November 15, 1956.

Dr. Howard K. Schachman
Virus Laboratory
University of California
Berkeley 4, California

Dear Howard:

We hit a number of snags in our work and I have been reluctant to send out any samples for reasons that I will mention. If we had your talents and facilities at hand, we would be less inhibited about taking a look now and then, and probably would be benefitting considerably from this information. What stopped me was the realization that our enzyme preparation, which had been treated with pancreatic DNAase to remove the DNA in it, still had sufficient amounts of the DNAase left after fractionation to completely destroy the transforming factor for hemophilus. We have spent considerable time in trying to remove the DNA from the enzyme by chemical means without success, and finally reluctantly returned to the use of DNAase. We can now by another type of fractionation, and the use of alkaline pH for incubation, reduce the residual DNAase activity to a negligible level.

Another problem that cropped up came with the recognition that the polymerized DNA seems to serve two functions; the first is to stabilize the enzyme during the period of incubation, and the other is a more specific function which we are still tentatively assuming to be that of a primer. Thus far we have not succeeded in substituting any protective protein or any polyanion (except native polymerized DNA) for either function in the system. The tack that we are taking now is to try to study the reaction of a single triphosphate in the system. With our previous set-up this was not detectable, but by increasing the specific radioactivity of the substrate, by a factor of 40 or 400, we can now measure such reactions. As you can see, we are getting to the point where we urgently need homogeneous DNA and will want to titrate its end groups.

I really wish you were here, or that we were closer to you, because I know that the use of your technics would be an enormous help. Somehow the distances seem to discourage trials that are obviously premature. Anyway, within a few days I will get up enough courage to mail you a sample of something just to get the process started, and I will rely on you not to take these initial excursions seriously.

The prospect of your spending some sabbatical time here is extremely exciting for us and we will do anything possible to bring it about. I really think you would enjoy your stay here. Whether it is as good as other places, especially those in more cosmopolitan areas, I will leave to your discretion. I would remind you that one of the requirements of a good vacation is that you be happy to return home. I think that you would pick up enough enzymology and

and microbiology to serve as a basis for work that you may want to do with biological material in the future. With respect to the time of the year that you might be here, I can recommend the St. Louis climate between September and May. We have had a most beautiful fall this year, and the winters are as a rule sunny and not too cold. You would also enjoy the climate of a city and state that went for Stevenson. In the fall, you might be interested in the phases of the microbiology course which we give then that cover bacterial metabolism, genetics and virology.

With best regards,

Sincerely,

AK/McK

Arthur Kornberg.