Fight Neglected Diseases through Partnerships

GHIT Fund

Global Health Innovative Technology Fund

Press Release

A Total of USD 12.7 Million Investment in New Diagnostics and Drug Development for NTDs and Malaria to Partners including The Ohio State University, PATH, GSK and Others

TOKYO, JAPAN (January 30, 2025) — The Global Health Innovative Technology (GHIT) Fund announced today a total investment of approximately JPY 2 billion (USD 12.7 million[1]) in eight projects for the development of new diagnostics and drugs for neglected tropical diseases (NTDs) and malaria[2].

JPY 670 Million (USD 4.2 Million[1]) Investment in a Critical Diagnostic Tool to Combat Leishmaniasis

There is an estimated 700,000 to 1 million new cases annually of leishmaniasis, a NTD caused by *Leishmania* parasites transmitted through sandfly bites[3]. To advance measures against the disease, the GHIT Fund has decided to invest JPY 670 Million (USD 4.2 Million[1]) to support a project led by the Ohio State University in collaboration with Nagasaki University and icddr,b, an international health research organization based in Bangladesh. Building on previous research, the project will refine formulations of the leishmanin antigen, conduct pre-clinical safety and efficacy studies and prepare for regulatory submissions for clinical trials. This project aims to strengthen efforts to monitor infection status and eliminate visceral leishmaniasis. The initiative, driven by global partnerships, is expected to make a significant contribution to tackling NTDs and advancing global health.

The GHIT Fund will also invest in two malaria projects: approximately JPY 680 million (USD 4.2 million[1]) for the development of a malaria therapeutic drug through a partnership between Eisai Co., Ltd. (Eisai) and Medicines for Malaria Venture (MMV), and approximately JPY 585 million (USD 3.7 million[1]) for the development of a preventive drug for *P. falciparum* malaria under the partnership of PATH, GSK Global Health, Eisai and Ehime University.

In addition, the GHIT Fund will invest in the following five screening projects for a total amount of approximately JPY 83 million (USD 0.5 million[1]):
1) Screening project against malaria by MMV and Daiichi Sankyo Co., Ltd.
2) Screening project against Dengue and Zika by Eisai and Drugs for Neglected Diseases initiative (DNDi)
3) Screening project against Lassa fever by MMV and RIKEN
4) Screening project against Rift Valley fever by MMV and RIKEN
5) Screening project against Ebola and Marburg by MMV and RIKEN

Please refer to Appendix 1 for detailed descriptions of these projects and their development stages.

As of January 30, 2025, the GHIT Fund has invested in 37 projects, including 15 discovery projects, 14 preclinical projects and 8 clinical trials[4]. The total amount of investments since 2013 is JPY 35.8 billion (USD 226 million[1]) (Appendix 2).

[1] USD1 = JPY158.15, the approximate exchange rate on December 30, 2024.
[2] These awarded projects were selected and approved as new investments from among proposals to RFP2023-002 and RFP2024-001 for the Product Development Platform and the Screening Platform, which were open for applications from June 2023 to July 2024.
[3] WHO: https://www.who.int/news-room/fact-sheets/detail/leishmaniasis
[4] This number includes projects in the registration phase.

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The GHIT Fund is a Japan-based international public-private partnership (PPP) fund that was formed between the Government of Japan, multiple pharmaceutical companies, the Gates Foundation, Wellcome, and the United Nations Development Programme (UNDP). The GHIT Fund invests in and manages an R&D portfolio of development partnerships aimed at addressing neglected diseases, such as malaria, tuberculosis, and neglected tropical diseases, which afflict the world's vulnerable and underserved populations. In collaboration with global partners, the GHIT Fund mobilizes Japanese industry, academia, and research institutes to create new drugs, vaccines, and diagnostics for malaria, tuberculosis, and neglected tropical diseases.
https://www.ghitfund.org/en

