

FEDERAL SECURITY AGENCY
PUBLIC HEALTH SERVICE

APPLICATION FOR GRANT FOR RESEARCH PROJECT

Date February 15, 1948

THE SURGEON GENERAL,
U. S. Public Health Service,
Washington 25, D. C.

Application is hereby made for a grant-in-aid in the amount of \$3780⁰⁰ for the period from July 1, 1948 to June 30, 1949, inclusive,* for the purpose of conducting a research project on the following subject:

Genetics of Salmonella

(Give only brief statement of nature of project; details on pages 2 and 3)

Joshua Lederberg

Assistant Professor of Genetics
(Principal investigator) (Title)

Dept. of Genetics

University of Wisconsin
(Address of principal investigator)

W. W. Peterson, Business Officer
(Title of financial officer to whom check should be sent)

Attn: P. H. Danon Hall University of Wisconsin, Madison 6, Wis.
(Address of this officer)

It is understood and agreed by the applicant: (1) That funds granted as a result of this request are to be expended for the purposes set forth herein; (2) that the grant-in-aid may be revoked in whole or in part at any time by the Surgeon General, provided that a revocation shall not include any amount obligated previous to the effective date of the revocation if such obligations were made solely for purposes set forth in this application; (3) that all reports of original investigations supported by any grant-in-aid made as a result of this request shall acknowledge such support; and (4) that if any patentable discoveries or inventions are made in the course of the work aided by any grant received as a result of this application, the applicant will, in consideration of such grant, refer to the Surgeon General of the Public Health Service, for determination, the question of whether such patentable discoveries or inventions shall be patented and the manner of obtaining and disposing of the proposed patents in order to protect the public interest.

Name of institution University of Wisconsin

(Type name and title of official authorized to sign for institution) Dean, College of Agriculture

Signature of this official _____

* This period is not to exceed 1 year.

1. Outline the proposed work and the plan of attack. (Use a continuation sheet for details, if necessary.)

It is proposed to ascertain whether genetic recombination plays any role in the distribution of the diagnostic antigens of the Salmonella group. As described in the continuation sheet, the techniques to be used are similar to those which have been applied to studies on Escherichia coli, referred to below (Item 3). See Continuation.

2. Estimated total number of years of project duration _____

3. Has any work been done on this project by principal investigator (named on page 1)? Yes No
If yes, what are the significant results and publications to date? If possible, please enclose reprints.

16-47427-2 U. S. GOVERNMENT PRINTING OFFICE

The following publications describe the experimental basis for the proposed research:

Lederberg, J. & Tatum, E.L., (1946) Detection of biochemical mutants of microorganisms. J. Biol. Chem. 165: 381-382.

T. & L., (1947) Gene recombination in the bacterium Escherichia coli. J. Bact. 53:673-684.

L. (1947) Gene recombination and linked segregations in Escherichia coli. Genetics 32:505-525.

L. (1947) The nutrition of Salmonella. Arch. Biochem. 13: 287-290.

These titles summarize the work to date. No concerted effort has yet been made to prove the occurrence of recombination in Salmonella.

4. What pertinent results bearing on this project have been obtained by other investigators?

The work of many investigators has led to our present picture of the antigenic structure of the Salmonella group. This work is summarized in most text-books, and in particular in "Die Bakteriologie der Salmonella-Gruppe", F. Kauffmann, Repr. 1945 Edwards Bros. ~~However, there is~~ The mechanisms of variation in Salmonella are however still largely unexplored, except for the work of the University of Kentucky group on "induced" variation in flagellar antigens (cf. Bruner & Edwards, J.Bact. 53:359-360 (1947)-- Changes induced in the non-specific antigens of Salmonella).

5. (a) What financial support has been received for this or related research by the principal investigator or his associates?

SOURCE	AMOUNT	YEARS OF SUPPORT (From to)
University of Wisconsin	\$15,000*	1947-1948
National Institute of Health, Jr. Res. Fell. for work on related research.	24,200.600	1947-1948
Jane Coffin Childs Memorial Fund, Fellowship at Yale University and research grant. Prof. Tatum's related work has of course received extensive additional support.	3,600	1946-1947

*Exclusive of principal investigator's salary. Includes Capital Expenditures for remodeling & equipping laboratory. (10,000)

(b) Does the principal investigator have other requests for assistance on this or related research projects pending with governmental agencies, or with public or private foundations? Yes No

If yes, give significant data, including title of project, name of agency, and amount of requested funds.

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Genetics of Bacteria, Wisconsin Alumni Research Foundation (1948), \$2,600
 Genetics of Bacteria, Rockefeller Foundation: 3-year Grant-in-aid 7,500

These requests were designed primarily to support genetic research on bacteria other than Salmonella.

BUDGET FOR PROPOSED PROJECT FROM July 1, 1948 TO June 30, 1949

ITEM	FUNDS REQUESTED FROM THE PUBLIC HEALTH SERVICE	FUNDS FROM OTHER SOURCES
Personnel (Itemize):		
1 -time Research Assistant(graduate), to be selected	\$ 1200	
Permanent Equipment (Itemize):		
Angle-head Centrifuge and accessories	150	
Ultra-violet Irradiation Equipment	100	
Other bacteriological apparatus	250	
Total Equipment	500	
Consumable Supplies (Itemize):		
Glassware, Media, Reagents, Rabbits & Feed,	1200	
Travel: If progress of research demands, for consultation with P.R. Edwards at the University of Kentucky	100	
Other Expense (Itemize):		
Departmental charges, including care of animals, dishwashing, and other extra labor.	500	
Overhead, 8%,	200	
TOTAL	3780	

BUDGET FOR PROPOSED PROJECT FROM July 1, 1949 TO June 30, 1950

ITEM	FUNDS REQUESTED FROM THE PUBLIC HEALTH SERVICE	FUNDS FROM OTHER SOURCES
Personnel (Itemize):		
* Graduate research assistant, ^{academic year} 1/2-time, 11-months	900 1000	
** Project Assistant, fulltime, summer	400	
* Mr. Norton Zinder, B.A. Columbia 1947.		
** Mr. Donald A. Gordon, an undergraduate at the Univ. of Wisconsin, who has been employed on an hourly basis, during the school year.		
Permanent Equipment (Itemize):		
Centrifuge accessories, Motor driven brush for cleaning glassware, Lyophil apparatus (parts) for preservation of cultures, and miscellaneous small items,	500	
Consumable Supplies (Itemize):		
Glassware, reagents, media Animals and feed is needed laundry service	100	
Travel: Professional consultation and scientific meetings	100	
Other Expense (Itemize):		
Hourly labor (dishwashing and animal care	1500	
Purchase of reprints (not to exceed \$60)		
TOTAL	3500	

4. What pertinent results bearing on this project have been obtained by other investigators?

Bruner and Edwards have demonstrated that variation in both somatic and flagellar and somatic antigens occurs, in such a way as to "transform" one recognized serological type of Salmonella into another. They have not studied the question of the recombination of antigens between cells of diverse type.

5. (a) What financial support has been received for this or related research by the principal investigator or his associates?

SOURCE	AMOUNT	YEARS OF SUPPORT (From ----- to -----)
University of Wisconsin (primary capitalization of laboratory)	\$20,000	1947-1949
National Cancer Institute (junior research fellowship for work on genetic control of mutability in E. coli)	\$ 4,200	1947-1949
University of Wisconsin- fellowship for this same work	1,200	1949-1950

(b) Does the principal investigator have other requests for assistance on this or related research projects pending with governmental agencies, or with public or private foundations? Yes No

If yes, give significant data, including title of project, name of agency, and amount of requested funds.