

August 2, 1951.

Dr. L. L. Waters,
For Board of Scientific Advisers,
Jane Coffin Childs Fund for Medical Research,
333 Cedar Street, New Haven 11, Conn.

Dear Doctor Waters:

Please convey my respects to the Board together with this information as requested in your letter of July 6.

Position: continues as shown under signature

New lines of research: I am continuing within the field of bacterial genetics. As the techniques in this new field become refined, however, the area that can be covered becomes larger. The kinds of project now being followed in this laboratory include:

Formal genetics of *E. coli* (Crossing, segregation and linkage)

Nuclear cytology- comparisons of haploid and diploid stocks

Physiological genetics- gene control of enzyme formation

Morphological mechanisms underlying genetic recombination in
E. coli- very little progress here

Genetic aspects of latent viruses

Comparative genetics of *E. coli* - characteristics of new strains that can be crossed with each other; with Professor Irwin, an "immunogenetic" study of these strains has been initiated.

Action of mutagenic and bactericidal agents.

Genetic recombination or exchange in *Salmonella typhimurium*.- A distinctive mechanism is involved here, with implication of a filtrable agent that so far has remained inseparable from the so-called "L-forms". In other respects, the system resembles the pneumococcus transformations by polymerized desoxyribonucleic acid, but has the advantage that a great many nutritional and biochemical characteristics can be followed.

Publications: See attached sheet.

Yours sincerely,

Joshua Lederberg,
Associate Professor of Genetics.

1950-51.

1950.. Isolation and Characterization of biochemical mutants of bacteria.
Methods in Medical Research, 3: 5-22.

The selection of genetic recombinations with bacterial growth inhibitors.
Jour. Bacteriology, 59: 211-215

The Beta-D-galactosidase of Escherichia coli, strain K-12.
Jour. Bacteriology, 60: 381-392.

1951 With M. R. Zelle. Single cell isolations of diploid heterozygous
Escherichia coli. Jour. Bacteriology, 61: 351-355.

Inheritance, Variation and Adaptation. Chapter III, pp. 67-100.
in Bacterial Physiology, P. W. Wilson and C. Werkman, eds., Acad. Press, N.Y.

Streptomycin resistance: a genetically recessive mutation.
Jour. Bacteriology, 61: 549-550.

Genetic studies with bacteria. Chap. 13, pp. 263-289, in
Genetics in the 20th Century, L.C. Dunn ed., MacMillan.

Prevalence of Escherichia coli strains exhibiting genetic recombination.
Science (July 20, 1951), 114: 68-69.

With E. M. Lederberg, N. Zinder, and E.R. Lively. Recombination analysis
of bacterial heredity. Cold Spring Harbor Symposia, In Press.

With E. M. Lederberg. Replica plating and indirect selection of bacterial
mutants. Ms. in preparation.