July 15 1946.

Dear Dr. Luria-

E. coli K-12 should be on its way in a day or two; I've had to recover it from our lyophilized stocks. While on the subject, can you tell me what is the best way to put aside a phage suspension for preservation. We tried to lyophil T-1 in milk without success. Can it be dried without inactivation?

I am preparing to isolate multiple biochemical mutants in B/r per our conversation last week. However, I must confess that I am a little confused about the problem we discussed. As I see it, the inheritance of resistance can be studied by using biochemical mutants only as the <u>selective agent</u> for the occurrence of possible recombinations. The importance of establishing the separability of the mutations in complex resistance (B/1,6 as compared with B/1/6) is I think evident. It could be accomplished in two ways:

1. A- X B-/1,6 and isolate from the A+B+types A+B+/1 and A+B+/6
2. A-/1 X B-/1,6 and <u>fail</u> to isolate A+B+ (susceptible), isolate A+B+/1, which would support the allelism of the /1 in the A- and the B- stocks here mentioned.

Conceivably one could isolate using multiple resistance as the selective agent, but this is obviously confused by the occurrence of complex mutations for phage resistance. Recombination of nutritional requirements should be demonstrable using them alone as selectors, and only if attempts to obtain them in this way fail would I suggest that it would be worthwhile to use the phage selectors. I recall that you brought up another problem, but I would appreciate it very much if you could summarize it for me.

Sincerely yours,

Joshua Lederberg