

SCHISTOSOMA MANSONI:
HUMORAL RESPONSES ASSOCIATED WITH
RE-INFECTION AFTER TREATMENT AND AFTER
PRIMING WITH INTERLEUKIN-12 IN BABOONS

BY

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ABSTRACT

People living in schistosomiasis endemic areas, constantly get re-infected with the disease after treatment and it is unknown what the effects of treatment are on the development of immune responses in such situations of parasite exposure and re-exposure. Also, the immunodulatory cytokine, Interleukin-12 (IL-12), derived from natural killer cells and B cells has been reported in mouse studies to influence the outcome of schistosomiasis in animals primed with it prior to infection. It exerts its role by modifying the balance of T cell sub-populations so that Th-1 cells predominate as determined by the presence of cytokines such as interferon gamma (INF- γ), interleukin-4 (IL-4) and interleukin-5 (IL-5). This study was divided into two parts. The first part, experiment 1, was designed to examine the effects of treatment and re-infection on antibody responses while the second part, experiment 2, was carried out to examine the influence of the immunodulatory molecule, IL-12 on cytokine (IL-4 and IL-5) production in baboon schistosomiasis.

For the first experiment, baboons were given a primary infection of *Schistosoma mansoni* cercariae (either single -SI or multiple -MI), treated with praziquantel and then given a single or multiple secondary infection. That is, SI/SI, SI/MI, MI/MI and MI/SI. For the second experiment, baboons were primed with ova alone, IL-12 + ova, IL-12 alone or with saline (control) and later infected with *S. mansoni* cercariae. The serum samples obtained at various time points during the course of the study were exposed to Enzyme Linked Immunosorbent Assays (ELISAs) and the absorbance readings (405nm) taken.

Results showed that single primary exposure to *S. mansoni* parasites in baboons, causes severe pathology than multiple primary exposure, while antibody levels after re-infection following treatment, show a modulation of the disease with relatively mild pathology irrespective of single or multiple re-infection doses. It was also observed that, there is no clear-cut difference between the role of IL-4 and IL-5 from that of IL-12 in baboon *S. mansoni* infections because they all play a role of healing, by modulating the pathology due to the disease.