

Highly sensitive detection of malaria parasites

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Credit: CDC

New assays can detect malaria parasites in human blood at very low levels and might be helpful in the campaign to eradicate malaria, reports a study published this week in *PLOS Medicine*. An international team led by Ingrid Felger, from the Swiss Tropical and Public Health Institute in Basel, Switzerland, took advantage of genes that have multiple copies in the parasite genome to reveal parasites present at concentrations that are

10 times lower than the detection limit of current standard assays.

The researchers compared three methods to detect [malaria](#) parasites in 498 samples randomly selected from a malaria survey in Tanzania: light microscopy, the current standard molecular assay, and the new assays. Parasites were detected in 25% of samples by light microscopy, in 50% by the standard assay, and in 58% by the new assays. Compared to the new assays, the current molecular standard assay failed to identify 16% of infections, and at least 40% of those contained parasite gametocytes, the parasite stage that is transmitted when mosquitoes bite an infected person.

The new assays detect only the most common [malaria parasite](#), *P. falciparum*, and while they can use very small blood samples collected "in the field", the analysis itself needs to be done in a biomedical laboratory. Nonetheless, because low-density infections without disease symptoms are expected to become increasingly common as countries improve malaria control, ultra-sensitive tools such as these will likely be critical for malaria surveillance and for monitoring the progress of malaria control and elimination programs.

More information: Hofmann N, Mwingira F, Shekalaghe S, Robinson LJ, Mueller I, Felger I (2015) Ultra-Sensitive Detection of *Plasmodium falciparum* by Amplification of Multi-Copy Subtelomeric Targets. *PLoS Med* 12(3): e1001788. [DOI: 10.1371/journal.pmed.1001788](https://doi.org/10.1371/journal.pmed.1001788)

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