

Open source effort identifies hundreds of compounds that could protect vulnerable populations from malaria

Leading journal *Science* publishes details of MMV-supported research

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New MMV-supported research published on 7 December 2018 in *Science* details a 2-year multi-institution effort that identified thousands of new chemical starting points for innovative drugs to prevent malaria. To help speed the effort, the findings have been made open source – that is, the data is freely available to researchers developing antimalarial drugs.

While most malaria drug screening efforts target the symptom-causing parasites in the blood, this approach targeted the earlier liver stages and thus hold promise to find new ways to protect against malaria.

The team spent 2 years painstakingly extracting malaria parasites by hand from more than 1 million mosquitoes and using robotic technology to systematically test more than 500,000 chemical compounds for their ability to shut down the malaria parasite at the liver stage.

This is the first time so many compounds have been tested for their activity against the liver stage of malaria. After further testing, they narrowed the list to 631 promising compounds that could form the basis for new malaria prevention drugs.

“Children and pregnant women are particularly vulnerable to the effects of malaria, and with resistance emerging to medicines currently used to protect them there is an urgent need for new alternatives,” said Dr Brice Campo, Director, Drug Discovery, MMV.

“Added to that, as countries move towards malaria elimination, natural immunity will decline. That’s why this research, the first of its kind to this scale, is so important. The research community now has a treasure trove of new chemistry that holds the potential to protect the most vulnerable from malaria.”

“It’s difficult for many people to consistently sleep under mosquito nets or take a daily pill,” said, Dr Elizabeth Winzeler of University of California San Diego one of the lead authors of the study. “We’ve developed many other options for things like birth control. Why not malaria? The malaria research community has always been particularly collaborative and willing to share data and resources, and that makes me optimistic that we’ll soon get there too.”

The team tested the compounds against a malaria parasite which can only infect mice and is reasonably predictive of potency against the parasites that infect humans. The next step is to take a closer look at the 631 compounds to determine how many are efficacious against *P. falciparum*, the human-disease causing parasite affecting much of Africa.