UNIVERSITY OF CALIFORNIA

DEPARTMENT OF BACTERIOLOGY

Address Reply to:
NAVAL BIOLOGICAL LABORATORY
NAVAL SUPPLY CENTER
OAKLAND 4, CALIFORNIA

23 April 1951

Dear Joshua,

Some results of recent work may be worth mentioning. As usual, good old security makes me ask that you not discuss the work or the organism.

I have been working on streptomycin resistance since this antibiotic is the ne plus ultra for treatment. It is surely the miracle drug for the disease. The following data are extracted from results for a paper. The L&D methods were used for calculating mutation rates.

48 hrs' incub: both methods gave essentially similar results: $0.6\text{-}2.1 \times 10^{-11}$
72 hrs' incub: both methods gave essentially the same results: $0.2\text{-}.07 \times 10^{-11}$.

The 72 hrs' incubation before plating on the streptomycin medium yielded consistently lower values so that it would appear the longer incubation yielded greated viable counts but essentially no greater number of mutants.

I am testing the 2 premises involved in the formulae for mutation rates. One has been finished: mutants and non-mutants grow and die at similar rates. The calculations as well as design of experiment wasetaken from the Newcombe and Hawirko paper. The following data are expressed in their form:

initial inoculum contained 2.0×10^4/ml sensitive cells and 2.5×10^4/ml resistant cells. After 24 hrs'incubation, there were 6.0×10^7/ml sensitive cells and 7.0×10^7/ml resistant cells; after 5 days' incubation, there were 3.0×10^8/ml sensitive cells and 1.1×10^8/ml resistant cells. It appears that there is a selection against resistant cells.

In checking the correlation between resistance and virulence, a virulent strain was studied. To date, it appears that among resistant colonies, there may be both virulent and avirulent colonies. We are getting a reasonable sample. Therapy is being checked against resistant, virulent clones.

I have finally convinced these rut-ridden people that I should go to the microbial genetics course given at Cold Spring Harbor this summer. So, that will give me plenty of chance to get the techniques and methodology. I plan to have at least 1 full time and 1 part time helper assigned to me on my return. One more species of the pathogens will be added to my project. This one, perhaps K. pneumoniae, should parallel the E. coli work.

My best to your wife. Sincerely -
Ed

Would you check the paper after it's cleared and before submission to a journal?