CHEMICAL HERITAGE FOUNDATION

JOSEPH P. DOUGHERTY

The Pew Scholars Program in the Biomedical Sciences

Transcript of an Interview
Conducted by

Neil D. Hathaway

at

The Robert Wood Johnson Medical School
Piscataway, New Jersey

on

7, 11, 18, and 21 May 1993

From the Original Collection of the University of California, Los Angeles

ACKNOWLEDGEMENT

This oral history is part of a series supported by a grant from the Pew Charitable Trusts based on the Pew Scholars Program in the Biomedical Sciences. This collection is an important resource for the history of biomedicine, recording the life and careers of young, distinguished biomedical scientists and of Pew Biomedical Scholar Advisory Committee members.

From the original collection at the Center for Oral History Research, UCLA Library, UCLA.

The following oral history, originally processed at the UCLA Center for Oral History Research, has been reformatted by the Chemical Heritage Foundation. The process involved reformatting the front matter, adding a new abstract, replacing the table of contents, and replacing the index. The paragraph spacing and font of the body of the transcript were altered to conform to the standards of the Oral History Program at the Chemical Heritage Foundation. The text of the oral history remains unaltered; any inadvertent spelling or factual errors in the original manuscript have not been modified. The reformatted version and digital copies of the interview recordings are housed at the Othmer Library, Chemical Heritage Foundation. The original version and research materials remain at the Darling Library, University of California, Los Angeles and at the Bancroft Library, University of California, Berkeley.

REFORMATTING:

Hilary Domush, Program Assistant, Biomedical Sciences and Technologies, Chemical Heritage Foundation. B.S. Chemistry, Bates College, M.S. Chemistry, University of Wisconsin, M.A. History of Science, University of Wisconsin.

David J. Caruso, Program Manager, Biomedical Sciences and Technologies, Chemical Heritage Foundation. B.A., History of Science, Medicine, and Technology, Johns Hopkins University; PhD., Science and Technology Studies, Cornell University.

UNIVERSITY OF CALIFORNIA, LOS ANGELES

Oral History Interview Agreement No. R930522

This Interview Agreement is made and entered into this 24th day of May, 1993, by and between THE REGENTS OF THE UNIVERSITY OF CALIFORNIA, a California corporation, on behalf of the Oral History Program at the UCLA campus, hereinafter called "University," and JOSEPH P. DOUGHERTY having an address at University of Medicine and Dentistry, New Jersey, Robert Wood Johnson Medical School, 675 Hoes Lane, Piscataway, New Jersey, 08854-5635, hereinafter called "Interviewee."

Interviewee agrees to participate in a series of University-conducted tape-recorded interviews, commencing on or about May 5, 1993, and tentatively entitled "Interview with Joseph A. Dougherty". This Agreement relates to any and all materials originating from the interviews, namely the tape recordings of the interviews and a written manuscript prepared from the tapes, hereinafter collectively called "the Work."

In consideration of the mutual covenants, conditions, and terms set forth below, the parties hereto hereby agree as follows:

1. Interviewee irrevocably assigns to University all his copyright, title and interest in and to the Work. This assignment applies to University, its successors, and assigns, for and during the existence of the copyright and all renewals and extensions thereof.

2. By virtue of this assignment, University will have the right to use the Work for any research, educational, or other purpose that University may deem appropriate.

3. Interviewee acknowledges that he will receive no remuneration or compensation for his participation in the interviews or for the rights assigned hereunder.

4. Interviewee will receive from University, free of charge, one bound copy of the typewritten manuscript of the interviews.

5. To insure against substantive error or misquotation, Interviewee will have the right to review the manuscript before it is put into final form. University therefore will send Interviewee a copy of the edited transcript for review and comment. Interviewee will return transcript and comments to University within 30 days of receipt of the transcript. In the event that Interviewee does not respond within 30 days, University will assume that Interviewee has given full approval of the transcript.

6. All notices and other official correspondence concerning this Agreement will be sent to the following:

If to University : Office of Intellectual Property Administration
University of California, Los Angeles
405 Hilgard Avenue
Los Angeles, California 90024-1406

Attention: Ms. Carli V. Rogers
Copyright Officer

If to Interviewee: Joseph P. Dougherty
University of Medicine and Dentistry,
New Jersey
Robert Wood Johnson Medical School
675 Hoes Lane
Piscataway, New Jersey 08854-5635

University and Interviewee have executed this Agreement on the date first written above.

