## A CATALYTIC STARTING LINE

### 2013 ANNUAL REPORT

BRINGING JAPANESE INNOVATION, INVESTMENT, AND LEADERSHIP TO THE GLOBAL FIGHT AGAINST INFECTIOUS DISEASES



Global Health Innovative Technology Fund

The GHIT Fund is a public-private partnership of over US\$100 million between five Japanese pharmaceutical companies (Astellas Pharma Inc., Daiichi Sankyo & Co. Ltd., Eisai, Shionogi & Co. Ltd., and Takeda Pharmaceutical Company Ltd.), two Japanese government ministries (Ministry of Foreign Affairs and Ministry of Health, Labour and Welfare), the Bill & Melinda Gates Foundation, and the United Nations Development Programme.

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### GLOBAL STRIDES, BOLD FIRSTS

The GHIT Fund's inaugural year was one of significant firsts: our first grant investments, our first groundbreaking partnerships, and the launch of our screening and hit-to-lead platforms designed to jump-start drug discovery. The establishment of the GHIT Fund also represents important firsts for advancing global health and collaboration more broadly:

The first public-private partnership for global health R&D funding.

The first time that a group of pharmaceutical companies has joined together to initiate a major fund—and invested directly—to facilitate and advance global health R&D.

The first time that the Japanese government has significantly invested in global health R&D.

These firsts are exciting, and the promise they hold to transform global health is humbling. Our partners are driven by the conviction that advancing the development of new healthcare technologies is not only a responsibility, but also a long-term investment—one that carries significant returns for Japan's future. They see that future as firmly tied to the growth of healthy populations and economies in the developing world.

The Japanese government and the country's leading pharmaceutical companies, together with the Bill & Melinda Gates Foundation and the United National Development Programme (UNDP), have launched something entirely new. Their foresight, personal engagement, and commitment inspire our team as we continue to work toward our goal of achieving the most important firsts: cost-effective healthcare tools to reduce the burden of disease in the world's poorest countries.

We are honored to share our first annual report of progress with you.

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**Kiyoshi Kurokawa, MD** *Chair of the Board* 

**BT Slingsby, MD, PhD, MPH** *Chief Executive Officer* 

"We welcome the GHIT Fund's investment and collaboration in the global fight against diseases that disproportionately affect the poorest of the poor.... This commitment of additional resources for R&D moves us a big step closer to the goal of controlling and defeating these neglected diseases and the vast human misery they cause."

MARGARET CHAN, DIRECTOR-GENERAL, WORLD HEALTH ORGANIZATION

### OUR LAUNCHPAD

### A LEGACY OF INNOVATION AND OVERSEAS AID

The GHIT Fund was conceived in 2011 by Japan's pharmaceutical industry, whose leaders sought to tap into Japan's legacy of global leadership in drug development, technological innovation, and overseas development assistance (ODA) to create a public-private partnership fund for global health R&D.

While Japan has long been the number three global leader in drug development, and a critical ODA provider, the country had yet to realize its potential in the development of technology specifically for global health.

The pharmaceutical industry recognized that harnessing Japan's considerable resources, expertise, and innovation in the creation of new medicines, vaccines, and diagnostics for diseases that impact the poorest populations would require global partnerships.

### **GLOBAL ALIGNMENT TOWARD CRITICAL "FIRSTS" IN GLOBAL HEALTH R&D**

Neglected Tropical Diseases (NTDs), along with HIV/AIDS, malaria, and tuberculosis (TB) affect nearly 40% of the world's population and have the most unmet medical needs. NTDs often result in delayed growth in children; permanent disabilities, such as organ damage and blindness; and even death. Repeated bouts of illness prevent families from working, trapping entire communities in an endless cycle of poverty.

Over the past 60 years, the global health community has aligned through the World Health Organization (WHO), UN agencies, major foundations such as the Bill & Melinda Gates Foundation and the Wellcome Trust, and the establishment of product development partnerships (PDPs) to push forward innovations for these diseases—innovations that are desperately needed but have not been developed due to a lack of commercial investment.

> Overall funding for NTDs has remained static since 2009. In cases where tools are available, they are in very short supply. The GHIT Fund injects critical new funding and new technology into global health R&D.



