A-19: Adherence properties of Sri Lankan *Plasmodium falciparum* isolates to endothelial cell receptor CD36

P P S L Pathirana, K Ekanayake, K L R L Perera, R J Howard[1], K N Mendis, S M Handunnetti
(Malaria Research Unit, Faculty of Medicine, Univ. of Colombo, Colombo 8, [1]Affymax Research Institute, Palo Alto, CA, USA)

Plasmodium falciparum-infected erythrocytes adhere to endothelial cell (EC) surface antigen CD36. Adherence to EC via CD36 leads to the blockade of blood vessels and is thought to contribute to the pathogenesis of severe *falciparum* malaria. This study was conducted to ascertain the binding affinities of Sri Lankan *P. falciparum*

isolates to CD36. Parasitized red blood cell (PRBC) adherence of 28 cryopreserved and thawed isolates to CHO-CD36 cells (Chinese Hamster Ovarian cells transfected with the gene encoding for CD36) was examined. Untransfected CHO cells were used as controls for this assay. PRBC adherence to CD36 as purified protein on plastic was also examined. Each assay was done in triplicates and the number of PRBC adhered to 100 target cells and the number of PRBC adhered to CD36/mm^2 were counted. PRBC adherence to untransfected CHO cells was very low indicating a low level of non specific binding to target cells. Binding of PRBC to CHO-CD36 cells was strongly correlated ($r=0.87$) to the percentage parasitaemia. When cytoadherence of each isolate was normalized to that of a 1% trophozoite/schizont parasitemia, these parasite isolates were found to have different intrinsic adherence to CD36 both as pure protein on plastic and as expressed on CHO cells. Compared to the adherence to CHO-CD36 cells and to CD36 as pure protein in isolates from other geographical regions (ie. The Gambia, Thailand), Sri Lankan isolates show a very low level of binding. In the context of the theory that cytoadherence is a virulence property it may be significant that all these isolates were obtained from P. falciparum patients having a mild form of clinical disease, ie., uncomplicated malaria.