

In vitro Gametogony of *Plasmodium falciparum*

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OBJECTIVE : To establish an *in vitro* technique for the maintenance and replication of sexual erythrocytic forms of *Plasmodium falciparum*.

BACKGROUND : Although the sexual forms of plasmodia do not cause clinical symptoms, their existence could prevent the eradication of malaria in areas endemic for this disease. Some antimalarials result in an elevation in gametocytes during treatment (1) and the gametocidal effectiveness of drugs therefore needs to be tested. An *in vitro* test system would greatly facilitate such studies. To this end earlier techniques were developed for the *in vitro* culture of erythrocytic asexual forms of *P. falciparum* parasites (2). The culture techniques also proved well suited for the study of antimalarials effectiveness against plasmodial forms by the parameters of morphology and radiotechnique (3). This report summarizes attempts to improve *in vitro* culture technique for the maintenance and replication of sexual forms of *Plasmodium falciparum*.

METHODS : Heparinized blood from malarious patients was twice washed in normal saline. After final centrifugation the packed cells were resuspended in medium T-199 and parasitemia adjusted to 0.5% by adding washed cross matched erythrocytes. Heat inactivated pooled AB serum was added to the cell suspension to a final concentration of 40% (v/v). The parasitized blood was incubated at 37°C with addition of media every 48 hours and fresh erythrocytes were added just prior to anticipated merozoite reinvasion. Cultures were monitored by Giemsa stained blood smear.

RESULTS : Blood specimens collected from patients at the Somdej Sri Racha Hospital, Cholburi were cultured and compared with those of earlier work. It was found that gametocytes developed only in cultures of specimens collected at times of low level malaria transmission. During these studies gametocyte replication was low and inconsistent. Among 30 cultures performed 1 culture indicated replicating gametocytes. This positive culture developed at 96 hours incubation. An attempt to infect mosquitos with the cultured gametocytes proved negative. In view of the paucity of new data from these studied it was decided to discontinue further work in this study area in favor of projects with higher priority. This is a final report.

REFERENCES :

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