

Appendix.1 New Investment

Project Title	The development and production of cGMP lots of a novel tetravalent dengue virus-like particle (VLP) vaccine
Collaboration Partners	Nagasaki University, National Institute of Infectious Diseases (NIID), VLP Therapeutics, Johns Hopkins University (JHU), Latham BioPharm Group (Latham)
Disease	Dengue
Intervention	Vaccine
Stage	Preclinical Development
Awarded Amount	¥442,209,139 (US\$3,897,489)
Summary	<p>Dengue is one of the most serious public health problems worldwide. 50% of the world's population are at risk of dengue. Despite decades of effort, there is no effective treatment and the currently one licensed vaccine is recommended for use only in those ≥ 9 years of age. The current vaccine has been associated with a safety risk in those who were seronegative to dengue at the time of vaccination. Therefore, there is an urgent need for next-generation vaccines. Virus-like particle (VLP)-based vaccines are an attractive approach. VLP vaccines have shown to be safe and highly immunogenic because they mimic the conformation of the authentic virus but lack the viral genome. Notably, VLP vaccines can be administered to all populations including the most vulnerable population of infants and children.</p> <p>In collaboration with Nagasaki University and National Institute of Infectious diseases, Japan (NIID), VLP Therapeutics has developed a novel dengue VLP vaccine using our unique technology. In an ongoing project, we have demonstrated the efficacy of our dengue VLP vaccine in preclinical studies including non-human primates. Here we will produce this VLP vaccine to conduct and lay the groundwork for clinical trials. The long-term goal of this project is to commercialize the first flavivirus VLP vaccine.</p> <p>This project involves constructing VLP dengue vaccines across all four Dengue serotypes; establishing master cell banks and manufacturing vaccines, prepare an IND package and a clinical development plan.</p>
Project Detail	https://www.ghitfund.org/investment/portfoliodetail/detail/129/en

Project Title	Immune therapy to prevent VL complications
Collaboration Partners	The University of Tokyo, Infectious Disease Research Institute (IDRI), International Center for Diarrheal Disease Research, Bangladesh (icddr,b)
Disease	Leishmaniasis
Intervention	Vaccine
Stage	Lead Optimization - Preclinical Development
Awarded Amount	¥55,831,570 (US\$492,082)
Summary	<p>Caused by <i>L. donovani</i> infection, visceral leishmaniasis (VL; Kala-azar) is endemic in large areas of the Indian subcontinent. Primary symptoms include splenomegaly, weight loss and anemia and VL has the highest mortality rate among neglected tropical diseases. Improved treatment regimen are being sought to reduce toxicity and drug resistance. Resistance to antimonials has resulted in their replacement with Amphotericin B, paromomycin and miltefosine. Treatment failure occurs in 3-30% of treated cases in VL endemic populations and can be as high as 50-60% for patients co-infected with HIV. Extended observation periods are required to detect relapse and progression to post-Kala azar dermal leishmaniasis (PKDL).</p> <p>Intervention in VL patients at greatest risk of treatment failure, relapse or subsequent development of PKDL is critical for effective disease management. Our published data has identified vaccine candidates that are effective as a prophylaxis in advanced animal models. In this proposal we will build upon this data to determine the candidate antigen best suited for use in the Indian subcontinent (Bangladesh) and use a long term preclinical model of <i>L. donovani</i> infection to develop immune/chemotherapeutic approaches to prevent complications of VL.</p>

	To develop an effective therapeutic vaccine for VL, selection of good antigen(s) and adjuvant is important. Besides, the vaccine, when used a component of the immune/chemotherapeutics, is not supposed to compromise the effect of chemotherapy. Therefore, this project will comprise three major activities; 1) Patient-instructed selection of vaccine antigen for prevention of PKDL, 2) Evaluation of compatibility of vaccines with Ambisome treatment, 3) Evaluation of efficacy of immune therapy in long term VL model. Based on the success in these activities, all the partners will start preparation for clinical trial of the therapeutic vaccine in combination with Ambisome.
Project Detail	https://www.ghitfund.org/investment/portfoliodetail/detail/130/en

Project Title	Screening project between the University of Tokyo and MMV
Collaboration Partners	The University of Tokyo, Medicines for Malaria Venture (MMV)
Disease	Malaria
Intervention	Drug
Stage	Hit Identification
Awarded Amount	¥15,000,000 (US\$132,205)
Summary	This is a screening project between the University of Tokyo and MMV
Project Detail	https://www.ghitfund.org/investment/portfoliodetail/detail/131/en

