

New insights into antibody roles could improve malaria vaccines for children

August 8 2024



Credit: CDC

The first malaria vaccine approved by the World Health Organization—known as RTS,S—was a big step forward in the fight against the disease. While the vaccine protects young children, it is moderate and wears off approximately 18 months after vaccination.

To make better and longer-lasting vaccines, scientists need a greater

understanding of how RTS,S works and why its level of protection is modest.

A [new study](#) published in *The Lancet Microbe* has given new insights into how the immune system responds to the RTS,S vaccine to protect against [malaria](#).

The research linked two antibody types, known as IgG and IgA, with protection against malaria in vaccinated children. Antibodies are proteins in the blood that help the body fight infections.

The research team studied how these antibodies work in African children vaccinated with RTS,S.

Professor James Beeson, Burnet head of the Malaria Immunity and Vaccines Group, said the findings showed specific antibody functions can target distinct regions of malaria parasites to prevent disease.

"IgA antibodies are present in the mucous membranes of the nose, throat, and gut and are often considered for their role in preventing respiratory infections," he said.

"However, this new research found that vaccinated children produced IgA antibodies in the blood where they can clear malaria infection and prevent illness.

"We also found that IgG antibodies are crucial for immunity against malaria and work with other parts of the [immune system](#) to provide a double punch against the disease."

The study also found there might be differences in how boys and girls respond to the vaccine, which hasn't been previously studied for malaria vaccines in children.

"The study addresses significant knowledge gaps, as there was no prior research evaluating these specific immune mechanisms in vaccinated children," Professor Beeson said.

"This research represents a pivotal step in enhancing malaria [vaccine](#) efficacy and tailoring strategies to different immune responses.

"The next step will be to design vaccines that maximize these protective immune responses."

More information: Liriye Kurtovic et al, Antibody mechanisms of protection against malaria in RTS,S-vaccinated children: a post-hoc serological analysis of phase 2 trial, *The Lancet Microbe* (2024). [DOI: 10.1016/S2666-5247\(24\)00130-7](https://doi.org/10.1016/S2666-5247(24)00130-7)

Provided by Burnet Institute

Citation: New insights into antibody roles could improve malaria vaccines for children (2024, August 8) retrieved 8 August 2024 from <https://medicalxpress.com/news/2024-08-insights-antibody-roles-malaria-vaccines.html>

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