HUMAN T CELL PROLIFERATIVE RESPONSES TO P.VIVAX ANTIGENS: EVIDENCE OF IMMUNOSUPRESSION ON PROLONGED EXPOSURE TO ENDEMIC MALARIA

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We investigated the peripheral blood mononuclear cell (PBMC) responses from 33 Sri Lankan adults convalascing from acute P. vivax malaria to antigens P. vivax, an unrelated antigen PPD, and to a mitogen Con-A, by incorporation of tritiated thymidine. he P. vivax antigens used were betagalactosidase fusion proteins of fragments of 2 cloned antigens, PV200 and GAM-1 both being potential vaccine candidates, and a soluble extract of P. vivax asexual erythrocytic stage parasites. The subjects investigated consisted of 1) a group of P.vivax convalescents resident in Kataragama, a malaria endemic region in southern Sri Lanka, 2) individuals resident in Colombo or its suburbs, (regions which are not endemic for malaria), who had contracted the disease on a visit to a malarious region, and 3) non-malarious controls.

The T cell proliferative responses to P.vivax antigens of individuals exposed to endemic malaria transmission were significantly lower than those of individuals who were resident in a malaria non-endemic region ($p < 0.01$) as judged by both the proportion of responders as well as the degree of the response. The responses of these two groups to the mitogen Con-A were identical, indicating that continuous exposure to P.vivax malaria causes suppression of T cell responsiveness to malaria antigens. The proportion of individuals responding to PPD in the 2 groups was not significantly different although the degree of the response to PPD was lower in the 'Malaria endemic' group implying that the Immunosupression of PBMC responses were specific to malarial antigens. The PBMC responses to both cloned antigens, PV200 and GAM-1 were generally poor in all P.vivax convalescent individuals. These findings bear significant implications on the development of a malaria vaccine.