A-03: Functionality of human IgM anibody response in *Plasmodium vivax* transmission blocking immunity

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Transmission blocking (Tx) immunity of *Plasmodium vivax* in Sri Lankan patients has been shown to be antibody mediated and short lasting in effect and

appears to have little immune memory. In the present study we hypothesised that this short lasting nature of the memory for Tx immunity would be associated with a primary IgM response which fail to mature to an IgG response. To test this hypothesis we fractionated IgM and IgG antibodies from transmission blocking sera obtained from *P.vivax* patients by using Protein-A purification and confirming the purity of the fractions by SDS-PAGE.

These different fractions were tested separately in membrane feeding experiments to test their ability of abolishing *P.vivax* infection in mosquitoes. The results showed that Tx effects of purified IgM antibodies are significantly higher than that of its original unfractionated Tx serum ($p=0.001$; $t=3.92$). Differences between Tx effects of purified IgG antibodies compared to its original unfractionated Tx serum was not statistically significant ($p=0.089$; $t=1.76$). Tx effects of fractionated IgM were also significantly higher than that of fractionated IgG ($p=0.0001$; $t=5.31$). In further confirmation of the role of IgM, when the IgM fractions were tested for their Tx ability in the presence of anti-human IgM antibody, there was a significant reduction of the Tx effects of IgM fractions ($p=0.0001$; $t=4.98$).

These results indicate that the functional antibody type in Tx immunity may be IgM rather than IgG reflecting a possible failure of the antibody response to mature to a IgG response in *P. vivax* Tx immunity.