### JAPAN'S RECENT FIRST-HAND EXPERIENCE WITH DISEASE AND POVERTY

Japan deeply appreciates the importance of working in solidarity to address the world's global health challenges. In post-war Japan, disease epidemics, undernutrition, and poverty were part of daily life. Malaria, TB, and NTDs were endemic. But a nationwide community-based program resulted in the effective elimination and subsequent eradication of these diseases in Japan. Transformational health gains led to enormous economic development. In less than 35 years, the country became the number two economy in the world and home to myriad multinational corporations, technology innovators, and political leaders. In that same period of time, Japan—for which TB had been a "national scourge"—became the nation with the highest global life expectancy. Today, the public health programs of postwar Japan form the basis of many WHO disease elimination strategies.

With recent first-hand experience with the interconnectedness between health and economic development, Japan and its people remain committed to supporting other countries in their quest for similar success.

### POLITICAL WILL AND NEW POLICY ENGAGEMENT

In 2013, the Japanese government made global health a central component of its foreign policy and domestic economic revitalization strategy, demonstrating its recognition of global health as not only an ODA target but also a critical factor in national human security. This policy shift serves as a milestone in a years-long intensification of efforts to more effectively support R&D and leverage the country's deep well of technology and innovation in order to maximize the value of its foreign aid.

The Japanese government's investment in the GHIT Fund is a direct realization of the country's 2013 Strategy on Global Health Diplomacy, which encourages strategic collaborations with international partners and the use of domestic R&D capabilities in continued support of achieving the UN's Millenium Development Goals (MDGs). This strategy is linked tightly with Japan's Healthcare and Medical Strategy, also launched in 2013.

Policy engagement in global health at the highest levels of the Japanese government complement the country's legacy of important investments in health: Japan helped establish the Global Fund and put health on the G8 agenda, and the country has contributed to the achievement of MDGs for years. The formalization of foreign policy focused on combating the most devastating diseases of the developing world has been under way since the mid-1990s, along with an increasing recognition of the overwhelming toll that infectious diseases take on the communities and economies Japan's ODA supports.





- US\$5,450,975 (¥560,469,256) invested for six grants for partnerships working on drugs and vaccines against malaria, TB, and Chagas' disease
- 2nd call for proposals for screening partnerships announced

NOVEMBER 2013

 Hit-to-Lead Platform launched

FEBRUARY 2014

US\$12,107,156 (¥1,244,857,831) invested for four grants to speed the development of innovative drugs for schistosomiasis, Chagas' disease, and parasitic roundworms, as well as research on a novel TB vaccine candidate

### **MARCH 2014**

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### FIRST FRUITS

THE GHIT FUND HAS FACILITATED OVER 20 R&D PARTNERSHIPS TO ADVANCE PRODUCT DEVELOPMENT USING JAPANESE INNOVATION. HIGHLIGHTS OF THREE SUCH PARTNERSHIPS AND OUR SCREENING PLATFORM INCLUDE THE FOLLOWING:

### PEDIATRIC FORMULATION OF THE GOLD STANDARD DRUG FOR SCHISTOSOMIASIS

ASTELLAS PHARMA INC. FARMANGUINHOS MERCK KGAA SIMCYP LTD. SWISS TROPICAL & PUBLIC HEALTH INSTITUTE

HEALTH INSTITUTE TOP INSTITUTE PHARMA

I N N O V A T I O N C H A L L E N G E With the standard recommended treatment, younger children run a significant risk of choking because of the size and bitter taste of the oral tablets. A pediatric formulation is urgently needed to increase safety, acceptability, and overall access. Astellas Pharma's innovative pharmaceutical technologies in drug formulation and clinical development for children enables this partnership to create a pediatric formulation for praziquantel, the gold standard drug co-developed by Merck KGaA and Bayer in the mid-1970s. Leveraging the Swiss Tropical and Public Health's expertise on drug effectiveness and efficiency in endemic regions, the fruits of this collaboration will change the game dramatically for schistosomiasis treatment.

The partnership has already produced test batches of two new pediatric drug formulations, which will be tested first in adults, followed by taste tests for children. Support from the GHIT Fund not only accelerates this project's progress, but it also helps the partnership prepare for Phase II studies with the new formulation selected for further development.

