

**COMPARISON OF THE TWO DIFFERENT RECOMBINANT PROTEINS
REPRESENTING REGION II OF THE DUFFY BINDING PROTEIN OF
Plasmodium vivax BY ASSAYING FOR NATURAL ANTIBODIES**

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Abstract

Two different recombinant proteins representing region II of the Duffy Binding Protein of *Plasmodium vivax*, DBP and PvRII expressed in the baculovirus and *Escherichia coli* vector systems, respectively, were compared by assaying the total immunoglobulin (IgM + IgG) responses of sera of patients with acute vivax malaria in an indirect ELISA. The patients were from two malaria endemic areas, Anuradhapura (n=64) and Kataragama (n=90), and a non-endemic area, Colombo (n=90).

The antibody prevalence was 50% and 44% from Anuradhapura, 39% and 28% Kataragama and 57% and 41% from Colombo, for PvRII and DBP, respectively. The antibody prevalence for PvRII was higher than that for DBP in each test area, that was significant only in Colombo (p=0.001). The percentages of patients that they responded to both proteins were 34% (n=22), 19% (n=17) and 40% (n=36) from Anuradhapura, Kataragama and from Colombo, respectively. In comparison, a significantly lower (p=0.007) percentage of individuals from Kataragama responded to both proteins. Further 16% (n=10) from Anuradhapura, 19% (n=17) from Kataragama and 16% (n=14) from Colombo preferentially recognised PvRII, whereas, corresponding values for DBP were 9% (n=6), 10% (n=9) and 1% (n=1), respectively, where this difference was significant only in Colombo (p=0.031). Among the previously non-exposed patients from Colombo, 24% responded preferentially to PvRII whereas it was only 3% for DBP (p=0.021). On the other hand, of the previously exposed patients from Colombo, 10% preferentially responded to PvRII whereas no preferential recognition of DBP was observed (p=0.063).

Thus the results of this study show a higher natural antibody response to recombinant protein PvRII, which represents the functional conformation of region II of the Duffy Binding Protein.

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