

December 26, 1951

Dr. G. Fraenkel  
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Urbana, Illinois

Dear Dr. Fraenkel:

I am writing to ask your help in compiling an up-to-date bibliography of research on the microsymbionts of insects, with particular reference to their hereditary transmission, and their function as determined by "disinfection" and substitution experiments.

As far as I can determine, the older literature is covered rather well by Steinhaus' books on Insect Microbiology and Insect Pathology, and by Wigglesworth's revision of his Physiology. I note, however, the important paper by Pant and yourself on the cultivation, cross-substitution and reimplantation of "*S. anobii*" (Science, Oct. 27, 1950), and surmise that the field is currently very active. I would appreciate it very much if you could guide me to recent or review literature not given in the cited references, and especially to the fuller account promised in the 1950 "Science" paper. If reprints of your contributions in this aspect of nutritional research are available, I should be grateful for them.

Have any attempts been made to reimplant yeasts other than "*S. anobii*" in your aposymbiotic beetles?

With reference to our correspondence of November 9 and 11, 1950, Dr. B. D. Davis has succeeded in characterizing all of the unidentified *E. coli* mutants that we had so far accumulated. Some of them were bizarre combinations of requirements, sometimes accompanied by unsuspected inhibitions. One of them has been a new B-12 auxotroph. May I suggest again that the methods for isolating particular mutants have been improved substantially (again since 1950, with "replica-plating") and that it would be quite feasible to look for a specific auxotrophy, if the factor is normally synthesized by the wild type. Dr. Cuncaluz in your Bacteriology Department is planning just such a search for a mutant requiring his Pyruvate Oxidation Factor—judging from a recent letter inquiring about the application of some of these techniques. Have you made any progress towards a microbial assay of  $B_7$ ?

Yours sincerely,

Joshua Lederberg  
Associate Professor of Genetics