cc for Dr. Lederberg

October 19, 1966

Dr. John Westley
Stanford University Medical School
Palo Alto, California

Dear Doctor Westley:

I very much enjoyed the discussion with you and Doctor Leventhal. It was most interesting to hear of your elegant fluorescent detecting technic. The possibilities for all kinds of applications in microbiology are very exciting.

We are currently preparing both terrestrial organism exposure experiments and sterile collection experiments for the Gemini 12 spacecraft early next month. We will again be flying sterile methyl cellulose surfaces for the presumed collection of microorganisms in the vicinity of the spacecraft whether of exobiological or terrestrial (spacecraft) origin. As you recall I mentioned it seems likely that possible spacecraft contaminating organisms, e.g., from the urine disposal unit, may in all probability impinge upon our collection surfaces but will probably be inactivated by the radiation received during the exposure period (due to be several hours). There seems a fair possibility that nonviable organisms may be returned to earth which could conceivably be detectable by your technics.

With this in mind, if you are interested, I would propose to split one of these collection surfaces in half (unless we get more space than we currently expect, in which case you could have a whole surface) and send you the one-half while working up microbiologically the other half ourselves. This would give you approximately 2 sq. cm. of exposed surface represented by a piece of freeze dried methyl cellulose approximately 1-1/2 millimeters thick. This has a consistency of a light but fairly tenacious blotting-paper-like material which is of course fully water soluble. It does not seem likely that one could expect to collect more than a few hundred microorganisms at the most, so I presume we are still below the threshold of sensitivity of your present test. In this case it may be worth retaining the material for a period of time under vacuum dessication in the event you expect to get greater sensitivity in the near future. Since this is the last Gemini shot, we will not have an opportunity like this again until probably some time in second quarter of next year when we expect to have a similar experiment on board the Apollo spacecraft. However, unfortunately the collecting device for the Apollo shots at present is not suitable for adequate sterilization, to make an experiment of this type really significant.

At the present time I am hopeful of obtaining support to fly a purely microbiological type of collector, particularly if, as again I hope, we are able to make collections from the libration point concentration of particles in the vicinity of the moon.

In addition to the exposed surface, I will expect to send you a similar portion of both flight control which is flown in an inverted shielded position, and also our laboratory control which remains under sterile conditions in a vacuum dessicator throughout the experimental period.

I am highly interested in the possibilities which you and Doctor Leventhal outlined, of adapting similar fluorescent technics to the microscopic study of individual cells. However at the present time our exobiology support facilities are insufficient to carry this workload. Perhaps we will be able to explore this in the future.

I attach copies of some of our earlier results. The Gemini ones are still being written up.

With best regards.

Yours sincerely,

John Hotchin, M.D.
Research Associate and
Assistant Director

JH/as
Encls.