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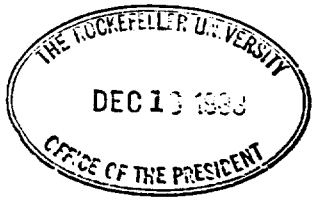


Professor dr Joshua Lederberg
President of the Rockefeller University
New York, N.Y. 10021

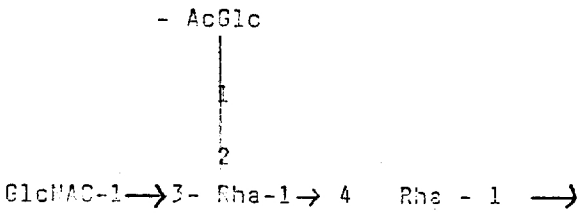
1230 York Avenue

Dear Professor Lederberg,

Many thanks to you for your kind letter of 26 July that arrived after my return from my holidays trips to Conferences in Perugia and Helsinki.

From the information you kindly provided me I suppose that the strains 679-680 had to carry F plasmid at the begining, and during the mutagenisation carried out to obtain $Thr^{-}Leu^{-}$ auxotrophy, the strain has been cured of it.

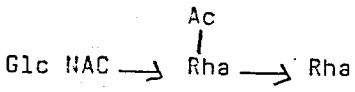
What concerns my works on Shigella the loss of type antigen I with simultaneous acquissition of type antigen III could be concerned with lisogenic conversion but in this sense that a phage when integrated in chromosome, is coding for UDP-glucose transferrase. This enzyme is responsible for presence acetylated glucose in secondery side-chain in O-specific polisaccharide:



(Romanowska, Lachowicz FEBS Letters 8 (5): 293-296 (1970).

The site of the phage integration have to be near region homologous to lactose operon of E.coli as Lac^+ recombinants from crosses E.coli HfrH x S.flexneri 1b are deprived of agglutinability in type antigen I-specific serum but are agglutinated by type antigen III specific serum (Luria and Burrous J. Bact. 74:461 (1957), Lachowicz, Mulczyk, Malesz:Arch.Immunol. Ther. Expl. 14:405,(1966).

The of integration or state of the prophage has to change spontaneusly resulting in apparition in 1b serotype cells population, of mutant with type antigen III which O specific polissacharide has no longer acetylated glucose in secondary side chain:



The same situation is in Lac^+ recombinants.
This antigenic mutants arrise spontaneously with the mutation rate of 10^{-7} order and,as I mentioned previously,could be selected directly or indirectly by you replica plate technique using another phage (called F2) virulent for cells with type antigen I but unvirulent to those with type antigen III. (Lachowicz T.M., Mulczyk M.: Arch. Immunol., Terapii Dośw. 8: 437 (1960).

So,the question is what is the state of this phage in the mutant with antigen formula III; 3, 4,6 arrising in population of the serotype 1b with antigenic formula I; 3,4,6?
The antigenic mutant liberate spontaneously the phage X and this phage kils the cells of original 1b form. I am sending you by the same mail some reprints in which this phenomenon has been described. The plasmid hypothesis advanced in one of it must be a little modified in the light of further experiments.

As to the problem of selection of this antigenic mutant in mice we actually obtained the results pointing to the serum complement as the selective factor.
The complement kils selectively cells with type antigen I thus permmiting to master the environement by mutant with type antigen III.
The papar on this subject is actually in preparation to publication.

With professor Kunicki-Goldfinger I am in friendly relation. I have the honor to be his student. He has been promotor of my doctor work , reviover of my habilitation thesis and proposal of nomination on professor post .
Actually he is on pension but still very active in phylosophy of nature.

By the way I am sending you professor my best season greeting of Happy New Year

Yours sincerely

T.M.Lachowicz,