December 13, 1951

Dr. Paul R. Burkholder
Yale University OBL
New Haven, Conn.

Dear Paul:

I would indeed appreciate having the auxotroph mutants of S. griseus that you offered in your letter. The double mutant would be most useful, but a few well-defined monoauxotrophs with a low residual growth would be welcome as well. Might I also have the wild type strain, and its designation, from which these mutants were isolated?

In the last few weeks, I have managed to isolate a few mutants from UV-treated spore suspensions, tested by replica-plating. Albout but two or three showed residual growth, or were extraordinarily sensitive to syntrophic stimulation. Some combinations have behaved in such a way that I am convinced that heterokaryosis occurs (not too readily), and there is a strong indication of further genetic interaction, presumably recombination. This work was all done with a streptomycin-sensitive S. griseus. I think it would be worthwhile to extend the tests to other "species". Do such forms as S. lavendulae, S. coelicolor, S. venezuelae and S. aureofaciens grow as well on synthetic medium as does S. griseus? If you think they would be technically suitable, could you send me authentic cultures of them?

Thanks for recalling Couch's sporangial actinomycete— I'll look intomit.

I wish I could say that silica gel was a reliable method for preservation of cultures.It ought tomwork very well if the optimal conditions are found. The two obvious variables are the proportion of water to gel, and the type of suspending fluid. We have gotten encouraging results to date by simply adding about .04 ml of bacterial suspension in peptone to 1 gm silica gel (in a tube previously baked to sterilize and dehydrate). The tube is then sealed off directly in air. Some more work will be needed to justify and standardize the method. The silica gel is Grade 40, 6-16 mesh, Davison Co., Baltimore.

Yours sincerely,

Joshua Lederberg