

UNIVERSITY of PENNSYLVANIA

PHILADELPHIA 4

The School of Medicine

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DEPARTMENT OF MICROBIOLOGY

Dear Dr. Lederberg,

It is my understanding that a single locus on the chromosome(s) of K12 has been found to be responsible for the production of lambda. This site presumably controls the maintenance of lambda rather than its initiation, analagous to the situation in P. aurelia for kappa, since the indicator strain which we are using (W1485) is able to become lysogenic itself when exposed to lambda (concentrate made from irradiated spread plates of K12) tho in the absence of added lambda it produces no phage, at least none that we can detect.

According to Lieb and others, several factors control the degree of lysophoresis (ability to become lysogenic) of otherwise sensitive strains (age of culture, temperature, nutrients, etc.). However, I have been unable to find any conditions which would enable a large proportion of W1485 to become lysed by lambda; at least 95% of the cells, even under optimal conditions for the lytic progress of infection, become resistant to lambda (most of these, at least, are lysogenic).

Thus, it would be a great advantage for cytological studies to have a mutant of K12 which is sensitive to lambda and which is unable to resist through lysophoretic action. Such a mutant would differ in its nuclear genotype; it would be difficult to isolate because of the absence of appropriate selective mechanisms other than, possibly, radiation resistance. However, I am hoping that you have such a strain and would be willing to send a culture to this department, to aid our cytological work and the physiological studies of Dr. Gots. This strain would probably serve as a better assay organism than the W1485 we are now using. In our cytology, we are attempting to separate the action of the ultraviolet and that of phage maturation itself; several bits of evidence point toward the possibility of successful studies in this respect.

Thank you, very truly,
Philip E. Hartman