A-27 Protection against asexual blood stage malaria infection by vaccination with a MSP1 C-terminal construct in the *P cynomolgi*-toque monkey system

K L R L Perera[1], S M Handunnetti[1], S Longacre[2], K N Mendis[1]
([1]*Malaria Research Unit, Dept of Parasitology, Faculty of Medicine, Univ. of Colombo, Colombo 8,* [2]*Institut Pasteur, 75724 Paris, France*)

The major merozoite surface antigen-1 (MSP1) of malaria is a leading vaccine candidate for an asexual blood stage malaria vaccine. One of the greatest constraints facing the development of a malaria vaccine is the lack of suitable

animal models to evaluate protection prior to clinical testing. A natural host parasite system of Sri Lanka, analogous to *P.vivax* malaria in humans, namely, the *P.cynomolgi-Macaca sinica* (toque monkey) system was used to develop a MSP1-based vaccine against *P.vivax* malaria.

Protective efficacy of constructs based on baculovirus expressed C-terminal regions of the MSP1 of *P.cynomolgi* (analogous to the 19 and 42 kDa regions of the *P.falciparum* MSP1), p19 and p42 respectively were evaluated. Three groups of animals (of 3 each) were immunized with either p19, p42 or both, in 3 vaccinating doses delivered subcutaneously 4 weeks apart using complete/ incomplete Freunds adjuvant. On challenge with a blood infection of *P.cynomolgi*, all adjuvant control animals developed a blood infection of, on average, 44 days duration, and reaching peak parasitaemias of 0.4-0.6%.

In contrast, the 3 animals immunized with p19 developed either no parasitaemia at all (n=1) or a transient infection of 0.002% which was potent for 1 or 2 days (n=2). The animals in the other 2 groups, with the exception of one, were protected as well as the p19 group, indicating a highly potent protective immunity. This immunity was found to persist 6 months later, on re-challenge. The system is being used to develop and evaluate the protective efficacy of a *P.vivax* vaccine based on analogous constructs.