

Title: A Vascular-Permeability Increasing Factor in the Serum of Gibbons Infected with Primate Malarias.

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Objective Desowitz and Pavanand (SEATO Ann. Rep., 1967; Ann. trop. Med. Parasit., 1967, 2) have shown that the serum of monkeys infected with Plasmodium inui and P. coatneyi contain a Vascular Permeability Increasing Factor (PIF). This PIF activity was totally blocked by application of an antihistamine. A similar study was carried out in gibbons infected with P. jeffereyi and an unidentified species of malaria. The purpose of this study was to investigate whether a PIF was present in the serum of these animals in view of the fact that there was no pathophysiologic derangement of the liver or other organs. (Miller et al., SEATO Ann. Rep. 1967; Ann trop. Med. Parasit., 1968, 1).

Description

Serum samples were collected from each gibbon before infection and at weekly intervals thereafter. All samples were stored at -50°C until used. The samples collected from one gibbon were tested in a single rabbit. White rabbits weighing between 1.5–2.0 kg with no appearance of skin lesions were used.

The method of assessing PIF activity in rabbit skin (Evans Blue dye technique) has been described previously. (Desowitz and Pavanand, loc. cit.).

Two rabbits of similar weight were used to test the effect of antihistamine on PIF activity. One rabbit was given a subcutaneous inoculation of 10 mg/kg. body weight of promethazine. Twenty minutes later, both rabbits were inoculated with the serum samples and the test for PIF activity was carried out as described.

Progress

A number of undiluted sera obtained from 10 normal healthy gibbons produced increased vascular permeability of rabbit skin. In some gibbons, the PIF activity was apparent on 1:10 dilution.

Figs 1–3 show the results of these experiments. The PIF activity of preinfection serum disappeared on dilution. In both P. jeffereyi and unidentified species infections, there appear to be no relationship between the degree of PIF activity and nature of the infection. The increase in this activity was rarely seen in 1:25 dilution. This activity was totally inhibited by antihistamine—promethazine, except in one gibbon with an unidentified species of malaria a partial block was observed.

The increase in PIF activity of serum obtained from gibbons infected with malaria was apparent in this experiment. Unlike the previous study in rhesus monkeys infected with P. coatneyi and P. inui, this increase in activity was neither related to the course of parasitemia nor as high in concentration.

Fig 1. THE COURSE OF INFECTION AND SERUM VASCULAR-
 PERMEABILITY - INCREASING ACTIVITY IN A GIBBON INFECTED
 WITH AN UNIDENTIFIED SPECIES OF PLASMODIUM (P-16)

