May 23, 1952

Dr. H. P. Treffers
Department of Microbiology
Yale University Medical School
New Haven, Connecticut

Dear Pete:

I have a report that someone in your laboratory has been able to confirm Hayes' experiment on the fertility of streptomycin-inactivated 58-161. Elise Cahn has been trying to do the same for some time, with almost completely negative results. Suspensions treated to the point of essentially complete inactivation (10^2 or less survivors per 10^9) have been completely infertile, although there was some productivity of less drastically treated cells. I was surprised at this, because for a long time I had done $S^r \times S^s$ crosses on sm-minimal agar, with fairly good yields in certain combinations. On the other hand, there was probably little prompt bactericide. I haven't done the inactivation experiments myself, as yet, and so won't take responsibility for them, but they look to have been well designed. Perhaps we are missing some point of technique. If so, it would be a great help to us if we could have the details of your confirmation. I have been in close touch with Hayes, but this hasn't helped to clear up the possible discrepancy.

Do you think that under the right conditions, cells might be stopped from further growth by the persistence of streptomycin, without any fundamentally irreversible change? I suppose there's no way to answer this without a reagent comparable to BAL for metal-poisoning. I don't see the necessity for any drastic reinterpretation of genetic recombination, whatever the outcome of the experiment.

We haven't done anything at all with the streptomycin-resistance-mutation regulator since our previous correspondence. To some extent, we've been waiting to hear from you. Have you had occasion to prepare the report that you mentioned in your last letter?

Have you ever looked into streptothricin resistance? I originally thought it was always associated with streptomycin resistance, but in K-12 this is true only at lower concentrations. For higher levels of resistance, I suspect a multi-step situation, independent of S^r. But we're not deeply interested in this, and I am only concerned with finding another selective agent as easy to manage as streptomycin.

Sincerely,

Joshua Lederberg

minder: 9/23/52