PRESS RELEASE

GHIT, Takeda and MMV progress first-in-class antimalarial DSM265 to patient trials in Peruvian Amazon

- *DSM265 is a selective DHODH inhibitor that belongs to a new class of antimalarial molecules*
- *DSM265, in combination with an appropriate partner drug, has potential to be both a single-dose cure and/or a prophylactic treatment to provide protection against malaria*
- *The GHIT Fund, Takeda and MMV are in discussions to further strengthen their collaboration and commitment to research & development of the DHODH class of molecules*

Geneva/Tokyo, 5 June 2015. A collaboration between the Global Health Innovative Technology (GHIT) Fund, Takeda Pharmaceutical Company Limited (Takeda) and Medicines for Malaria Venture (MMV) has recently progressed a promising antimalarial compound, DSM265, into a phase IIa clinical trial in Iquitos, Peru.

This ongoing Peruvian study is exploring the safety and efficacy of DSM265 as a treatment against the two main species of malaria parasite (*Plasmodium falciparum* and *Plasmodium vivax*). In parallel with the treatment study, the prophylactic potential of DSM265 is being assessed in two studies in collaboration with Prof. Peter Kremsner at the Tropical Institute of the University of Tübingen, Germany and Dr Jim Kublin at the Fred Hutchinson Cancer Research Center, USA.

Despite significant progress over the last decade in reducing malaria deaths, approximately half a million children still die each year from the disease. An additional 75,000–200,000 infant deaths annually are estimated to result from malaria infections in pregnant women. However, the emergence of multidrug-resistant malaria parasites in the Mekong Delta region may pose a threat to malaria control efforts and highlights the need for improved medicines with new mechanisms of action against the parasite for treatment of some of the most vulnerable patient populations.

DSM265 belongs to a class of triazolopyrimidine-based, highly-selective inhibitors that target *Plasmodium's* dihydroorotate dehydrogenase (DHODH), a key enzyme for the malaria parasite's survival and reproductive cycle. Since DSM265 and similar compounds in the class do not target human DHODH at therapeutic doses, they hold promise as potent and selective inhibitors of the malaria parasite, with a robust safety margin to support their use in malaria-infected people. If successful, DSM265 would be the first antimalarial to target DHODH.

DSM265 is an MMV-led project stemming from a collaboration with three other research teams including Prof. Margaret Philips at the University of Texas Southwestern, Prof. Pradip Rathod,

University of Washington, and Prof. Sue Charman, Monash University. Prof. Phillips' team identified DSM265 via high throughput screening. MMV joined forces with GHIT and Takeda in 2013 to move the compound into studies first in healthy human volunteers and now into patients.

"The advancement of DSM265 into phase IIa clinical trials represents a significant step towards developing new and better drugs to treat, and possibly even prevent, malaria," said Dr. BT Slingsby, CEO of the Tokyo-based GHIT Fund, which draws upon Japanese research and development expertise to fight neglected infectious diseases. "GHIT is proud to invest in this work and excited to see such incredible progress in our malaria portfolio."

Based on this initial success the GHIT Fund, Takeda and MMV are in discussions to strengthen their collaborative efforts on and commitment to antimalarial drug research and development. This will include financial support for the continued development of this promising class of antimalarial medicines.

"We are delighted to be collaborating with Takeda and GHIT on the development of DSM265," said David Reddy, MMV's CEO. "Their support has enabled us to progress the compound to phase IIa trials and investigate its safety and efficacy in malaria patients in Peru. We look forward to continuing the successful collaboration on this promising antimalarial compound series, hoping to eventually bring this new class to many more malaria patients in need around the world."

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Notes for editors

About GHIT Fund

The first fund to finance global health technologies in the world, the GHIT Fund is a public-private partnership based in Tokyo, Japan, funded by six leading Japanese pharmaceutical companies (Astellas Pharma, Inc.; Chugai Pharmaceutical Co., Ltd; Daiichi Sankyo Company, Limited; Eisai Co., Ltd.; Shionogi & Co., Ltd.; Takeda Pharmaceutical Company Limited), the Japanese Government and the Bill & Melinda Gates Foundation. Launched in April 2013 with an initial commitment of more than US$100 million, the organization taps Japanese research and development to fight neglected diseases. The GHIT Fund invests and manages a portfolio of development partnerships aimed at neglected diseases that afflict the

world's poorest people. GHIT mobilizes Japanese pharmaceutical companies and academic and research organizations to engage in the effort to get new medicines and vaccines to people who need them most, with Japan quickly becoming a game-changer in global health. For more information, please visit http://www.ghitfund.org

About Medicines for Malaria Venture (MMV)

MMV is a leading product development partnership (PDP) in the field of antimalarial drug research and development. Its mission is to reduce the burden of malaria in disease-endemic countries by discovering, developing and facilitating delivery of new, effective and affordable antimalarial drugs.

Since its foundation in 1999, MMV and partners have developed and brought to registration four new medicines: Pyramax®, (pyronaridine-artesunate) co-developed with Shin Poong; Eurartesim® (dihydroartemisinin-piperaquine) with Sigma-Tau; Guilin's artesunate injection for the treatment of severe malaria, Artesun®; and Coartem® Dispersible (artemether-lumefantrine), a child-friendly formulation developed with Novartis. Since 2009, over 250 million courses of *Coartem* Dispersible treatment have been supplied to 50 malaria-endemic countries; and since prequalification in 2010, an estimated 25 million vials of artesunate injection have been delivered, saving 165,000 additional lives.

Managing the largest portfolio of antimalarial R&D projects ever assembled, of over 65 projects, MMV has nine new drugs in clinical development addressing unmet medical needs in malaria, including medicines for children, pregnant women and relapsing malaria, and drugs that could support the elimination/eradication agenda. MMV's success in research and access & product management comes from its extensive partnership network of over 375 pharmaceutical, academic and endemic-country partners in 50 countries.

MMV's vision is a world in which innovative medicines will cure and protect the vulnerable and under-served populations at risk of malaria, and ultimately help to eradicate this terrible disease.
For more information, please visit http://www.mmv.org

MMV Disclaimer

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