Thesis Title Immunological and Pathological Studies in Mice Resistance to Murine Malaria

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ABSTRACT

Immunoblotting and immunofluorescent techniques were used to study immunological reactions between antibody in sera of experimental mice during acute infection and after recovery from P. berghei and P. chabaudi infections. Malarial parasite antigens of schizont infected erythrocytes were sonicated and solubilized in the presence of dithiothreitol before electroseparation on sodium dodecyl sulphate polyacrylamide gel. After electrotransfer to nitrocellulose paper, the separated protein components were reacted with individual serum of experimental mouse. Sera from P. berghei-chloroquin cured mice and P. chabaudi self recovered mice showed several prominent reacting bands of polypeptides of P. berghei and P. chabaudi infected erythrocytes on immunnoblots respectively. For P. berghei chloroquin cured mice, their sera reacted with polypeptides in the range of molecular weights 73-180 Kd, whereas sera from P. chabaudi self

recovered mice showed reaction with polypeptides in the range of less than 29 Kd-180 Kd. Particularly, the polypeptide with molecular weight 73 Kd was consistently reacted with immune sera from recovered mice. Whereas normal mouse sera showed no reaction with any polypeptides of P. berghei and P. chabaudi infected erythrocytes. The immune sera from recovered mice also did not reacted with protein components of normal mouse erythrocytes. This may indicate that immune sera of recovered mice contained antibodies direct against malaria derived antigens. By indirect immunofluorescent antibody technique, the antibody level was low at the early phase of infection and higher at recovery phase. There were no significant alterations in livers, kidneys and spleens of recovered mice, except the mononuclear cells infiltration in the interstitial area of kidney, periportal area of liver and hypertrophy and hyperplasia of white pulp with increasing plasma cell in red pulp of spleen Whereas macrophages containing malarial pigments as small granules were observed during the patent infection in liver, kidney and spleen and larger forms during recovery phase. These findings may suggest that the elimination of malaria parasites was conferrred by both cellular and humoral immune responses.