Project Title	Screening project between Fujifilm and TB Alliance
Collaboration Partners	Fujifilm, Global Alliance for TB Drug Development (TB Alliance)
Disease	Tuberculosis
Intervention	Drug
Stage	Hit Identification
Awarded Amount	¥11,000,000 (\$96,950)
Summary	This is a screening project between Fujifilm and TB Alliance
Project Detail	https://www.ghitfund.org/investment/portfoliodetail/detail/132/en

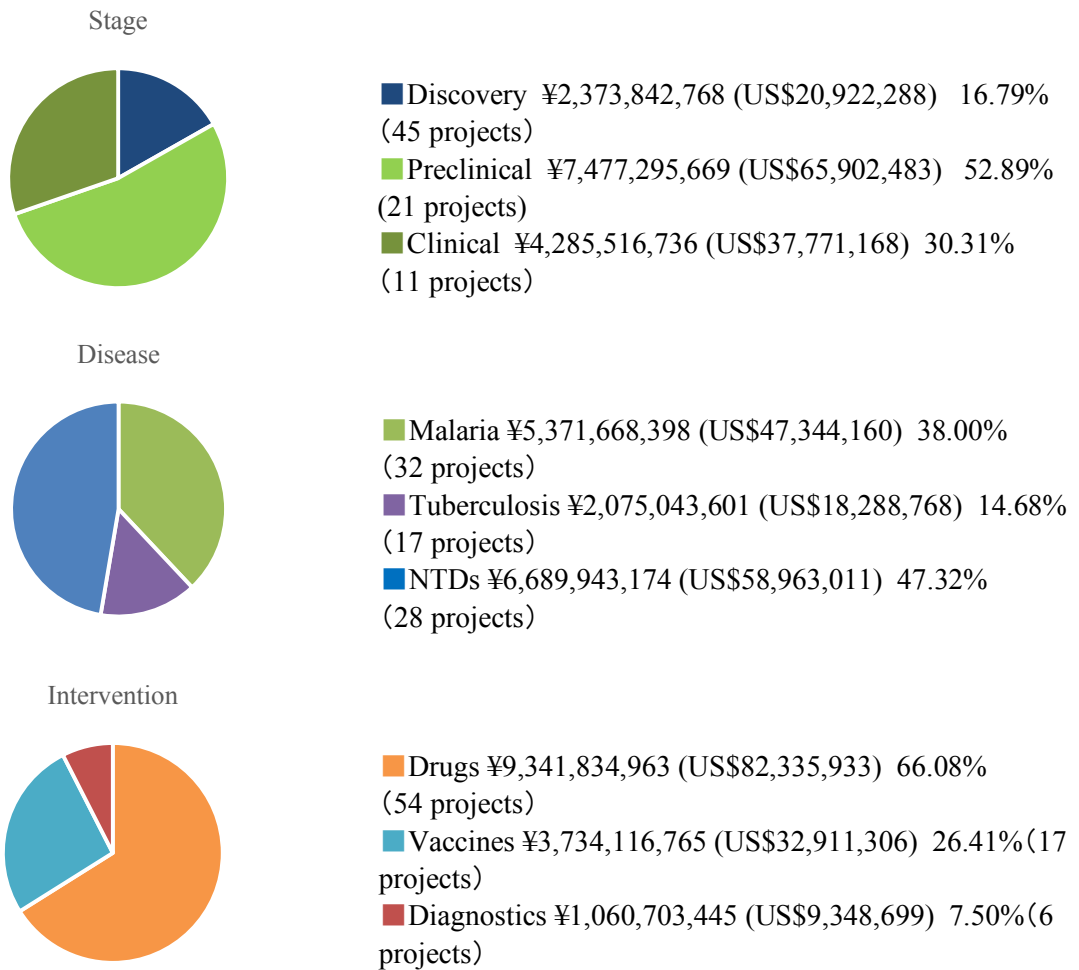
*All amounts are listed at the exchange rate of USD1 = JPY113.46, the approximate exchange rate on November 30, 2018.

Appendix.2 Investment Overview (As of December 13, 2018)

1. Investment to date

Total Investments 14.1billion yen (US\$124million*)

Total Invested Projects 77 (Active projects 44, Completed projects 33)

2. Portfolio Analysis

To know more about GHIT investment, please visit

Investment Overview: <https://www.ghitfund.org/investment/overview/en>

Portfolio: <https://www.ghitfund.org/investment/portfolio/en>

Advancing Portfolio: <https://www.ghitfund.org/investment/advancingportfolio/en>

Clinical Candidates: <https://www.ghitfund.org/investment/clinicalcandidates/en>

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