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10th December, 1954.

Dr. J. Lederberg,
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WISCONSIN - U.S.A.

Dear Josh and Esther,

I have been so terrifically busy during the last few weeks that I have not had time to buy conventional Xmas cards for friends abroad. Please accept this hurried note as a carrier of greetings from us to you.

We are continuing on with the yeast work and have been attempting to prepare auxotroph donor strains for restoration experiments. So far we have concentrated on WY25 (Ephrussi's normal) and have reached the following conclusions:

1. The mating type is A.
2. U.V. irradiation yields about 30% petites among the survivors and of these something less than 10% are auxotrophs.
3. Of the normal survivors noneare auxotrophic.
4. A preliminary conclusion from these irradiations is that it is impossible to produce an auxotrophic yeast which is not deficient in cytochromes. Or to put it another way all auxotrophs are petites, but not all petites are auxotrophs.

It is quite probable that our U.V. petites are segregational types (nuclear gene damage) and this we would like to prove by crossing with alpha vegetative petites. I was wondering whether you could send me by air,and charge to us the freight, some of Caroline Raut's haploids of known mating type so that we can extend these observations on petite induction by U.V. and their nature on a wide range of yeast. These findings you will appreciate tie up with my examination of the auxotrophs examined in Madison which were clearly either petites or partial petites. As far as I know neither Ephrussi nor anybody else has linked auxotrophy and petiteness and I thought we might clear up this unexpected observation while proceeding towards our main problem.

You will remember that in my letter to you of 15th July I did formulate a plan necessitating the use of marked donor cells.

In the light of the present information with U.V. this may have to be modified. We hope also to see the effect of X-ray and nitrogen mustard as inducers of petiteness and auxotrophie. Any comments you would like to make on these proposals and findings would be greatly appreciated.

With best wishes for Xmas and the New Year from Ellen and myself.

Yours,