"The Consortium, with its 6 partners, is committed to contribute to the elimination of the second-most prevalent tropical disease in Africa through Astellas' expertise in advanced formulation technology and development. We believe the partnership with GHIT is the key for success to accelerate and expand our activities in delivering treatment to the very young children suffering from schistosomiasis."

Yoshihiko Hatanaka, Representative Director, President and CEO, Astellas Pharma Inc.

### SCHISTOSOMIASIS

Schistosomiasis (or bilharzia) spreads through parasitic worms and can lead to anemia, stunting, reduced learning ability, and death. Endemic in 78 countries, it affects more than 240 million people (40% of them children), making it second only to malaria in impact of a parasitic disease. Annual global economic losses due to schistosomiasis are estimated at more than US\$640 million.



### A NOVEL TB VACCINE

"Early research shows tremendous potential for the rhPIV2 platform. This partnership helps to bring the global health community closer to the ultimate goal of establishing a new vaccine strategy for the prevention of TB."

> Yasuhiro Yasutomi, Director, Tsukuba Primate Research Center, NIBIO

This collaboration—made possible by GHIT support combines advanced science and technology created in Japan with translational R&D expertise from Create Vaccine (a joint venture between Dainippon Sumitomo Pharma and Japan BCG Laboratory) and Aeras. The partnership will advance vaccine candidates based on the rhPIV2 technology created by the Tsukuba Primate Research Center at NIBIO through preclinical stages, with the goal of advancing to safety and immunogenicity testing in clinical trials.

Partners are establishing development criteria, including characterizing new vaccine constructs with a variety of antigens, the conduct of immunology studies to identify the most promising novel vaccines, and the establishment of good manufacturing practices.

#### AERAS

**CREATE VACCINE CO., LTD.** 

NATIONAL INSTITUTE OF BIOMEDICAL INNOVATION OF JAPAN (NIBIO)

The only TB vaccine available today (BCG) was developed more than 90 years ago and provides insufficient protection to teenagers and adults, who carry the highest TB burden.

# I N N O V A T I O N C H A L L E N G E

### TUBERCULOSIS

According to the WHO, in 2012, 8.6 million people fell ill with TB and 1.3 million died from TB. TB takes the greatest toll on individuals during their most productive years (ages 15 to 44). Annual global costs for TB treatment and care are estimated at US\$8 billion. The global emergence and spread of multidrug-resistant TB (MDR-TB) and extensively drug-resistant TB (XDR-TB) impose enormous human and economic costs—more than 200 times the cost of treating drug-susceptible TB.

### Accelerating the Development of Novel Drugs for Malaria

### MEDICINES FOR MALARIA VENTURES (MMV)

TAKEDA PHARMACEUTICAL CO., LTD.

INNOVATION CHALLENGE Emerging resistance to the few widely used antimalarial drugs in our arsenal has resulted in increasingly complicated treatment challenges. With no new drug class yet on the market, the gains made thus far in controlling and eliminating malaria are being severely threatened.

"It is an honor to partner with Takeda. This collaboration provides MMV with access to novel Japanese compounds, expertise, and support, which we hope will open the door to new breakthrough malaria medicines to help stop unnecessary loss of life due to the disease and pave the way for malaria elimination and eradication."

David Reddy, CEO, MMV

This partnership—catalyzed by the GHIT Fund— brings Takeda's unique chemistry expertise and know-how in clinical testing together with promising MMV compounds to advance new antimalarial drug candidates. One drug is DSM265, which kills the malaria parasite through inhibition of an essential enzyme and has already entered Phase I studies. It has so far shown a good safety profile, and the compound's long duration of action creates the potential for DSM265 to be part of a single-dose cure.

Another drug is ELQ300, a preclinical antimalarial prophylactic quinolone derivative. This antimalarial compound is in earlier stages of development, and research to date indicates that ELQ300 has the potential to be given once a month to treat and prevent malarial infections, which would make it an important tool for low-dose cures or prophylaxis of the disease. However, some additional work related to its formulation is needed before it can be tested in patients. Here, Takeda is contributing critical chemistry, manufacturing, and controls expertise for the development of a solid oral dose form development.

### MALARIA

Malaria causes more than 200 million cases and approximately 650,000 deaths annually, 86% of them among children. In some endemic countries, the disease accounts for up to 40% of public health expenditures, 30-50% of inpatient hospital admissions, and up to 60 percent of outpatient health clinic visits. This disease costs Africa between US\$12-30 billion in lost GDP every year.

