May 8, 1969

Dr. S. R. Smithers
National Institute for Medical Research
Mill Hill
London, N.W. 7, England

Dear Dr. Smithers:

Let me thank you rather tardily for the manuscripts that you sent me on the incorporation of host antigens into schistosome integument. I had not been aware of the early work on the subject, and was especially interested in your recent conclusions, thought, I have to admit, not from the point of view of any expectation of direct research effort on my own part.

You will note a couple of extrapolations of your findings in the accompanying article - I am sure you have been thinking along similar lines yourself.

There is, however, just one additional point to which I have noticed no reference in the literature. In principle, it should be possible to develop strains of the worms which are deficient in egg production in the human host. From your own findings, infection with such strains would result in immunity against super infection. This could then be an approach to vaccination. It is possibly not fundamentally very different from the use of animal-adapted species as has been mentioned. However, I would hope that someone might find it possible to undertake genetic studies of the worms more intensively than I have been able to find so far. It is even possible, for example, that interspecies hybrids which probably could be produced on a fairly large scale, if any of them are possible at all, might have exactly the property in question. If not, one might have to go into a more active breeding program, including the search for artificial mutants.

These directions would be exactly analogous to the development of attenuated strains of viruses for vaccination purposes. The social situation certainly suggests that some long acting prophylactic measure would be preferred.

If you can send me copies of the printed versions of your articles when they appear, I would be most grateful.

Sincerely yours,

Joshua Lederberg
Professor of Genetics

bc: Dr. Peter Medawar

S.R. SMITHERS