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## Plasmodium vivax tryptophan-rich antigens

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**P**lasmodium vivax is a non-cultivable human malaria parasite which is highly prevalent in Southeast Asia. There is no vaccine available for this parasitic disease. This requires the identification and immunological characterization of potential vaccine target molecules of this parasite. In this regard, we have reported several P.vivax tryptophan-rich antigens (PvTRAgs) whose counterparts in murine malaria are important vaccine candidates. In the present study, we have investigated humoral and cellular immune responses to fifteen different PvTRAgs among P.vivax exposed and healthy controls. A significantly higher level of CD69 expression was observed against all these 15 antigens among P. vivax exposed individuals as compared to uninfected healthy controls. Some of these antigens showed better response than the others. The intracellular cytokine profile against these antigens showed higher levels of IL-2, IFN-gamma and IL-4, as compared with IL-10 levels in CD4+ T cells of P.vivax exposed individuals. Naturally acquired antibody against these antigens was significantly higher in P.vivax exposed individuals than healthy controls. These proteins show very little genetic variation in the parasite population. Six of these 15 proteins showed binding to the host erythrocyte. In conclusion, all PvTRAgs show very little genetic variation, a higher sero-positivity rates, and both Th1 and Th2 responses.

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