

June 1, 1950

REPORT ON RESEARCH PROJECTS
for the
FISCAL YEAR 1949-50

I. Name Lederberg, Joshua Dept. Genetics Proj. No. 50:304
Title Bacterial Genetics

II. Personnel: (Miss) Ethelyn Lively, Res. Ass't

III. Statement of other financial support, if any:

Rockefeller Foundation, \$7500/3 years, mainly for supplies
National Institutes of Health, \$3500 (Genetics of Salmonella)

IV. Brief statement of specific progress made during the year:

a. A method was developed and verified for detecting genetic recombination by the use of "drug"-resistance markers in Escherichia coli.

b. Cytological study of haploid and diploid cultures of E. coli has shown that their nuclear patterns are distinguishable, supporting the concept of the nucleus in bacteria.

c. Additional mutations affecting the formation of the enzyme galactosidase have been isolated, including one which establishes the constitutive, rather than adaptive, formation of this enzyme. The substrate-specificities of galactosidase and of the adaptive mechanism have been shown to be qualitatively distinct, showing that pre-existent enzyme is probably not the intracellular component with which substrate reacts in provoking adaptation.

V. Publications that have appeared in print during the present fiscal year:

Lederberg, J., Bacterial Variation. Ann. Rev. Microbiol. 3: 1-22, 1949

Lederberg, J., The Selection of Genetic Recombinations With Bacterial Growth Inhibitors. J. Bact. 59: 211-215, 1950 (Febr.)

VI. Manuscripts accepted for publication but not yet printed:

Lederberg, J., Isolation and Characterization of Biochemical Mutants of Bacteria. Methods of Medical Research, In Press.

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