June 23, 1959

Dr. J. Monod
Institut Pasteur
25 Rue du Dr. Roux
Paris XV, France

Dear Jacques:

This is the current status of work on the Pl-lac here:

1) I have made both Shigella heterogenote and W4032 (abbreviated 32) heterogenote for Pl-lac $Z^+ i^-$. I shall send 2 strains of the latter and relative lysates. The symbols are 32 - 13 - 1 and 32 - 14 - 3. These are the type that produces no phage and requires help to release it. I do not know whether it behaves like the Pl-lac from $5d^+$ in eliciting enzyme formation.

2) I have prepared 2.340 (Pl), 3.050 (Pl), and 32 (Pl). I shall send these with the others. These should be useful as recipient, to be compared with the nonlysogenic recipients. I think it's essential to compare more than one pair of strains, lysogenic and not lysogenic, for enzyme kinetics. Especially, I think the 32 and 32 (Pl) pair should be tested, since here there is probably no homologous region in the chromosome, and one should see if the latter plays any role (see transduction into Sh). Remember that 3.050 is λ sensitive and that there is λ in all lysates from 32 and its derivatives.

3) I have done one experiment on growth of transduced cells in modified synthetic medium (plus some) with water, IPTG, or tryptone lactose. There was no difference in growth and no death. This makes me hesitant about the interpretation of the Paris experiments. Also, I find it difficult to explain the continued production of enzyme at a high linear rate by a few transduced cells. We have indications that all lysates Pl-lac may contain many more particles, which fail to transduce by various reasons. Experiments on kinetics using several pairs of recipients, with and without (Pl), are usually needed.

4) Assuming that the transduced cells form lots of enzyme, then die, what would you expect with a $Z^+ i^-$ phage in a $Z^- i^-$ recipient? Also, with a $Z^+ i^+$ donor and a $Z^- i^-$ recipient (which has constitutive permease) why should lactose be a bad inducer?

I am going to Cold Spring Harbor in a few days and will summarize there what we know about all types of Pl-lac and their behavior in all types of recipients. Then we can plan critical experiments.

Best regards and au revoir,

Sincerely,

S. E. Luria

SEL/nder