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RESEARCH DEPARTMENT

December 20, 1949

Dr. Joshua Lederberg
Department of Genetics
University of Wisconsin
Madison, Wisconsin

Dear Josh:

I enjoyed your remarks in the Ann. Rev. of Microbiology, page 9, on adaptive enzyme formation and the one-to-one theory. For the following reason:--

We've been using pairs of adapted and unadapted E. coli mutants for the specific estimation (fermentative) of ca 200 $\gamma$ of gluconate, D-arabinose, and D-ribose. The parent strain B will use gluconate adaptively but not D-arabinose and D-ribose. An arabinose mutant was selected on arabinose as sole carbon source. It then used D-arabinose adaptively but not ribose adaptively or otherwise, i. e. when adapted to arabinose.

However, a ribose mutant was selected on ribose as sole carbon source. It then used ribose adaptively and when adapted to ribose did not ferment arabinose. It also used arabinose adaptively (although never previously coming in contact with arabinose and being derived from B, an arabinose-less strain) and when adapted to arabinose did not ferment ribose.

This is clearly a demonstration that ~~that~~ genetic change can affect any one of at least two steps in the adaptation mechanism. I'll let Jacques know about this one of these days.

I also seem to have a case of adaptation to gluconate in B after infection with T2 or irradiated T2.

Best regards.

Sincerely yours,

Seymour

SC/hl

Seymour Cohen