### WHY PARTNERSHIPS FOR PRODUCT DEVELOPMENT?

Global health challenges are too great for one pharmaceutical company, research institution, or nation to confront alone.

Consider a billion people who are in desperate need of new drugs, vaccines, and diagnostics, but they can't pay—or can pay only pennies. Now reflect on the fact that the creation of these tools requires massive investments of capital, time, and complex R&D. Combine scientific complexity and enormous risk with uncertainty around the adoption and uptake of these tools due to poor infrastructure in the communities that need them most, and we have the equation for the dearth of new drugs for the diseases that affect the world's poorest.

Partnerships for product development are indispensible to the discovery and development of new technologies for diseases that have little or no commercial market. These partnerships often take place between the public sector, industry, academia, and international agencies – leveraging each organization's strengths while acknowledging and addressing their needs and constraints. Similar to the GHIT Fund, partnerships for product development often use public and philanthropic funds to reduce or remove risk for companies and research institutions undertaking the R&D. The results of these partnerships: quicker, less costly development of badly needed, affordable health tools with game-changing global health benefits.



### URGENCY

The early-stage drug pipeline for malaria, TB, leishmaniasis, and Chagas' disease is nowhere near as robust as it should be, considering the health and economic burdens these diseases carry, as well as the number of products that the global community is trying to develop. To secure a stable pipeline, new chemical entities and novel compounds are critical.

### **DRUG DISCOVERY SCREENING PLATFORM**

### Expanding the drug pipeline for neglected diseases

Japan's pharmaceutical sector is a long-established global innovator in new chemical entities—the essence of what makes drugs effective. Countless chemical entities with enormous potential for developing new tools to combat the major diseases of the developing world sit on the shelves of Japan's public and private research institutions.

In June 2013, for the first time, Japan's private and academic sectors opened the doors of their vast, advanced compound libraries to PDPs through the GHIT Fund's Drug Discovery Screening Platform. These PDPs are focused on drug discovery for TB, malaria, leishmaniasis, and Chagas' disease. This will enable the screening of tens of thousands of drug candidates for potential new treatments. Initial partnerships have already begun screening chemical compounds from Japanese partner libraries with assays for target diseases and assessing their impact on parasites and bacteria of focus. Japan's unique chemical compounds, whose structures differ significantly from those found in the West, bring new resources, chemistry, and promise to the fight against infectious disease.

# INNOVATION OPPORTUNITY

In February 2014, the GHIT Fund launched its Hit-to-Lead Platform with the goal of converting drug "hits" identified through the Screening Platform into "lead compounds"—chemicals that show promise as anti-infectives but likely require further chemical modification before they can be tested as human drugs. This new program will help researchers find promising drug compounds that can fight deadly and debilitating infectious diseases.

# The PartnersThe LibrariesALLIANCE FOR TB DRUG<br/>DEVELOPMENTPrivate<br/>ASTELLAS PHARMA<br/>DAIICHI SANKYO<br/>EISAI<br/>SHIONOGI<br/>TAKEDAAcademic<br/>INSTITUTE OF MICROBIAL<br/>CHEMISTRY<br/>KITASATO INSTITUTE

### FINANCES

#### \*\*\*Translation\*\*\* Independent Auditor's Report

To the Board of Directors, Global Health Innovative Technology Fund:

We have audited the accompanying financial statements, which comprise the balance sheet, the statement of income, the notes to the financial statements, and the related supplementary schedules of the General Incorporated Association Global Health Innovative Technology Fund ("the Organization") applicable to the second fiscal year from April 1, 2013, through March 31, 2014. We conducted our audit in accordance with the rules and regulations concerning General Incorporated Associations and General Incorporated Foundations in Japan, under Item 1 in Paragraph 2 of Article 124.

#### Directors' Responsibility for the Financial Statements and the Related Supplementary Schedules

Directors need to ensure that the financial statements and related supplementary schedules were prepared and fairly presented in accordance with accounting principles generally accepted in Japan. Among others, directors are responsible for designing and operating such internal control as directors determine is necessary to enable the preparation and fair presentation of the financial statements and the related supplementary schedules that are free from material misstatement, whether due to fraud or error.