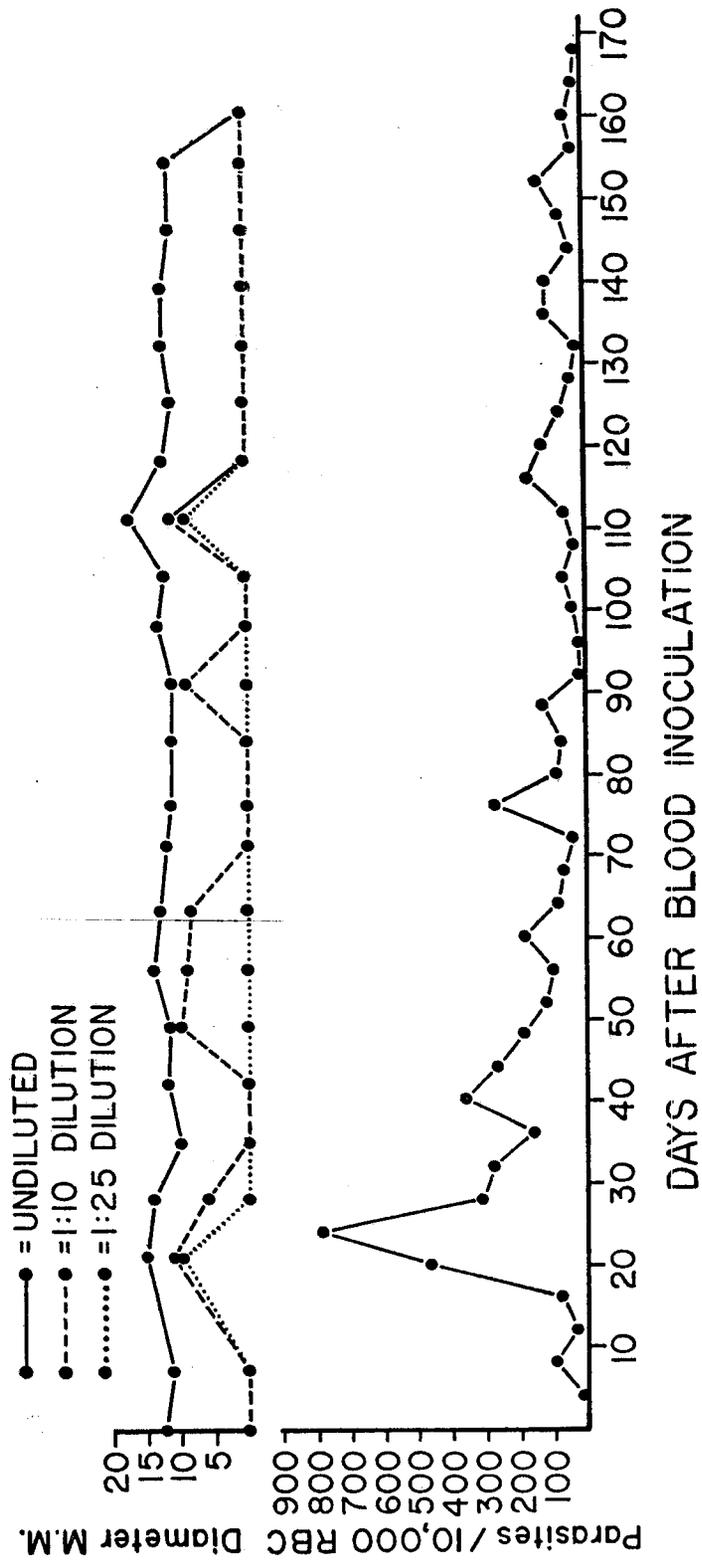


Fig 2. THE COURSE OF INFECTION AND SERUM VASCULAR-
 PERMEABILITY - INCREASING ACTIVITY IN A GIBBON INFECTED
 WITH AN UNIDENTIFIED SPECIES OF PLASMODIUM (S-4)

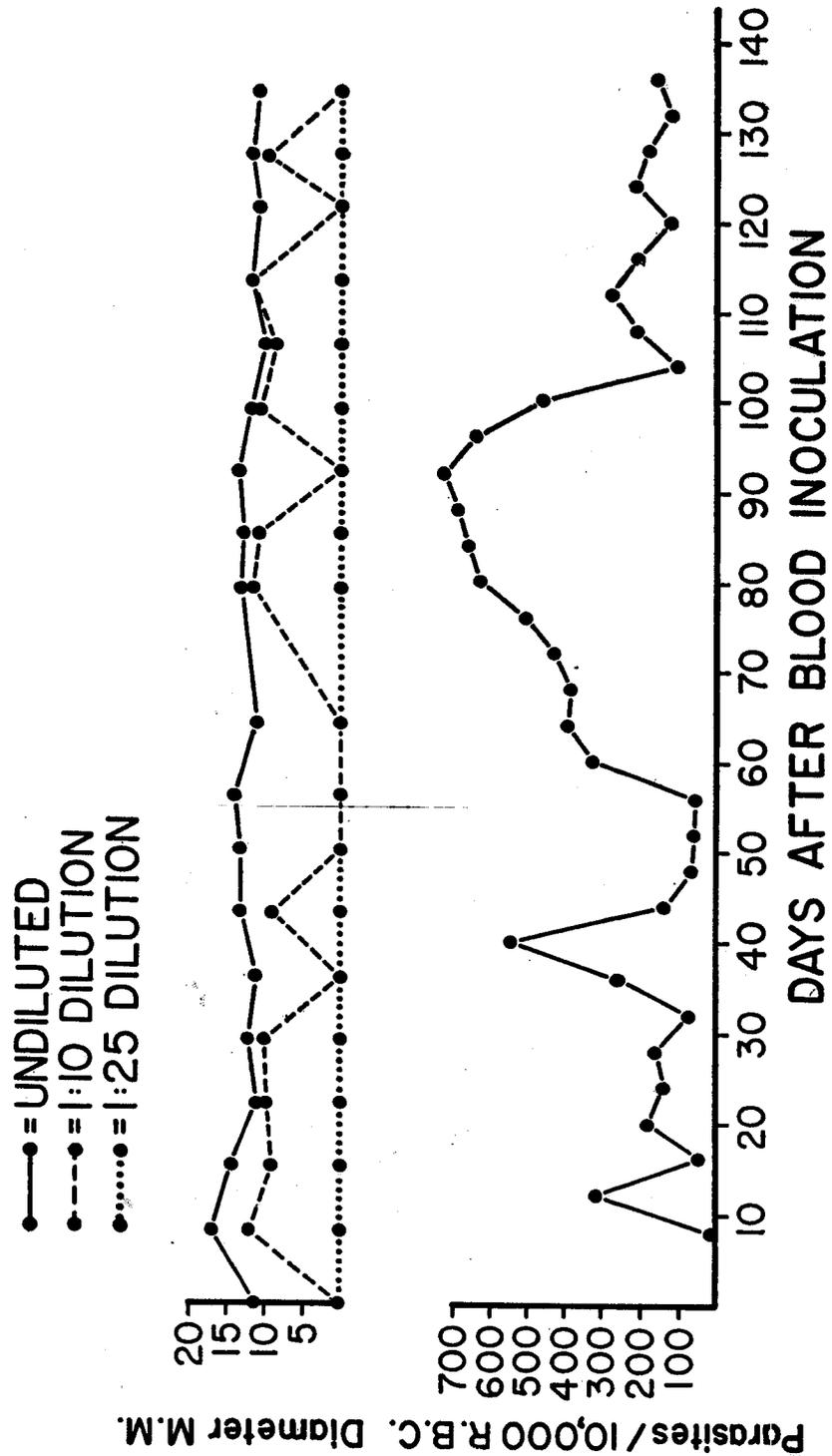


Fig 3. THE COURSE OF INFECTION AND SERUM VASCULAR-
PERMEABILITY-INCREASING ACTIVITY IN A P. JEFFEREYI INFECTED GIBBON

