



Identification of a unique *Plasmodium* protein and its possible role in modifying the host erythrocyte

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Abstract

The malaria parasite is a eukaryotic pathogen that during one stage of its life cycle infects erythrocyte. While the parasite is within erythrocyte it exports numerous proteins and membranous components into the host cell. These parasite proteins and membranes enhance the ability of the parasite to survive within the erythrocyte as well as being a conduit for the export of virulence factors to the host membrane. *Plasmodium falciparum* is an extremely virulent human parasite that causes much morbidity and mortality throughout tropical regions in the world. A better understanding of how the parasite alters and adapts to the host red blood may lead to novel strategies to combat malaria. Previously, a membrane fraction collected after merozoite release from *P. falciparum* infected erythrocyte was used to immunize mice and generate monoclonal antibodies (Cortés et al, 2003, Mol. Biochem. Parasitol. 129:127, Cortés et al, 2011, Parasitol Res. 109: 741). To identify the proteins recognized by these monoclonal antibodies, a cDNA expression library prepared in lambda ZAP II was screened with mAb7. Two independent clones containing the same 403 bp insert were identified. The insert DNA was

sequenced and used to carry out a BLAST search of databases. The insert DNA is identical in sequence to the C-terminal region of a hypothetical *P. falciparum* protein designated as PFL1395c on chromosome 12. PFL1395c encodes a protein of 3209 amino acids and shows no homology to any other non-*Plasmodium* protein in the databases. However, homologues to PFL1395c are found in other malarial parasites, including other simian and rodent parasites. This protein is highly conserved across a wide range of *Plasmodium* species. These results suggest that PFL1395 plays an important role in the biology of the parasite and that this role is unique to *Plasmodium* species. mAb7 antibody should be useful to dissecting the role of PFL1395c in *Plasmodium*.