

5. Title: Studies on the Sites of in vivo Immune Reactions in Malaria.

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Period of Report: 1 October 1968 — 28 February 1969

OBJECTIVE

It has been reported that antibody, bound to parasites or parasitized cells, can be detected in P. berghei infections by immunofluorescence.¹ The present project was designed to attempt reproduction of this observation, and if confirmed to extend the experimental approach to systems involving the passive administration of antibody, and to P. falciparum in the gibbon. Such studies would yield valuable information on the site of action of antibody in these malarial infections.

DESCRIPTION

Fluorescein labelled anti-species globulin is employed to visualize the sites of globulin binding in thin blood films by the immunofluorescent technique. Individual cells are photographed for later comparison with bright field photographs of the same cells stained by Giemsa's method.

PROGRESS

The intercellular areas on the slides fluoresce in the case of both infected and normal mice and rats, presumably due to globulin in the films of plasma on the slides. In accord with phenomenon of fluorescence quenching by hemoglobin, we observed essentially no fluorescence of erythrocytes in films prepared from normal blood.

P. berghei parasitized mouse and rat erythrocytes exhibit a relatively low grade intracellular green fluorescence, usually localized to one or more discrete areas of the cytoplasm. However, examination of the same areas by bright field microscopy reveal only clefts in the methanol fixed hemoglobin. The parasites were visualized in areas of the cytoplasm exhibiting little fluorescence. This suggests that the fluorescence is due to depletion of hemoglobin rather than an immune reaction.

Since conditions were judged to be comparable to those employed in the published report, no explanation can presently be offered for the discrepancy.

SUMMARY

Attempts to confirm the presence of circulating P. berghei-antibody complexes have been unsuccessful.

REFERENCE

(1) Kreier, J.P. and Ristic, M. 1964. Detection of a Plasmodium berghei-antibody complex formed in vivo, Am. J. Trop. Med. Hyg. 13, 6-10.