1. Eur J Immunol. 1997 Oct;27(10):2502-13.

# Plasmodium falciparum sporozoite invasion is inhibited by naturally acquired or experimentally induced polyclonal antibodies to the STARP antigen.

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Antibody(Ab)-mediated inhibition of sporozoite invasion of hepatocytes is a mechanism that has been clearly demonstrated to act upon Plasmodium falciparum pre-erythrocytic stages in humans. Consequently we have analyzed the Ab response to a recently identified P. falciparum sporozoite surface protein, STARP, in malaria-exposed individuals and tested the inhibitory effect of these Ab upon hepatocyte invasion in vitro. STARP-specific IgG were detected in 90 and 61% of sera from regions where individuals were exposed to 100 and 1-5 infectious bites per year, respectively. These IgG were predominantly of the cytophilic IgG1 or IgG3 type. STARP and the major sporozoite surface protein, CS, elicited equivalent IgG levels in adults. When affinity purified from either African immune sera or the serum of an individual experimentally protected by irradiated sporozoite immunization, STARP-specific Ab prevented up to 90% of sporozoites from invading human hepatocytes. The dose-dependent and reproducible inhibition

was more pronounced than that observed with human CS-specific Ab affinity purified under identical conditions. Substantial reduction of sporozoite invasion was also observed with Ab induced by artificial immunization with recombinant STARP protein and reactive with the native protein. Taken together with recent findings of human cytotoxic T lymphocytes specific for this antigen, these results promote the interest of studying the efficacy of STARP as a target for immune effector mechanisms operating upon pre-erythrocytic stages.

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