

UNIVERSITY of WASHINGTON
SCHOOL OF MEDICINE
DEPARTMENT OF MICROBIOLOGY
SEATTLE 5

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Dr. Joshua Lederberg
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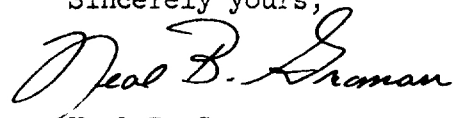
Dear Doctor Lederberg:

During the past year I have been engaged in studying the phenomenon described by Dr. V. J. Freeman concerning the isolation of toxigenic C. diphtheriae from the phage-resistant growth of a non-toxigenic strain. Sufficient quantitative data has been collected to make a theory of induced change the only convincing hypothesis and consequently to rule out the possibility of mutant selection by phage. As Freeman reported the isolated toxigenic strains are always newly lysogenic, a fact which was immediately suggestive of a possible role for phage if the change were indeed induced. Other evidence which we have collected while not unequivocal is also suggestive of a role for phage.

Since it appears that the phenomenon is conceivably related to transduction and possibly identical in its basic nature, I am taking the liberty of writing to you. I have read the work which you and Dr. Zinder recently published with great interest and from the data gathered to date in my laboratory see two major points of difference in the C. diphtheriae and Salmonella systems. First, toxigenicity is induced in a relatively high percentage of the non-toxigenic population, some 0.1%-7.7% having been converted to toxigenicity after a 20-30 minute exposure to cell free filtrates containing phage. Second, on the basis of some current work it appears that the agent inducing toxin production is produced spontaneously by the converted toxigenic-lysogenic strain. Both of these differences could of course be quantitative rather than qualitative in nature and the work currently underway is designed to establish the similarity or dissimilarity of the two systems.

Rather than proceed with a more detailed account of the work at this time it seems best to inquire first whether you are interested in an exchange of information on this subject. Both Dr. Roman and Dr. Delbruck have suggested a possible community of interest, and I shall be happy to do what I can to foster it.

Sincerely yours,



Neal B. Groman
Instructor

NBG:dlc