Summary and Future Direction
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In this study, we have identified Hyaluronan Binding Protein 1 (HABP1), as a novel endothelial receptor for cytoadherence by *P. falciparum*. Our study demonstrated that *P. falciparum* infected erythrocytes not only bind to purified HABP1 coated plates but also to HUVEC through HABP1. Upregulation of HABP1 on HUVEC cell surface by TNF-α, the inflammatory cytokine that is elevated in severe malaria, allows more parasites to bind number of HABP1 binding parasites.

We have shown that parasite binding to HUVEC can be blocked by purified soluble recombinant HABP1 more efficiently than by ICAM1, the other endothelial receptor which is also regulated by TNF-α. These facts suggest that parasite binding to HABP1 might also be critical for pathogenesis of malaria.

In continuation, one complete var gene Chr7 glm_337 from 3D7-genome data bank has been identified in the HABP1 binding 3D7 population at trophozoite stage. This var gene is proposed to be a candidate gene that might be responsible for the expression of adhesive ligand PfEMPl that mediates parasite binding through HABP1. The specificity of HABP1 as cytoadherence receptor on HUVEC cell needs to be tested using antibody against HABP1 and ICAM1. In addition, the different DBL and CIDR domains present on the gene Chr7 glm_337 need to be identified and expressed on mammalian cell surface to study their interaction with HABP1. Such studies will detect the specific domain of the PfEMPl that may be responsible for binding to HABP1. Understanding the molecular interaction between HABP1, the HABP1 binding domain of PfEMPl would help to develop novel intervention strategies to block HABP1 mediated parasite sequestration, which may help in controlling the severity of malaria.