

## NATIONAL INSTITUTE FOR MEDICAL RESEARCH

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MILL HILL,  
LONDON, N.W.7.

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Dear Professor Lederberg,

Thank you for your letter of May 8th and the reprint of your article from the Washington Post on the problems of schistosomiasis. I hope by now you have received a reprint of the paper on Host Antigens in Schistosomiasis; our letters must have crossed in the post.

At one time we became very excited about the possibility of vaccinating against cercariae with antigen from the snail hosts, but our excitement did not last long for our first and only experiment gave us no encouragement whatsoever. Since then, we have heard that Capron, in Lille, had carried out similar experiments with the same disappointing results. However, last summer I heard on the grape vine that Oliver-Gonzalez in Puerto Rico was having some success with this kind of experiment, but I have seen nothing yet in print.

Your other suggestion about developing attenuated strains of worms for vaccination purposes has also interested us. We know from our own work that unisexual infections induce a high degree of immunity but no pathogenic effects, <sup>as</sup> no eggs are produced. This approach is rather similar to your suggestion of developing strains of worms or inter-species hybrids which are deficient in egg production. Some work on hybrids and also on heterologous immunity (which is certainly effective under laboratory conditions) is going on at the London School of Hygiene and Tropical Medicine. I myself cannot find much enthusiasm for attenuated schistosome strains however, because of the immense practical difficulties of inoculating a live cercarial vaccine to an endemic population. (The shelf life of cercariae would vary between 5 and 10 hours - and how does one check for safety of the vaccine ?)

Our approach is to find out more about the antigens of the schistosome which are responsible for inducing protection and perhaps to search for a cross-reacting antigen or find a way of producing large quantities of the stuff. So little is known about these antigens that at the moment the prospects of a dead vaccine are not bright.

Many thanks indeed for the interest you have shown in our work.

Yours sincerely,

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