

December 7, 1949.

Dr. B. D. Davis,  
Tbc Research Lab.,  
411 E. 69 St.,  
New York 21, N.Y.

Dear Bernie:

Thanks for the tip on the adenine-thiamine requirement of the "cozymase" mutants. Esther checked her strain immediately, and sure enough, it was so! It's a queer one! We hope you are going to follow it up. Cells grown on deficient media (adenine deficient?) seem to be especially sluggish in fermentation. There might be more to this than meets the eye.

I am a little relieved to find that we can occasionally agree on an experimental result, in particular that plate recombination will take place. If you do have a minimal medium which does not support recombination, although growth is unhindered, it will be very important. I have a hunch that Mg is involved; did your earlier minimal agar have a lower level of Mg than the present?

We have tried your new minimal medium, and it works quite well. I am a little afraid of the high buffer concentration, however, because I had found that K-12 grown on complete media, would lyse appreciable if stored in M/15 - M/10 phosphate buffer, but not in water. However, this might not be so deleterious to cells continuously grown and "adapted" to high ionic strength. For spectacular growth, however, aeration or shaking, even in the less well-worked out minimal media, does far better than this.

Have you tested your biotin mutants in the minimal medium plus methionine? Lardy and one of his students here found ~~methionine~~ and other amino acids to have marked sparing effects. With /meth./ some combinations, bugs could be grown without biotin at all. I agree with you quite thoroughly on the unsuitability of B as a marker. However, I have never had any trouble with reversions of M (have you ever found any— I couldn't even when I needed them), and so have never worried much about them. Why not just use some other doubles, instead of piling up markers in a perhaps fundamentally ill-chosen stock? e.g., W-758 W-826, W-828, etc. These all work quite well in crosses with TLB<sub>1</sub>.

Sincerely,

Joshua Lederberg