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Appendix 1. Project Details

ID: G2023-202

Project Title	Production and pre-clinical testing of cGMP grade *Leishmania donovani* antigen for Leishmanin skin test (LST)
Collaboration Partners	1. The Ohio State University (USA) 2. Institute of Tropical Medicine at Nagasaki University (NUITM) (Japan) 3. icddr,b (Bangladesh)
Disease	Leishmaniasis
Intervention	Diagnostics
Stage	Pre-clinical
Awarded Amount	JPY 670,108,468 (USD 4.2 million)
Status	Continued project
Summary	[Project objective] The objectives of this continuation proposal are to: 1. Produce and characterize cGMP-grade *Leishmania* antigen (liquid or lyophilized) from *L. donovani.* 2. Test cGMP leishmanin antigen formulations (liquid and lyophilized) by performing LST in animal models. 3. Perform pre-clinical toxicology studies with cGMP leishmanin antigen formulation that is selected for further advancement based on results from LST studies in animals. 4. Analyze cytokine production in PBMCs or whole blood isolated from healthy individuals and cured VL patients following *in vitro* stimulation with the selected formulation of cGMP leishmanin antigen. 5. Prepare an IND package for clinical trials. [Project design] During the previous funding period, the project team successfully accomplished goals of the project by 1) optimizing the protocol to produce and scale up production of leishmanin antigen from *L. donovani* parasites using a cost-effective, scalable and industry suitable osmotic shocklysis technique; 2) performed stability studies; 3) validated GLP leishmanin antigen using experimental animal models, and 4) completed manufacturing of cGMP cell bank of *L. donovani* at ATCC. In this project, three different formulations of leishmanin antigen will be produced from cGMP *L. donovani* cell bank. The formulations will be validated for safety and potency using preclinical animal models of vaccination and cured VL. One formulation will be selected for further advancement and scale-up of cGMP production on the basis of results from stability studies and LST studies in animals, and pre-clinical toxicology studies will be performed as per regulatory guidelines. To assess the immunogenicity of the product, cytokine production in PBMCs or whole blood isolated from healthy individuals and cured VL patients following *in vitro* stimulation with the selected formulation of cGMP leishmanin antigen will also be analyzed. IND package will be prepared for submission to regulators for clinical trials.
Project Detail	https://www.ghitfund.org/investment/portfoliodetail/detail/226/en

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ID: G2024-114

Project Title	Lead optimization and preclinical studies of new antimalarial Gwt1p-inhibitors with a novel mechanism of action, improved efficacies and safety profiles
Collaboration Partners	1. Eisai Co., Ltd. (Eisai) (Japan) 2. Medicines for Malaria Venture (MMV) (Switzerland)
Disease	Malaria
Intervention	Drug
Stage	Lead Optimization
Awarded Amount	JPY 680,010,000 (USD 4.3 million)
Status	Continued project
Summary	[Project objective] The objective of this proposal is to investigate the new Gwt1p-inhibitor and find a back-up candidate with improved activity and safety profile. To deliver this goal, the project team will focus on the following specific objectives: (1) Two chemical series will be chemically optimized and a frontrunner compound will be selected from each series, as precandidates. (2) Two precandidates will be evaluated in multiple assays and the most favorable compound will be selected as a Late Lead. (3) The synthetic route of Late Lead will be optimized and GLP manufacturing will be conducted. (4) Non-rodent DRF study will be conducted and candidate selection will be scheduled following a successful outcome to this study. [Project design] In this project, chemical modification of two lead series will be conducted to improve anti-*Plasmodium* activity and safety profile while securing a long-half-life. Synthesized new compounds will be shipped to Eisai's Tsukuba Research Laboratories in Japan. They will be tested according to the defined screening cascade starting from the primary screening of anti-*Plasmodium* activity and cytotoxicity. Compounds which show good anti-*Plasmodium* activity and safety margin will be tested for solubility at neutral pH and stability against human and murine liver microsomes assays. Based on these results and other profiling, the most promising compound in each series will be selected as pre-candidate and will be further evaluated. Two precandidates will be evaluated in the in vitro/vivo anti-Plasmodium assay, a rat dose range finding (DRF) study, safety profiling, human dose prediction, salt selection, resistant risk assessment and parasite life-cycle assays. The most favorable compound will be selected as a Late Lead. The synthetic route for the Late Lead will be optimized and GLP manufacturing will be conducted. Non-rodent DRF study using the manufactured GLP material will also be conducted. The final goal of this project is the candidate selection in both Eisai and MMV and planned for September 2026.
Project Detail	https://www.ghitfund.org/investment/portfoliodetail/detail/227/en

