

A promising new tool to measure antibodies against malaria

July 4 2018



A multipipette is used for handling multiple samples when performing quantitative suspension arrays. Credit: Pau Fabregat

Antibodies against multiple *Plasmodium falciparum* proteins (or antigens) can be measured using a simple, accurate and reproducible

assay that requires very small amounts of blood. In a series of recently published articles, a team led by ISGlobal reports the development and optimisation of several quantitative suspension array assays (qSATs) to assess natural and vaccine-induced responses to malaria and other parasites.

Antibody responses against *P. falciparum* [parasites](#) are critical in controlling or preventing malaria. However, relatively little is known about the type and specificity of these protective [antibodies](#), or how they work. This is further complicated by the fact that the parasite expresses more than 5000 proteins.

Carlota Dobaño and her group have developed new laboratory protocols to measure antibodies to multiple *P. falciparum* antigens in one single reaction and from small amounts of circulating blood. The qSAT used here consists of coupling small microspheres or beads to different parasite antigens and then testing if they are recognized by plasma samples of individuals exposed (or not) to malaria. The authors first adapted the assay to detect different types and classes of antibodies against multiple *P. falciparum* antigens in a sensitive and specific manner. Second, they showed that this simple multiplex assay is highly reproducible not only between experiments but also between operators and laboratories. Third, they identified which are the key factors that need to be optimised to reduce variability of the assay. Finally, they used this test to better characterise the antibody profile of the anti-malaria human plasma pool provided by the WHO as reference reagent. They showed that it contains low levels of antibodies to CSP (the antigen contained in the RTS,S vaccine), suggesting that customized reference pools may be needed for studying responses to certain antigens.

These simple and reproducible multiplex protocols will allow us to analyse in detail natural and vaccine-induced antibody responses to large panels of *P. falciparum* antigens, and elucidate correlates of malaria

protection," explains Dobaño. "Furthermore, the assay is highly versatile and can be adapted to study responses to antigens from other microbes or vaccines. We are currently collaborating with several groups outside the [malaria](#) field," she adds.

More information: Itziar Ubillos et al, Analysis of factors affecting the variability of a quantitative suspension bead array assay measuring IgG to multiple Plasmodium antigens, *PLOS ONE* (2018). [DOI: 10.1371/journal.pone.0199278](#)

Provided by Barcelona Institute for Global Health

Citation: A promising new tool to measure antibodies against malaria (2018, July 4) retrieved 23 April 2024 from <https://phys.org/news/2018-07-tool-antibodies-malaria.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.