#### Auditor's Responsibility

Our responsibility is to express an opinion on these financial statements and the related supplementary schedules based on our audit. We conducted our audit in accordance with auditing standards generally accepted in Japan. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements and the related supplementary schedules are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements and the related supplementary schedules. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements and the related supplementary schedules, whether due to fraud or error. The purpose of an audit of the financial statements is not to express an opinion on the effectiveness of the Organization's internal control, but in making these risk assessments, the auditor considers internal

controls relevant to the Organization's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate for the circumstances. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by directors, as well as evaluating the overall presentation of the financial statements and the related supplementary schedules.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

#### Opinion

In our opinion, the financial statements and the related supplementary schedules referred to above present fairly, in all material respects, the financial position and results of operations of the Organization applicable to the second fiscal year ended March 31, 2014, in conformity with accounting principles generally accepted in Japan for Public Interest Incorporated Associations (equivalent to a 501(c)(3) in the United States).

#### Conflicts of Interest

We have no interest in the Organization which should be disclosed in compliance with the Certified Public Accountants Act.

Ernst & Young ShinNihon LLC May 7, 2014

独立監査人の監査報告書
<b>半成26年5月7日</b>
一般社団法人 グローバルヘルス技術振興基金 建 事 会 御 中
新日本有限責任監查法人
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当監査法人は、 載社団法人及び一般財団法人に関する法律第124条第2項第150規定に 基づき、一般社団法人グローバルヘルス技術振興基金の平成25年4月1日から平成25年3月 31日までの第2期の倍歴対照表皮の低磁計算用(公益法人会計基準に基づく「止寒財産増減 計算書」という。)並びにその開展明測書並びに財務議表に対する社社(以下「財務講表等) という。)について監査を行った。
財務請表等に対する理事素の責任 理事素の責任は、我が同において一般に公正妥当と認められる公益法人会計の某権に準拠して 財務請表等を作成し適正に表示することにある。これには、不正又は誤謬による重要な態偽表示 のない財務請表等を作成し適正に表示するために理事者が必要と判断した内部統制を整備及び 運用することが含まれる。
監会人の責任 「監役法人の責任は、当監会法人が実施した監査に基づいて、独立の立場から財務諸表等に 対する意見を表明することにある。当監査法人は、我が頂において一般に公正の当と認められる 証金の基準に準視して監査を行った。監会の基準は、当監査法人に財務諸表等に重要な起始ら 大がないかどうかについて合理的な尿ルを行合えめに、監査式請書を決定し、これに基づき 監査とおいては、財務諸友等の金額及び販示について監査証拠を人手するための下សが実施 ごれる。監査においては、財務諸友等の金額及び販示について監査証拠を人手するための下が次定施 される。監査においては、財務諸友等の金額及び販示について監査証拠を人手するための下が次定施 ごれのリスクの特征に気づいて選査法人は、リスク評価の実施に思いて、状況に応じた 適切な販売す様を立室するために、国務諸表等の作成と進んな表示に認知する内部総制を検討 する。また、監査には、P事者が採用した会計が形式が必可加力が設定に即すれたいって 行われた見着的の評価もためでやとしての債務品友等の表示を検討することができれる。 当監査法人は、意見表明の基礎となる十分かつ適切な監査法義能を入手したと判断している。
監査意見 当監査法人は、上記の財務請表等が、我が国において一般に公正妥当と認められる公室法人 会計の基準に準拠して、当該財務諸大等に係る期間の財産及び損益(止味財産増減)の状況を すべての重要な点において適正に表示しているものと認める。
利済関係 較社団法人グローバルヘルス技術振興某金と当監査法人又は業務執行社員との間には、 公認会計1法の規定により記載すべき利害関係はない。 以 上

### 2013 Financial Summary (audited, \$USD)

<b>REVENUE</b> (in thousands)	
Governments, NGOs, multilateral organizations	\$10,693
Foundations	4,970
Corporations	4,863
TOTAL REVENUE	\$20,526
EXPENSES (in thousands)	
Program services	\$18,074

483

\$18,557

### Assets, Liabilities, and Net Assets

Support services

**TOTAL EXPENSES** 

registered in Japan.