Fight Neglected Diseases through Partnerships

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ID: G2023-219

Project Title	Manufacture of clinical trial material for a monoclonal antibody to prevent *P. falciparum* malaria
Collaboration Partners	1. PATH (USA) 2. GlaxoSmithKline Investigacion y Desarrollo, S.L. (Spain) 3. Eisai Co., Ltd. (Eisai) (Japan) 4. Ehime University (Japan)
Disease	Malaria
Intervention	Drug
Stage	Pre-clinical
Awarded Amount	JPY 585,190,112 (USD 3.7 million)
Status	Continued project
Summary	[Project objective] The objective of this project is to complete GMP drug substance and GMP drug product manufacturing to support the future Investigational New Drug Application (IND) submission to the United States Food and Drug Administration (US FDA) for a proof-of-concept clinical trial that includes controlled human malaria infection. Our long-term goal is to secure a WHO recommendation for a mAb that prevents *P. falciparum* malaria in young children living in areas of seasonal transmission in sub-Saharan Africa. [Project design] The project is built on our successful completion of the following activities: 1) production and release of a pre-master cell bank for the candidate mAb; 2) development and optimization of the manufacturing process for the candidate mAb to confirm production conditions for Good Laboratory Practice toxicology studies and future scale-up; 3) formulation development to enable stability of the mAb at a high concentration to accommodate potential subcutaneous injection; and 4) a pre-IND meeting with the US FDA on the proposed nonclinical and clinical program, specifically on the adequacy of the nonclinical toxicology studies to support the FIH Phase 1 study.
Project Detail	https://www.ghitfund.org/investment/portfoliodetail/detail/228/en

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ID: S2024-111

Project Title	Hit Validation of novel Daiichi Sankyo compounds with antimalarial activity
Collaboration Partners	1. Medicines for Malaria Venture (MMV) (Switzerland) 2. Daiichi Sankyo Co., Ltd. (Japan)
Disease	Malaria
Intervention	Drug
Stage	Screening
Awarded Amount	JPY 4,000,000 (USD 25,292.44)
Status	Continued project
Summary	[Project objective] The objective of the Hit Validation project is the synthesis and testing of a small array of compounds designed to investigate the minimum pharmacophore, key structural features required for activity and scope to address issues identified through the profiling of the hits identified from the earlier HTS campaign (S2020-113). If a compelling data package is obtained and the series clear potential for further development towards an Early Lead, a GHIT HTLP proposal will be submitted. [Project design] The focus of the array of analogs is to explore the key features required for activity and scope to address potential issues. A feature of the overall design of the array is focused on modifications with potential to improve the metabolic stability of the series in line with potential to deliver a long duration antimalarial (predicted human T1/2 > 120 h). The lipophilicity of the analogues covers a range of values from approximately 1.5 to 4.5 which will help to identify if data (potency, metabolism, cytotoxicity, etc.) correlates with either LogP or LogD.
Project Detail	https://www.ghitfund.org/investment/portfoliodetail/detail/229/en

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ID: S2024-123

Project Title	Exploration of Novel Antiviral Compounds for the Development of Therapeutics Against Flavivirus Infections
Collaboration Partners	1. Eisai Co., Ltd. (Eisai) (Japan) 2. Drugs for Neglected Diseases initiative (DNDi) (Switzerland)
Disease	Dengue and Zika
Intervention	Drug
Stage	Screening
Awarded Amount	JPY 12,653,193 (USD 80,007.54)
Status	New
Summary	[Project objective] The project team aims to identify hit compounds that will serve as the starting point for new drug development by exploring novel compounds that exhibit antiviral activity against flaviviruses such as dengue virus and Zika virus. [Project design] To explore compounds that exhibit antiviral activity against dengue virus and Zika virus, the project team will screen two types of compound libraries, a focused library and a diversity library, using an image-based phenotypic assay system. In the phenotypic assay system, viral proteins and host cell nuclei are stained, and the antiviral activity of the compounds is determined by analyzing fluorescent confocal images. The focused library consists of compounds selected by a machine learning model developed using assay data accumulated by Eisai. By complementarily utilizing the diversity library, the project team efficiently explores compounds that exhibit antiviral activity. Ultimately, the project team aims to identify hit compounds that show activity against dengue virus and Zika virus to establish preliminary structure-activity relationships, physicochemical properties, and other relevant biological information.
Project Detail	https://www.ghitfund.org/investment/portfoliodetail/detail/231/en

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ID: S2024-113

Project Title	Screening Project between RIKEN and MMV
Collaboration Partners	1. Medicines for Malaria Venture (MMV) (Switzerland) 2. RIKEN (Japan)
Disease	Lassa Fever
Intervention	Drug
Stage	Screening
Awarded Amount	JPY 20,064,000 (USD 126,866.90)
Status	New
Summary	[Project objective] The project aims to use a cell-based, infection-free platform to identify potential treatments against LASV using the RIKEN NPDepo library. Additionally, the project seeks to study the effectiveness of selected confirmed treatments against lymphocytic choriomeningitis virus (LCMV), Tacaribe virus (TCRV), and Junin virus (JUNV) in order to identify potential broad-spectrum antiviral compounds. This collaboration leverages the screening capabilities and drug development expertise of Japan's largest comprehensive institution, PDP, and academic investigators to achieve its goals. [Project design] The primary screen will use LASV-vRNP/293mRFP to assess a subset of the RIKEN NPDepo library. The screen will be in a 384-well plate format with a single compound concentration of 10 µM. Compounds will be evaluated for their antiviral activity and impact on cell viability. Approximately 200 compounds will be selected for further confirmation studies based on specific criteria. Confirmed actives will undergo broad-spectrum antiviral testing and prioritization for further profiling. Selected hits meeting specific criteria will be considered for future development.
Project Detail	https://www.ghitfund.org/investment/portfoliodetail/detail/232/en

