

June 2, 1948.

Prof. P. R. Burkholder,
Osborn Botanical Laboratory,
Yale University,
New Haven, Connecticut.

Dear Burkholder,

A shaking machine having finally arrived, I've first gotten around to a few experiments with some of the *E. subtilis* mutants you were kind enough to send me. Strains 16 and 164x can be plated very nicely on minimal agar: they show little enough "background" or residual growth that prototroph colonies can be distinguished very readily. 164x seems quite stable (to reversion), and 16 shows only occasional reversions. There seem to be many more prototrophs in mixtures of the two, but this may be due entirely to the increased syntrophic background growth, which is quite apparent, and which would yield a larger population in which reversions could occur.

At this point (which is about two years ago in full cycle), some additional genetic markers are needed. I am asking about for *subtilis* phages that might be used to select for resistant mutants. On the other hand, additional nutritional markers would serve just as well. My memory is rather discouraging on this point, but may I ask whether you had accumulated any multiple mutants such as could be used in tests for recombination in *E. subtilis*?

The physiological work on lactose-fermenting mutants of coli that I referred to during my visit is going ahead rather slowly due to equipment delays, which in part accounts for this digression. However, we have gotten well into the production of mutants in *Salmonella*, and hope before too long to have completed some critical tests for genetic exchange in that group.

With best regards,

Yours sincerely,

Joshua Lederberg.