

December 25, 1952

Dear Aaron:

Thanks very much for irradiating the phage samples. I may have used poor judgment in choosing a lysate, as this one proved not to be of as high a titre as I expected. However, the results were clearcut enough, if not startling except in a negative way. 200,000 r reduced the plaque titre to about 10%, the FA to about 30%. 100,000 r was intermediate--there may have been a slight increase in FA, in fact, but the absolute level was too low for accurate titration. I would conclude only that X-rays are not very promising in view of the tremendous doses that would be needed. Esther's results are somewhat more promising, and she may be in the market for further treatments after this experiment is analysed. 200,000r was not unhappy for her.

As to your antiserum suggestion, antibody against the bacterial somatic antigen apparently does not inhibit the FA. Some more should be done on this, in a sense to look for a serological phenotype of the phage, but the outlook is not very promising. All in all, it looks as if FA = phage throughout its extracellular life.

Something new that's just come up is a lytic mutant of the phage, PLT22. "22V" gives clear plaques and lyses LT-2 to leave very few, non-lysogenic survivors, but LT-2(22), i.e. lysogenic for the temperate phage, are resistant to 22V. Thus, if 10^8 22 is added to 10^9 sensitive bacteria, followed after ten minutes by 22V, one gets nearly 10^8 survivors. This is rather like Burnet & Lush, and should be very helpful in correlating lysogenization-transduction. What is your prediction on the outcome of infecting bacteria with UV-inactivated 22, followed by 22V?

Yours sincerely,*

Joshua Lederberg

*and best wishes for the season and new year.