UNIVERSITY OF CAMBRIDGE
DEPARTMENT OF GENETICS

PROFESSOR R. A. FISHER, Sc.D., F.R.S.
MISS M. F. I. SPEYER, B.Sc.
Research Assistant and Secretary

WHITTINGEHAME LODGE
44 STOREY'S WAY
CAMBRIDGE
Tel. 55822

23/4/49

Dear Dr. Lederberg,

Thank you very much for your letter and your reprints. Unfortunately ,your cultures have not come : from the description on the content on the envelope containing the reprints, I take it that the cultures were also there. But there were two large holes in the envelope, and the cultures must have eloped through these during the travel. Would it be a great trouble to you to send them again ? All of the strains you had sent me were useful to me.

Your sending of EMB powder was providential, because it convinced me excellently of how good a medium it is and how useful it may be for my purposes. All successive trials,however, to reproduce this medium with my ingredients failed, I believe,because my methylene blue does not work. I am now waiting for the Difco products ,which I have ordered because they should be more reliable,being made on purpose for EMB agar.

My work since I last wrote you was polarised by an interesting finding, of a mutant strain giving a very high frequency of recombination. Making the crosses in your usual way , it gives a frequency of recombination higher than 10^{-2}. In special conditions I could obtain up to 60 % of recombinants,in a cross comparable to that of 58-161 x W 583 in the presence of aneurin.

The analysis of crossing-over frequencies ,however, shows significant discrepancies in regard of those obtained with the usual strains, though I hope to be able to explain these discrepancies as due to the formation of mixed prototroph colonies, as a consequence of multiple matings within each colony.

Using sparingly the EMB powder you sent me, I could test a 200 protoxtrpphs obtained in the cross between your strains W 583 and 58-161, for Lactose fermentation, virus resistance , B_1 independence ,and I got results entirely comparable to those you give ,for a similar cross,in your 1947 paper on Genetics. This surprised me a little,after all, because you wrote me that in the W 583 strain the Gal - mutation is epistatic to Lac+, so I should have obtained less Lac + than expected. But perhaps the linkage between Gal and Lac is

very close. Unfortunately for all work on fermentation I must wait until I can reproduce satisfactorily the EMB agar.

I have hopes that the new strain, of which I told you above, may help to settle many questions, like that of postzygotic reduction etc., if, as I am trying to do, I shall be able to follow the mating at the microscope. I can already obtain recombination using one marker only on each side, instead of the usual two. I am also trying, in view of this, to select with phage.

Thank you very much for all your suggestions, which spare me a lot of work. I shall let you know about further developments, as soon as there will be any.

Yours very sincerely Luigi Cavalli

Replied c query ~~same date~~. 4/28.
Sent MB; Eosin Y.