Improving human immunity to malaria

August 1 2012

The deadliest form of malaria is caused the protozoan *Plasmodium falciparum*. During its life-cycle in human blood, the parasite *P. falciparum* expresses unique proteins on the surface on infected blood cells.

Antibodies to these proteins are associated with protection from malaria, however, the identity of surface protein(s) that elicit the strongest immune response is unknown.

Dr. James Beeson and colleagues at the Walter and Eliza Hall Institute of Medical Research in Victoria, Australia have developed novel assays with transgenic *P. falciparum* expressing modified surface proteins, allowing the researchers to quantify serum antibodies to surface proteins among malaria-exposed children and adults.

They found that most of the human antibody response to the surface proteins targets a parasite protein known as PfEMP1.

Moreover, the showed that people with PfEMP1-specific antibodies had a reduced risk of malaria symptoms, whereas antibodies to other surface antigens were not associated with protective immunity.

These findings suggest antibodies against PfEMP mediate human immunity to malaria and have implications for future malaria vaccine development.

More information: Targets of antibodies against Plasmodium

falciparum-infected erythrocytes in malaria immunity, *Journal of Clinical Investigation*, 2012.