

**Pattern of IgG1 and IgG3 isotype responses to C-terminal regions of *Plasmodium vivax* Merozoite Surface Protein 1 in endemic population of Sri Lanka**

Exploring the nature of the antibody response of cytophilic isotypes, IgG1 and IgG3, to p42 and p19, representing C-terminal regions of the *Plasmodium vivax* Merozoite Surface Protein 1, is essential to elucidate naturally acquired protection to these vaccine candidates. Sera from patients with acute *P. vivax* infections screened positive to anti-p42 and anti-p19 antibodies from Anuradhapura (n=50) were randomly selected and assayed for IgG1 and IgG3 isotypes against recombinant proteins p42 and p19 in a double antibody sandwich ELISA.

Percentage of responders to IgG1 and IgG3 antibodies to p42 were, 68% and 55% from Anuradhapura (mean  $\pm$  SEM, number of past malaria infections =  $3 \pm 0.5$ ) and 90% and 85% from Kataragama ( $6 \pm 1.25$ ), respectively. The corresponding percentages for p19 were 48% and 58% from Anuradhapura and 94% and 92% from Kataragama. Proportion of responders and antibody levels to p42 and p19 for both sub-classes in Kataragama were significantly higher ( $p < 0.05$ ) than those from Anuradhapura, which may reflect the different degrees of exposure of these two population to malaria.

A positive correlation ( $p < 0.05$ ) existed between isotype levels and exposure in both endemic areas to p42 and, to p18 with regard only to Kataragama. This association was conspicuous up to 6 previous malaria infections. Thereafter, a decline in the IgG1 levels against both proteins was evident in individuals from Kataragama, which was not evident in their IgG3 levels. This may imply that IgG3 antibodies play a different functional role as compared to IgG1, with regard to vaccine candidates, p42 and p19.