ASSETS (in thousands)	
Cash and cash equivalents Fixed assets	\$8,169 2,452
TOTAL ASSETS	\$10,621
LIABILITIES AND NET ASSETS (ir	h thousands)
Total Liabilities	\$8,364
Net Assets	2,257
TOTAL LIABILITIES AND NET ASSETS	\$10,621
The U.S. dollar amounts in this report represent	translations of
Japanese yen, solely for the reader's convenience, at $\pm 102.82 = US$ , the approximate exchange rate on March 31, 2014.	
This financial summary is an excerpt from the GHIT Fund's audited financial statements, which are audited by Ernst & Young ShinNihon LLC. The GHIT Fund is a General Incorporated Association and is	

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### COUNCIL

Members of the Council provide oversight for the Board of Directors and serve as advocates for the GHIT Fund's mission. Our private sector Council members are not involved in organizational or funding decisions. Funding from the GHIT Fund need not go to the same private companies represented on our Council. In fact, it may be directed to a partnership with any institution in Japan. All GHIT Fund grant investments support partnerships between Japanese entities and non-Japanese entities.

Takehiro Kagawa, Director-General, Global Issues, Ministry of Foreign Affairs, Government of Japan Mitsuhiro Ushio, MD, Deputy Director-General for Global Health, Minister's Secretariat, Ministry of Health, Labour and Welfare, Government of Japan Trevor Mundel, MD, PhD, President, Global Health Program, Bill & Melinda Gates Foundation Astellas Pharma Inc.: Yoshihiko Hatanaka, Representative Director, President and CEO Daiichi Sankyo Company Ltd.: George Nakayama, Representative Corporate Officer, President and CEO Eisai Co. Ltd.: Haruo Naito, President and CEO Shionogi & Co. Ltd.: Isao Teshirogi, PhD, President and CEO Takeda Pharmaceutical Company Ltd.: Yasuchika Hasegawa, President and CEO



### **BOARD OF DIRECTORS**

The global health experts on the GHIT Fund's Board of Directors provide governance and fiduciary oversight for the Selection Committee, set policy, and assess the GHIT Fund's overall performance.

### **Chair & Representative Director**

**Kiyoshi Kurokawa**, MD, Academic Fellow, National Graduate Institute for Policy Studies; Chairman, Health and Global Policy Institute

### **Executive Director**

**BT Slingsby,** MD, PhD, MPH, CEO, Global Health Innovative Technology Fund

### **Members**

**Peter Piot**, MD, PhD, Director, London School of Hygiene & Tropical Medicine, Former Executive Director of UNAIDS

Ann M. Veneman, Former Executive Director, UNICEF

**Kazushi Yamauchi**, MD, PhD, MPH, Director, International Cooperation Office, International Affairs Division, Minister's Secretariat, Ministry of Health, Labour and Welfare, Government of Japan

**Hiroyuki Yamaya**, Director, Global Health Policy Division, International Cooperation Bureau, Ministry of Foreign Affairs, Government of Japan

### Advisors

Hikaru Ishiguro, LLM, Board Member and President, Health and Global Policy InstituteKo-Yung Tung, JD, Senior Counselor, Morrison & Foerster LLP

### **Ex-Officio**

**Kim C. Bush,** Director of Life Sciences Partnerships, Bill & Melinda Gates Foundation

### **Selection Committee**

Members of the GHIT Fund's Selection Committee evaluate grant proposals and reports from grantees, recommend the provision of grants to Board of Directors, and ensure independence, accountability and transparency of the grant review and recommendation process. The Selection Committee is free of large pharma representatives to avoid any conflicts of interest between our backers and grantees.

### **Advisory Panel**

Members provide strategic advice to the Chair of the Board and the CEO. Mahima Datla, Managing Director, Biological E. Ltd.
Ken Duncan, PhD, Deputy Director, Discovery & Translational Sciences, Bill & Melinda Gates Foundation
Penny M. Heaton, MD, MPH, Director, Vaccine Development and Surveillance, Bill & Melinda Gates Foundation
Kiyoshi Kita, PhD, Professor and Chair, Department of Biomedical Chemistry, Graduate School of Medicine, The University of Tokyo Alex Matter, MD, CEO, Experimental Therapeutics Centre and D3, A\*STAR, Singapore
Yasuko Mori, MD, PhD, Professor, Division of Clinical Virology, Center for Infectious Diseases, Kobe University Graduate School of Medicine
Dennis Schmatz, PhD, Former head of Infectious Diseases Research, Merck Research Labs, USA

