

PRIMARY AND RELAPSE INFECTIONS OF PLASMODIUM CYNOMOLGI
IN ITS HOST MACACA SINICA SINICA

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Primary and relapse infections were studied in two naive monkeys in sporozoite-induced infections of an uncloned line of Plasmodium cynomolgi ceylonensis. Both monkeys developed a primary blood infection followed by 3 successive relapses (as characterised by a patent blood infection) which occurred 4 - 6 weeks apart during the course of 147 days. After each patent blood infection the monkeys were chloroquine-treated and screened continuously. In both animals, there was a steady and marked decrease in the peak parasitaemia attained by each successive relapse. There was also a corresponding decline in the direct infectivity of parasites to Anopheles tessellatus mosquitoes from the primary to the first relapse infection and subsequently with each successive relapse.

Parasites from each primary and relapse infection were studied by inoculation into naive hosts. These parasite populations were typed with respect to 1) internal parasite antigens defined by a panel of 13 anti P.cynomolgi monoclonal antibodies raised against asexual blood stages and 2) antigens expressed on the surface of schizont-infected erythrocytes detected by polyclonal immune monkey sera and hyper-immune rabbit sera. Antigenic differences could not be detected between parasites of primary and relapse infections. Neither was there evidence from infection and challenge studies, of differences in antigens relevant to protective anti-parasite immunity between primary and relapse infections; animals infected with parasites from a primary or relapse population were protected equally well from a challenge with homologous, as with heterologous parasites. It thus appears that primary and relapse infections originate from immunologically and genetically homogeneous parasites.