

February 19, 1948

Dear Ed--

Thanks very much for sending me your listing of lyophilized W- coli cultures. It checks all right with mine, but I wasn't too confident of it. The confusion about W-169 and W-172 arises because I was growing those stocks at the same time I was preparing cultures to send you, Monod, and Kauffmann. Monod now has Y-40, Y-53, 58-161, Y87, Y-10, K-12 and several W-'s. Kauffmann has K-12, Y40 and Y53, on which I have asked him to do a serological typing (v. his review in the Dec? J. Immunol.) In addition, W.S.Stone (Texas) has asked for and been sent Y53, Y40, Y87 and Y-10. If you don't have W-169 and W-172, they were probably sent to Monod by mistake, and I shall have to write him. They are interesting because on first test 169 was a non-fermenting mutant (generally) while 172 was gluconic-, maltose- and lactose-.

I finally found that vial of DRNase at the bottom of a pile of junk and am sending same. I haven't done any further transform expts. waiting to hear some details (in particular which mutant you used) about your expts. with Beam. I think this is one case where duplication is more efficient than independence.

Dr. L.J. Cole, the retired chief of our department died Tuesday afternoon after a lingering illness. In every way this was his personal department until he retired, since he built it up almost singlehanded in the early days. You may have known him when you were here,

The count of Lac mutant types is now eight. Lac₁- is by all odds the most frequently occurring mutation for lactose-negativity, which accounts for the first two isolated (Y-87 and Y53) being the same. Most of the mutants are specific for b-galactosides, although Lac₁- is Lac- b-gal., except for a third allele in W-128 which is Lac-bgal.-. Some of the mutants are however non-specific, but with fantastic patterns of utilization. E.G. 172 (which was not yet analysed for single-gene-mutation). Further ex: 108 which is Glu-Gal/Lac-Mal-. In this stock you can get either reverse mutation to wild type, or as in W-117, mutation of a suppressor gene which makes it Glu/Gal/Mal-Lac-. In W-117, mutants can be found which are Lac/Mal-, but I don't know yet what gene mutates there. Here, I think it will be very difficult indeed to construct a system based on one ~~type~~ ^{type} lgene:l enzyme. Monod writes that he can isolate a lactase from *E. coli* M. which is a simple hydrolase. It is found only in lactose-adapted, lactose- cells. Another complex-phenotype (single-locus) mutant is W-145 which is Lac-Mal-Gna(gluconic)-Glu-. The other 6 are specific.

I've had some trouble keeping stocks because my refrigerator hasn't arrived yet, and my cold space is very limited. I am embarrassed, anyhow, to have to ask for W-42 and W-43 which have conked out on me. As an ~~skwx~~ alternative, perhaps it would be a good idea if you could send me one complete set of the lyophilized tubes of W-mutants which would leave you with two for security. Before too long, I hope to have a lyophil apparatus set up here, and the cold box is due any day now.

By the way, Lwoff will be coming to New York in March, as you undoubtedly have already heard. Something to do with lectures at N.Y.U.

Marge Reaume sent her bill, and should have her check by now. If you could have my bound copy sent to me here before I set out, it would help me considerably to prepare my "defense". It has been a long time since I've presented that stuff, and I must be somewhat rusty about it.

Are you interested at all in Wx Y-132? or can I go ahead and let Snell have it?

Stone sent me a manuscript a few days ago that described many of the selection experiments that they have had to do to prepare their case for the mutagenic effects of irradiated broth, and they do seem finally to have sewed it up. The effects of UV on broth are undoubtedly mediated by peroxide, since they can be duplicated with H_2O_2 and nullified by catalase. When I saw Stone at Chicago, he pretty well took back any claims they had previously made for the specific induction of mutations such as penicillin vs streptomycin resistance to which they referred cryptically in their first paper in PNAS. Wyss is apparently also doing transformation experiments (re drug resistance in coli) and Stone promises that I will be sent a summary in a few days.

My own work on lactose fermentation has gotten to the point that I scarcely know whether to continue. I am beginning to have the feeling that while we can examine the ultimate effects of a gene in terms of what enzymes may be produced, we are not necessarily any closer to seeing how a gene is working. The gene-enzyme relationship may be something very different from the direct template idea, for which there really is no conclusive evidence. In fact, in the pneumococcus case, recall that the "isolated" genes, in the form of TP showed no detectable serological relationship with the supposed immediate product: the specific carbohydrate. Urwin and some of his crew are going to try to do some similar experiments, looking for serologically detectable copies of various cellular antigens within the chromosomes of, e.g. bird erythrocytes, or bovine sperm. Much hangs on confirmation of Emerson's experiments, concerning which I, and a lot of other people, have, of course very grave doubts. Sometime, maybe, Irwin and I will try to go over it.

I have to send my manuscript of "Problems..." back to Darlington in a few days along with a statement of how many reprints should be ordered. Darlington simply states that the cost will be about 25% more than it would be in the US due to exchange differentials. I've put in so much time on it here that I propose to send it in as a joint contribution from OBL and Wis. Is this agreeable to you? You know how long it is: about 70 pages of typescript. Can you give me any notion of whether OBL would like to have copies, and how many, and whether any can or should be purchased on Childs Fund money. A lot of hitherto unpublished odds and ends are included for the support of which the Childs Fund will be acknowledged. As soon as feasible, I'll send you a copy of the revised manuscript.

Best regards,

Sincerely,

Justina