Liege, May 24th, 1951.

Dr J.LEDERBERG
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Dear Doctor Lederberg,

Thank you very much for your letter dated May 10.1951. There are certainly very intimate relationships between phages and colicins, but I do not think, at least at the present time, that colicins are incomplete or fragmented phages. Further work on the production of colicin M by mutants of E.coli V resistant to phage T.1 indicates that this is a spontaneous mutation and that the mutant producing colicin M is merely selected by T.1. Such mutants are also selected when colicin C is acting on E.coli V because there is a cross-resistance to colicin C and phage T.1 as well as the colicin M. For example your strain W.1177 which is resistant to T.1 is also resistant to colicin C whereas the mother strain K 12 is susceptible. Non colicin-producing mutants of V are not known so that it is impossible to determine if the prior presence of V colicin is required for M. colicin formation with T.1.

As you pointed out resistance to T.1 and T.7 is usually independant, at least when tested with E.coli B. But with other susceptible strains, and among them E.coli V, resistant mutants selected by any one of these phages are also resistant to the 2 others. There is no difference in the activities of V/1 and V/7 on B/1,5 and B/7 because they act only through their colicin V as B as well as B/1,5 and B/7 are not susceptible to colicin M.

As regard the translation of "un mutant V/5 lysogène" you are correct in thinking that this is not a true lysogenic strain but a culture carrying residual T.5.

I just began some work on recombination in E.coli K 12. Your 2 mutants 58.161 and W.1177 are most convenient to handle. A mutant resistant to the 8 colicins V, B, D, E, G, I, K and S.1 was derived in several steps from 58.161 and crossed over with W.1177. A wide variety of recombinants were obtained differing both in their resistance to the different colicins as well as in their biochemical

..... properties. If you have any difficulty in obtaining mutants resistant to the colicins I shall be glad to send you some.

As you kindly permitted further distribution, strains K.12, 58.161 and W.1177 were sent to Prof. WINKLER of Utrecht (Netherland) at his request.

I am very sincerely yours,

Dr.P.FREDERICQ