

UNIVERSITY OF LONDON



POSTGRADUATE MEDICAL SCHOOL  
OF LONDON

Telegrams  
POSTGRADMED CHISK LONDON  
Telephone  
SHEpherds Bush 1260 (4 lines)

Department of Bacteriology.

DUCANE ROAD  
LONDON, W.12  
4 August, 1954.

Dear Joshua,

I am writing to ask you whether you can let me have some more detailed information about the products of segregation of your micromanipulated zygotes. What I would like to know, in particular, is whether you have isolated 1) any recombinant from those zygotes which also segregated the Hfr parental type; 2) any reciprocal recombinants from a single zygote. My main reason for wanting this information is as a basis to formulating a plan of work from September on. Since my return from the U.S. I have done no experimental work at all, due to unforeseen shortages of staff. As from the end of this month I shall have plenty of time once again, and also a good Ph.D. student to play with and I would like to pick up the threads in their present position. I don't know whether you have yet heard of the recent experiments of Wollman & Jacob, using my Hfr strain, which will shortly be appearing in the Comptes Rendus. They have found that when Hfr( $\lambda$ ) & F-(o) are aerated in broth for a short time and then plated on a sensitive strain, free  $\lambda$  having been removed by washing & treatment with antiserum and the Hfr parent rendered inactive with streptomycin, one infectious centre is found for about every two Hfr parental cells initially present. Since the F-(o) strain was also  $\lambda_2$ , this means that  $\lambda$ -prophage is transferred to the "zygote" with a very high (if not 100%) frequency and then undergoes spontaneous (erotic!) induction. Moreover, 1) in the cross Hfr( $\lambda$ ) x F-( $\lambda$ -defective),  $\lambda$ -prophage is transferred to about 50% of the progeny; 2) in the cross Hfr(o) x F-(o), the Hfr Gal<sub>4</sub> marker is found in a high proportion of recombinants. Incidentally, they have confirmed my finding that, with this Hfr strain, those markers which do not lie on the (TL)-Lac linkage group are not inherited with high frequency. They postulate that  $\lambda$  & Gal<sub>4</sub> actually lie here but distal to Lac - i.e. obviously linked to (TL). They also suggest that spontaneous inductions of this kind may account for the eliminations but this does not seem to make sense to me. I am not yet happy, though longing to be convinced, about the question of partial or complete zygotes. Could your isolations of the Hfr parent from single "zygotes" not be explained by the frequent formation of unstable heterokaryons, between the complete nuclei of which partial "true" zygotes were sometimes formed? Hence my query as to whether you had isolated Hfr parental + recombinant from the same "zygote" cell. From Rowley's work (shortly coming out in the J.G.M?) I now think there is good evidence for only one chromosome.

I feel another year should see the genetical part of the K-12 problem well on the way to solution. I am rather tired of it. Approaches to the problems associated with the nature of "F" are difficult to visualise, but, I feel, this problem is of more fundamental importance than the genetics per se.

We have had virtually no summer weather at all this year. I hope you are bearing up in the hot weather at Madison. Or have you gone to Wood's Hole or some other pleasant spot? I am hoping that I may see Luca Cavalli on his way to visit you.

My best wishes to Esther and yourself. I hope we meet again sometime under more leisurely conditions. Are you never coming to Europe?

Yours,

*Bill.*

← First fold here →



Dr. Joshua Lederberg,  
Department of Genetics,  
University of Wisconsin,  
MADISON,  
WISCONSIN,  
U.S.A.

← Second fold here →

Sender's name and address

MADISON  
Postgraduate Medical School,  
1954  
Dyckane Road, London W.12.  
England.

IF ANYTHING IS ENCLOSED THIS LETTER  
MAY BE SENT BY ORDINARY MAIL