed, with each cycle informed by the collaborative efforts of the various consortium members.

NTD are mainly parasitic or bacterial virus infections prevalent among people living in poverty in developing nations in tropical regions. At least 1 billion people worldwide are reported to be infected from one of the 20 neglected diseases<sup>9</sup> listed by the WHO, many of which cause serious social difficulties.

Through the consortium, Astellas will contribute to the discovery of new drugs for patients in various parts of the world suffering from leishmaniasis and Chagas disease and will continue to resolving Access to Health issues.

Astellas’ agreement with National Institute of Advanced Industrial Science and Technology for collaborative research to discover anti-protozoan parasite drugs (Chagas disease) announced in April 2016 has now concluded. As a part of the project, basic technology for the discovery of molecules essential for protozoan parasite survival were developed using genome editing technology. This technology has made it possible to select highly suitable target molecules for drug discovery.

**(1) DNDi** : A not-for-profit R&D organization, the Drugs for Neglected Diseases *initiative* (DNDi) works to deliver new, safe, effective, low cost treatments for neglected patients living with leishmaniasis, human African trypanosomiasis, Chagas disease, specific filarial infections, paediatric HIV, mycetoma, and hepatitis C. DNDi is actively engaged in developing new treatments and screening new compounds, notably for Chagas disease and leishmaniasis. In 2015, DNDi launched the NTD Drug Discovery Booster with four pharmaceutical companies. Astellas is the eighth one to join the consortium.

<http://www.dndi.org/diseases-projects/open-innovation/drug-discovery-booster/>

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**(2) seven pharmaceutical companies:** Eisai Co., Ltd, Shionogi & Co., Ltd, Takeda Pharmaceutical Company Limited, AstraZeneca plc., Celgene Corporation, Merck KGaA and AbbVie

**(3) GHIT Fund:** an international non-profit organization aimed at leveraging Japanese expertise and capability for life-saving health innovations, including drugs, vaccines and diagnostics, to combat HIV/AIDS, TB, malaria, neglected tropical diseases prevalent in the developing world. A public interest corporation registered in Japan, the GHIT Fund is the first international public-private partnership between the Japanese Government: Ministry of Foreign Affairs, Ministry of Health, Labor and Welfare, private sector, the Bill & Melinda Gates Foundation, the Wellcome Trust and the United Nations Development Program.

**(4) lead compound:** compound with confirmed pharmacological activity among hit compounds. Optimization research (for improvement of activity, physical properties, pharmacokinetics, toxicity, etc.) is conducted based on lead compounds.

**(5) Leishmaniasis:** Leishmaniasis is endemic in 98 countries worldwide and 350 million people are at risk of infection. The protozoan parasite that causes the infection is called *Leishmania* and is transmitted by sandflies. There are several forms of leishmaniasis. They include visceral leishmaniasis, which is fatal if left untreated, and cutaneous leishmaniasis, which leaves deep scars on the skin and has the secondary impact of causing economic suffering and social prejudice. The existing drugs are difficult to administer, have toxicity and high costs. Drug resistance has become a serious problem.

**(6) Chagas disease:** Chagas disease is endemic in 21 countries in Latin America and kills more people in the region than any other parasite-borne disease, including malaria. A total of 70 million people worldwide are at risk of infection and patients in countries outside regions where it is prevalent, such as the US, Australia, and European countries, are increasing. It is transmitted by an insect called the assassin bug (kissing bug) and can be fatal if left untreated. Existing treatments have low efficacy and strong adverse drug reactions.

**(7) seed compound:** compound with a certain extent of activity discovered in screening.

**(8) improved hit compound:** compound with enhanced activity discovered in further screening of seed compounds.

**(9) 20 types of disease focused on by WHO:** Buruli ulcer, Chagas disease, dengue and chikungunya, dracunculiasis (Guinea worm disease), echinococcosis, foodborne trematodiasis, human African trypanosomiasis (sleeping sickness), leishmaniasis, leprosy (Hansen's disease), lymphatic filariasis, mycetoma, onchocerciasis (river blindness), rabies, scabies, schistosomiasis, soil-transmitted

helminthiases, snakebite envenoming, taeniasis/cysticercosis, trachoma, yaws (endemic treponematoses).

#### **About Astellas**

Astellas Pharma Inc., based in Tokyo, Japan, is a company dedicated to improving the health of people around the world through the provision of innovative and reliable pharmaceutical products. We focus on Urology, Oncology, Immunology, Nephrology and Neuroscience as prioritized therapeutic areas while advancing new therapeutic areas and discovery research leveraging new technologies/modalities. We are also creating new value by combining internal capabilities and external expertise in the medical/healthcare business. Astellas is on the forefront of healthcare change to turn innovative science into value for patients. For more information, please visit our website at <https://www.astellas.com/en>.

#### **Cautionary Notes**

In this press release, statements made with respect to current plans, estimates, strategies and beliefs and other statements that are not historical facts are forward-looking statements about the future performance of Astellas. These statements are based on management's current assumptions and beliefs in light of the information currently available to it and involve known and unknown risks and uncertainties. A number of factors could cause actual results to differ materially from those discussed in the forward-looking statements. Such factors include, but are not limited to: (i) changes in general economic conditions and in laws and regulations, relating to pharmaceutical markets, (ii) currency exchange rate fluctuations, (iii) delays in new product launches, (iv) the inability of Astellas to market existing and new products effectively, (v) the inability of Astellas to continue to effectively research and develop products accepted by customers in highly competitive markets, and (vi) infringements of Astellas' intellectual property rights by third parties.

Information about pharmaceutical products (including products currently in development) which is included in this press release is not intended to constitute an advertisement or medical advice.

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