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Novartis expands partnership with Medicines for Malaria Venture to develop next-generation antimalarial treatment

- *Novartis will lead the development of antimalarial compound KAF156 with scientific and financial support from Medicines for Malaria Venture in collaboration with the Bill & Melinda Gates Foundation*
- *KAF156 belongs to a novel class of antimalarials that act against both the blood and liver stages of the parasite's lifecycle*
- *Antimalarials with new mechanisms of action are urgently needed to tackle emerging parasite resistance to current therapies*

Basel, June 15, 2016 – Novartis announced today that it will further expand its long-standing partnership with Medicines for Malaria Venture (MMV). Novartis will lead the development of antimalarial compound KAF156 with scientific and financial support from MMV in collaboration with the Bill & Melinda Gates Foundation. This agreement sets out the terms and conditions for the development of KAF156 and its future availability to patients.

“With a child dying from malaria every two minutes and the threat of drug resistance growing year-on-year, there is a real urgency to step up global efforts to combat this disease,” said Joseph Jimenez, CEO of Novartis. “Partnerships and collaborations like this one with MMV are essential for the development of next generation antimalarials and accelerating efforts to eradicate this deadly disease.”

KAF156 belongs to a novel class of antimalarial molecules and is one of the first antimalarial drug candidates to enter Phase IIb clinical development in more than 20 years. It acts against the two parasites responsible for the majority of malaria deaths (*Plasmodium falciparum* and *Plasmodium vivax*) and against both the blood and liver stages of the parasite's lifecycle. Further, it has the potential to provide a more convenient dosing regimen and to address the multidrug resistance that has emerged in five countries of the Great Mekong Sub-region (GMS). KAF156 builds on the heritage of Novartis in antimalarial drug development and the launch in 1999 of Coartem[®], the first fixed-dose Artemisinin-based Combination Therapy (ACT). ACT is the current standard of care in malaria treatment.

“We are delighted to extend our partnership with Novartis in the development of this exciting candidate antimalarial medicine with the potential to tackle drug resistance and improve patient compliance,” said Dr. David Reddy, CEO of MMV. “As such, this agreement marks an important milestone, as MMV continues its mission to discover, develop and deliver new, effective and affordable antimalarials to the patients who need them most.”

The Novartis Malaria Initiative is committed to drive research, development and access to novel drugs to eliminate malaria. It is one of the pharmaceutical industry's largest access-to-medicine programs. Since 2001, the initiative has delivered more than 750 million treatments without profit, including 300 million dispersible pediatric treatments,

developed by Novartis in collaboration with MMV, mostly to the public sector of malaria-endemic countries. Although preventable and treatable, malaria continues to kill a child every two minutes and threatens the lives of many more.¹ It is caused by parasites transmitted to people through the bite of infected mosquitoes. A comprehensive range of interventions is required to eradicate the disease, from bed nets and spraying for prevention to diagnostics and medicines to treat the disease and block its transmission.

About the Novartis Malaria Initiative

The Novartis Malaria Initiative is focused on conducting research and development for the next generation of antimalarials, improving access to treatment and helping communities deliver better healthcare. Operated by Sandoz, the Novartis generics and biosimilars division, the Novartis Malaria Initiative is one of the pharmaceutical industry's largest access-to-medicine programs. Since 2001, the initiative has delivered more than 750 million treatments without profit, including 300 million dispersible pediatric treatments, mostly to the public sector of malaria-endemic countries.

Novartis has a long heritage in antimalarial drug development. Coartem[®], the first fixed-dose Artemisinin-based Combination Therapy (ACT), was launched in 1999. ACT is the current standard of care in malaria treatment. Currently, there are two potential antimalarial therapies in Phase II clinical trials in the Novartis portfolio, KAE609 (cipargamin)² and KAF156. Both are new classes of compounds that treat malaria in different ways from current therapies, and could help combat growing resistance to existing artemisinin-based combination therapies.

About 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 delivering new, effective and affordable antimalarial drugs.

Since its foundation in 1999, MMV and partners have built the largest portfolio of antimalarial R&D and access projects ever assembled, and brought forward six new medicines that are already saving lives. MMV's success is based on its extensive partnership network of over 400 pharmaceutical, academic and endemic-country partners in more than 55 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.

www.mmv.org

About KAF156

KAF156 belongs to a new class of dual-acting compounds known as imidazolepiperazines (IZPs) that target the parasite at both the liver and blood stage of its reproductive cycle. If confirmed in clinical trials, the dual antimalarial activity of the IZP compounds would give this class promise as a potential first-line therapy for the prevention and treatment of malaria^{3,4}. KAF156, currently in Phase IIb clinical trials, is the result of a Wellcome Trust, Medicines for Malaria Venture and Singapore Economic Development Board supported joint research program with the Novartis Institute for Tropical Diseases, the Genomics Institute of the Novartis Research Foundation, and the Swiss Tropical and Public Health Institute. The research program aimed to discover the next generation of antimalarial drugs. Novartis is developing KAF156 with scientific and financial support from MMV.

Disclaimer

This press release contains expressed or implied forward-looking statements, including statements that can be identified by terminology such as "next-generation," "will," "emerging," "potential," "efforts," "committed," "mission," "focused," "currently," "could," "would," or similar

expressions. Such forward-looking statements reflect the current views of the Group regarding future events, and involve known and unknown risks, uncertainties and other factors that may cause actual results to be materially different from any future results expressed or implied by such statements. These expectations could be affected by, among other things, risks and factors referred to in the Risk Factors section of Novartis AG's current Form 20-F on file with the US Securities and Exchange Commission. Novartis is providing the information in this press release as of this date and does not undertake any obligation to update it in the future.

About Novartis

Novartis provides innovative healthcare solutions that address the evolving needs of patients and societies. Headquartered in Basel, Switzerland, Novartis offers a diversified portfolio to best meet these needs: innovative medicines, eye care and cost-saving generic pharmaceuticals. Novartis is the only global company with leading positions in these areas. In 2015, the Group achieved net sales of USD 49.4 billion, while R&D throughout the Group amounted to approximately USD 8.9 billion (USD 8.7 billion excluding impairment and amortization charges). Novartis Group companies employ approximately 118,000 full-time-equivalent associates. Novartis products are available in more than 180 countries around the world. For more information, please visit <http://www.novartis.com>.

Novartis is on Twitter. Sign up to follow @Novartis at <http://twitter.com/novartis>

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