

ANTIBODY MEDIATED ENHANCEMENT OF MALARIA  
TRANSMISSION IN PLASMODIUM VIVAX

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Antibodies, both polyclonal and monoclonal which react with the surface of gametes, the sexual stages of malaria parasites, have been shown to inhibit the development of the parasite in the mosquito vector and interrupt transmission of malaria<sup>1,2</sup>. This study shows that transmission-blocking antibodies can, at different concentrations, have an entirely opposite effect on the parasite, enhancing transmission.

A Protein-A purified monoclonal antibody (MAb) M1/12.D2/6H of IgG 1 isotype, against a polypeptide doublet of approximately 37 and 42 Kilodaltons<sup>3</sup> of gamete surface origin, blocks the transmission of *P.vivax* isolates from patients to

the vector at a concentration of 0.68 mg/ml when tested by membrane feeding experiments. At higher dilutions, transmission-blocking effects of this MAb are lost and replaced by an infectivity enhancing effect of up to 2 to 4 fold. These dual activities of infectivity blocking and enhancing were also found in immune human sera obtained from acute malaria patients. Upto a 13 fold enhancement of parasite infectivity was obtained with sera from 3 out of 40 acute vivax malaria patients investigated. Enhancing activity was also seen in sera obtained from *P.vivax* patients during convalescence, when anti-gamete antibody levels were declining. These findings could be expected to have effects on the natural transmission of *P.vivax* malaria and to have important bearing on inducing transmission - blocking immunity.

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#### References

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