

May 6, 1949.

Dear Frank,

Thanks very much for the generous samples of lactobionate.

You certainly hit the nail right on the head when you pointed out the difficulty of excluding lactose as the evocator of the adaptive response. Lactose is very active: M/5000 still gives nearly optimal response, and it wouldn't take a great deal of contamination of lactobionate to approach this concentration in the M/100 solutions I had been using. The more purified preps. are much less active, but there is still some residual activity which may or may not be due to lactose, perhaps potentiated by lactobionate. But it will take a good deal more study to settle the question entirely. I think that I should be able to eliminate lactose entirely, for all practical purposes, by differential fermentation. I'll let you know if anything new pops up.

Although this prospect has largely fizzled, there is a confirmed differential in the activity of lactose and butyl galactoside. In the Lac₁- mutants, lactose evokes a tenfold lower level of lactase than does the galactoside. Thus, cells grown on galactoside ferment lactose very much more rapidly than those grown on lactose itself.

Sincerely,

Joshua Lederberg