Former Head of Research, MSD-Japan

**Peter Agre**, MD, Director, Johns Hopkins Malaria Research Institute **Harvey V. Fineberg**, MD, PhD, President, Institute of Medicine of the National Academies

**Dai Hozumi**, MD, MSM, MPH, Senior Advisor for Health Systems and Policy, PATH

**Calestous Juma**, PhD, Professor, Practice of International Development and Director, Science, Technology, and Globalization Project, Harvard Kennedy School

**Michael R. Reich**, PhD, Taro Takemi Professor of International Health Policy, Harvard School of Public Health

Kumi Sato, President and CEO, Cosmo Public Relations Corporation Peter Singer, MD, MPH, FRCPC, CEO, Grand Challenges Canada and Director, Sandra Rotman Centre

### **EXTERNAL REVIEWERS**

The work of the GHIT community could not progress without vital support from these experts and their institutions worldwide.

Dr. Richard Adegbola Dr. Yukihiro Akeda Dr. Pedro Alonso Dr. Peter Andersen Dr. W. Ripley Ballou Dr. Clif Barry Dr. Marleen Boelart Dr. Maria Elena Bottazzi Dr. Nancy Le Cam Bouveret Dr. Tom Brewer Dr. David Brown Dr. Simon Campbell, CBE FRS Dr. Shing Chang Dr. Robert Chen Dr. Simon Croft Dr. Peter Dailey Dr. Thomas Dick Dr. Carter Diggs Dr. Boro Dropulic Dr. Filip Dubovsky Dr. Hiroyoshi Endo Dr. Alan Fairlamb Dr. Hermann Feldmeier Dr. Michael J. Free, OBE Dr. Birgitte Giersing Dr. Ann Ginsberg Dr. Federico Gomez de las Heras Dr. Glenda Gray Dr. Brian Greenwood Dr. Sanjay Gurunathan Dr. R. Kiplin Guy Dr. Lee Hall Dr. Yoshihisa Hashiguchi Dr. Chris Hentschel Dr. Gray Heppner

Dr. Toshihiro Horii Dr. Sanjay Jain Dr. Nisha Jain Garg Dr. Takushi Kaneko Dr. Niranjan Kanesa-Thasan Dr. Shigeyuki Kano Dr. Gilla Kaplan Dr. Subhash Kapre Dr. Naoto Keicho Dr. David Kelso Dr. Kent Kester Dr. Akinori Kimura Dr. Sue Kinn Dr. Somei Kojima Dr. Rebecca Richards Kortum Dr. Hidehito Kotani Dr. Michael Kurilla Dr. Dennis Kyle Dr. James LeDuc Dr. John Mansfield Dr. Carol Marzetta Dr. Greg Matlashewski Dr. James McCarthy Dr. Carl Mendel Dr. Charles Mgone Dr. Melinda Moree Dr. Kouichi Morita Dr. Charles Mowbray Dr. Peter Myler Dr. Daniel Neafsey Dr. Christian Ockenhouse Dr. Giuseppe Pantaleo Dr. David Persing Dr. Meg Phillips Dr. Punnee Pitisuttithum

Dr. David Pompliano Dr. Regina Rabinovich Dr. Rino Rappuoli Dr. Zarifah Reed Dr. Yves Ribeill Dr. Paul Roepe Dr. Polly Roy Dr. Peter Ruminski Dr. Philip Russell Dr. Judy Sakanari Dr. Hing Sham Dr. George Siber Dr. KJ Singh Dr. Peter Smith Dr. Lynn Soong Dr. Dan Stinchcomb Dr. Nathalie Strub-Wourgaft Dr. Marcel Tanner Dr. Kaoru Terashima Dr. Katsushi Tokunaga Dr. Nadia G. Tornieporth Dr. Bruno Travi Dr. Takafumi Tsuboi Dr. Moriya Tsuji Dr. Mickey Urdea Dr. Stephen Ward Dr. Tim Wells Dr. John Westwick Dr. Bruce G. Weniger Dr. Judith Wilber Dr. Elizabeth Winzeler Dr. Michael Witty Dr. Paul Wyatt Dr. Donato Zipeto



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