BioSpectrum the business of Bio & Health Sciences ASIA EDITION

Astellas boosts neglected diseases research

27 November 2012 | News | By BioSpectrum Bureau

Astellas has entered into alliances with academia for neglected tropical diseases drug research

Singapore: Furthering its aim to develop new drugs in segments with high unmet need, Japanese company Astellas entered into two collaborations with the Japanese academia in November 2012.

The global R&D company in pharmaceuticals, which seeks to be the global leader in several categories where high unmet medical needs exist and a high degree of expertise is required, has signed collaborative research agreements with Nagasaki University and the University of Tokyo for developing drugs to treat neglected tropical diseases (NTDs).

NTDs, prevalent mainly among the poor in tropical areas of developing countries, are infectious diseases spread by parasites or bacteria. As it is estimated that approximately one billion people are affected with NTDs worldwide, they are a serious healthcare issue that is being addressed on a global scale. Among them, diseases caused by protozoan parasites, such as leishmaniasis, Chagas disease and sleeping sickness are with high unmet medical needs for treatment and development of new therapeutic drugs.

Tie-up with NEKKEN

Under the collaborative agreement with Nagasaki University, the Institute of Tropical Medicine at the university (NEKKEN), which is one of the leading research institutes on tropical infectious diseases in Japan, and Astellas will cooperate on a drug-discovery research project. Astellas will provide multiple compounds with possible anti-protozoan activities, and NEKKEN will evaluate these compounds in experimental model of infection with protozoan parasites for leishmaniasis, Chagas disease and sleeping sickness. The research will be advanced with advice from Professor Kenji Hirayama at NEKKEN, who is a key opinion leader on NTDs research in Japan.

The collaborative research is largely divided into two phases. In the first phase (first screening), the parasiticidal effect of compounds against three species of protozoan parasites will be measured in vitro. In the second phase (second screening), compounds found to be effective for killing protozoan parasites in the first screening will be tested for in vivo activity by

evaluating parasitemia and survival rates in animals infected with the protozoan parasites. Organ-specific infection levels will also be measured using a live imaging method.

Alliance with University of Tokyo

The University of Tokyo and Astellas also entered into an agreement with similar aim to discover a new drug for the treatment of NTD caused by protozoan parasites. Professor Kiyoshi Kita, biomedical chemistry, International Health, Graduate School of Medicine and Faculty of Medicine, The University of Tokyo, and Astellas will select target molecules for drug discovery through experiments and verifications on the validity of plural target candidate molecules, which are expected to be suitable for discovery of compounds against protozoan parasites.

The research will be divided into two stages on the process of the implementation. The first stage aims for selection of multiple potential candidate target molecules for discovery of drugs against protozoan parasites in the collaboration between the department of biomedical chemistry and Astellas. The department has its history of results in investigation on molecular characteristics of enzymes among protozoan parasites, development of low-molecular drugs, and research on NTDs. On this stage, Astellas will select potential candidate target molecules based on currently available information (human genome information, three-dimensional structure of protein, and information on compounds against protozoan parasites) useful for anti-parasite drug discovery, in addition to information and data that the department of Biomedical Chemistry has accumulated over many years.

In the second stage, the University of Tokyo will verify the validity of candidate target molecules and select target molecules for drug discovery by using genetic engineering (for example gene overexpression strains and gene disrupted strains) and biochemical methods (for example construction of enzyme reaction systems) with regard to the possibility of candidate target molecules for anti-parasitic therapy, and the feasibility of drug discovery research.