

October 6, 1949.

Dr. Sol Spiegelman,
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Urbana, Illinois.

Dear Sol:

Attached is the method used by M. Seidman and K.P. Link to prepare "onpg". They expect to publish it sometime.

I think that I have the Deere story on coli lactase straightened out. Using benzene or thymol to "activate" the cells, one can demonstrate as much as thirty times as much enzyme activity as is seen in the intact cells. Deere was unable to assay his adapted, Lac⁻ cells to see whether they could be activated, and apparently assumed that they would not be. Whence, he presumed that adaptation was the parallel of the "activation." In fact, there is some small residual lactase activity in unadapted cells, and in some Lac⁻ mutants. This can be magnified by the benzene or thymol treatment to an apparent level nearly as much as that of the intact, adapted cells. K-12 grown on melitose has 10% the activity it has when grown on galactose; on glucose, the figure is variable, about 1/2 - 2%, but there is always a trace. The extent of benzene or thymol activation is uniform, running about 20-30x. Thymol acts more promptly, but after a few hours, the activity disappears. Benzene works more slowly, but the activity is maintained. Phosphate buffer (M/10 or M/20) also activates, but usually not so drastically. Intense drying is also optimally effective.

I think one has to look very quizzically at enzyme determinations on intact cells.

How are Mike and Rita?

Sincerely,

Joshua Lederberg.