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Localization of Plasmodium Falciparum Asexual Stage Antigen by Mouse Immune Sera

Abstract

Malaria is still a major health problem in the world as well as the increased incidence of this disease in the tropical regions. In Indonesia, rapid people movement from/to Java Island is one of reasons in increasing malaria incidence. The use of imprecise dose of antimalarial drugs for medication in community is causing mutation in the parasite genes. This is resulting in parasite resistance to antimalarial drugs. Genetic variation of P. falciparum affects the diversity of clinical symptoms, pathology, transmission characteristic, and human response to antimalarial drugs. An alternative to overcome this problem is using vaccine. However, due to those reasons and also due to the complexity of parasite life cycle the effective and global vaccine is difficult to produce. Through this research we are trying to develop a malaria vaccine for being applied to Indonesia locally. This research is an early step of the main research in malaria vaccine development. This current research is to characterize Plasmodium falciparum asexual stage antigen in order to find out a malaria vaccine candidate for local Indonesia. Previously, 5 BALB/c mice have been immunized with asexual stage antigen of P. falciparum 2300 strain and Freund complete adjuvant. Sera were collected every single week and used to localize the P. falciparum asexual stage antigen by means of indirect immunofluorescent assay (IFA). The results showed that, sera from 3 and 4 weeks post immunization recognized the antigen. Antigens were localized on the surface of late trophozoite, early and late schizont stages, and on the surface of internal and external merozoites. Mouse sera did not recognize ring form and trophozoite stages. It meant that, there was no contamination with ring form and early trophozoite stages during antigen preparation. Hemozoin or malaria pigment was recognized neither by mouse nor by human sera, due to the present of Fe++ in hemozoin.

Keyword : Plasmodium, falciparum, asexual, stage, antigen, ,

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