3736799 SCMI/M : MAJOR: MICROBIOLOGY; M.Sc. (MICROBIOLOGY)
KEY WORD : PLASMODIUM FALCIPARUM/ CYTOADHERENCE/ CHROMOSOME 9 DELETION

PORNPIMON ANGKASEKWINAI: THE CHARACTERISTICS OF CYTOADHERENCE AND CHROMOSOME 9 DELETION OF PLASMODIUM FALCIPARUM IN THAILAND. THESIS ADVISOR: SANSANEE CHAIYAROJ Ph.D., PEERAPAN TAN-ARIYA Ph.D., RACHANEE UDOMSANGPETCH Ph.D. 129 p. ISBN 974-589-435-4

Plasmodium falciparum is the most virulent species of human malarial parasite. Death is usually due to cerebral malaria that is associated with sequestration of infected erythrocytes in the brain microvasculature. It has been suggested that this selective blockade is due to adhesion of infected erythrocytes to endothelium. In this study, the cytoadherence of 82 parasite isolates to C32 melanoma cells, CD36, thrombospondin (TSP), intercellular adhesion molecule 1 (ICAM-1), and chondroitin sulfate A (CSA) was investigated. The correlation of cytoadherence phenotypes to severity of malaria and the association of the ability to cytoadhere with the deletion at the right end of chromosome 9 were determined.

The study showed great variation of the cytoadherence phenotypes between different isolates. Most isolates adhered to CD36, TSP, and C32 melanoma cells, while only a few isolates adhered to ICAM-1 and CSA. No correlation between adherence characteristics and patients' conditions was observed. The analysis of chromosome 9 of 24 parasite isolates demonstrated no association between deletion of the right arm chromosome 9 and cytoadherence to any receptor, including CD36. This result was confirmed when we analyzed chromosome 9 linkage maps of 4 parasite clones of SL86. SL86B and SL86D which possessed small form chromosome 9 could express cytoadherence to CD36. The results suggested that the essential gene for cytoadherence to CD36 may not exclusively localize in this region of chromosome 9.