ID: S2024-114

Project Title	Screening Project between RIKEN and MMV
Collaboration Partners	1. Medicines for Malaria Venture (MMV) (Switzerland) 2. RIKEN (Japan)
Disease	Rift Valley fever
Intervention	Drug
Stage	Screening
Awarded Amount	JPY 23,712,000 (USD 149,933.61)
Status	New
Summary	[Project objective] The project aims to use a live virus platform to identify potential compounds active against the Rift Valley fever virus (RVFV) using the RIKEN NPDepo library. Furthermore, the project intends to investigate the activity of selected compounds against the Punta Toro virus and La Crosse virus in order to identify potential broad-spectrum anti-bunyavirus compounds. This collaboration leverages the screening capabilities and drug development expertise of Japan's largest comprehensive research institution, PDP, and academic investigators to achieve its goals. [Project design] The initial screening will involve using the MP-12 strain of RVFV to infect human hepatocyte cells. A subset of the RIKEN NPDepo library (20,000 compounds) will be screened in a 384-well plate with a single compound concentration of 10 µM. The results will be evaluated for antiviral activity and cell viability, and potential hits will be chosen based on specific criteria. About 100 compounds (assuming a 0.5% hit rate) will be selected from the screening for further confirmation studies. These studies will involve testing the compounds at three different doses in cultured cells infected with RVFV, similar to the initial screen, and assessing cytotoxicity. From the confirmed compounds, RIKEN and MMV will prioritize up to 5 hits for further evaluation. To assess the potential for broad-spectrum anti-bunyaviral activity, the confirmed compounds will be tested against Punta Toro virus and the more distantly related La Crosse virus. The hit series meeting MMV and GHIT criteria for further development (hits with confirmed EC50 < 5 µM against live viruses and a selectivity index (SI = CC50/EC50) of ≥10, with progressable chemotypes) will form the basis of a future GHIT HTLP application.
Project Detail	https://www.ghitfund.org/investment/portfoliodetail/detail/233/en

ID: S2024-115

Project Title	Screening Project between RIKEN and MMV
Collaboration Partners	1. Medicines for Malaria Venture (MMV) (Switzerland) 2. RIKEN (Japan)
Disease	Ebola and Marburg
Intervention	Drug
Stage	Screening
Awarded Amount	JPY 22,800,000 (USD 144,166.93)
Status	New
Summary	[Project objective] The project aims to use a multi-filovirus "rainbow" system that can simultaneously test for EBOV, MARV, and SUDV using a single cell line to identify potential treatments against filoviruses using the RIKEN NPDepo library. Additionally, the project seeks to study the effectiveness of selected confirmed hits against other filoviruses (Tai Forest, Reston, Bundibogyo, Lloviu) in order to identify potential broad-spectrum antiviral compounds. This collaboration leverages the screening capabilities and drug development expertise of Japan's largest comprehensive institution, PDP, and academic investigators to achieve its goals. [Project design] The primary screen will be performed on a subset of the RIKEN NPDepo library (20,000 compounds). The screen will be in a 384-well plate format with a single compound concentration of 10 µM. Compounds will be evaluated for their antiviral activity and impact on cell viability. Approximately 200 compounds will be selected for further confirmation studies based on specific criteria. Confirmed actives will undergo broad-spectrum antiviral testing and prioritization for further profiling against live Ebola virus. Selected hits meeting specific criteria will be considered for future development.
Project Detail	https://www.ghitfund.org/investment/portfoliodetail/detail/234/en

*All amounts are listed at an exchange rate of USD1 = JPY158.15, the approximate exchange rate on December 30, 2024.

Appendix 2. Investment Overview (as of January 30, 2025)

Investments to date
Total investments: 35.8 billion yen (USD 226 million[1])
Total invested projects: 133 (37 active projects and 96 completed projects)

To learn more about the GHIT Fund's investments, 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