INTERVIEWEE

(Signature)

Joseph P. Dougherty
(Typed Name)

University of Medicine and Dentistry

Robert Wood Johnson Medical School

675 Hoes Lane
(Address)

Piscataway, NJ 08854-5635

Date 5/11/93

THE REGENTS OF THE UNIVERSITY OF CALIFORNIA

(Signature)

Carli V. Rogers
(Typed Name)

Copyright Officer
(Title)

Date May 24, 1993

Chemical Heritage Foundation
Oral History Program
315 Chestnut Street
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JOSEPH P. DOUGHERTY

1952 Born in Queens, New York on 19 July

Education

1975 B.S., New York University
1982 Ph.D., Yale University

Professional Experience

Université Louis Pasteur, Strasbourg, France
1983-1984 Postdoctoral Fellow

University of Wisconsin-Madison
1985-1988 Postdoctoral Fellow

Robert Wood Johnson Medical School, University of Medicine and Dentistry of New Jersey
1988-1995 Assistant Professor, Department of Molecular Genetics and Microbiology
1995-present Associate Professor, Department of Molecular Genetics and Microbiology

Honors

1975 Founding Day Award, New York University
1983-1985 American Cancer Society Postdoctoral Fellowship
1985-1987 National Institutes of Health Postdoctoral Fellowship
1988-1992 Pew Scholar in the Biomedical Sciences
1989-1994 National Institutes of Health FIRST Award
1989-1991 March of Dimes Basil O'Connor Starter Research Award

Selected Publications

Shigekawa, M. and J.P. Dougherty, 1977. Some kinetic properties of phosphorylated ATPase of sarcoplasmic reticulum formed in the absence of added alkali metal salts. *Biochemistry and Biophysics Research Communications*, 76:784-98.

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ATP hydrolysis by skeletal muscle sarcoplasmic reticulum in the absence of added alkali metal salts: I. Characterization of steady state ATP hydrolysis and comparison with that in the presence of KCL. *Journal of Biological Chemistry,* 253:1442-50.

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Dougherty, J.P. et al., 1980. Interferon, double-stranded RNA and RNA degradation: Isolation of homogenous $pppA(2'p5'A)_{n-1}$ synthetase from Ehrlich ascites tumor cells. *Journal of Biological Chemistry,* 255:3813-16.

Dougherty, J.P. et al., 1986. The mouse immunoglobulin heavy chain gene enhancer contains sequences that inhibit transcription *in vitro* in HeLa cell extracts. *Molecular and Cellular Biology,* 6:4117-21.

Dougherty, J.P. and H.M. Temin, 1986. High mutation rate of a spleen necrosis virus-based retrovirus vector. *Molecular and Cellular Biology,* 12:4387-95.

Dougherty, J.P. and H.M. Temin, 1987. A promoterless retroviral vector system indicates that there are sequences in U3 required for polydenylation. *Proceedings of the National Academy of Sciences USA,* 84:1197-201.

Dougherty, J.P. and H.M. Temin, 1987. Retroviral vector variation and a promoterless retroviral system. In *Gene Transfer Vectors for Mammalian Cells.* Cold Spring Harbor, New York: Cold Spring Harbor Publications, 1987, 18-23.

Dougherty, J.P. and H.M. Temin, 1988. Determination of the rate of base-pair substitution and insertion mutations in retrovirus replication. *Journal of Virology,* 62:2817-22.

Dougherty, J.P. et al., 1989. New retrovirus helper cells with almost no nucleotide sequence homology to retrovirus vectors. *Journal of Virology,* 63:3209-12.

Dougherty, J.P., 1990. Retrovirus vectors for efficient transfer of exogenous genes into target cell genomes. *Pharmaceutical Technology,* 14:30-36.

Dougherty, J.P. and H.M. Temin, 1990. Determination of retroviral mutation rates using spleen necrosis virus-based vectors and helper cells. In *Transgenic Animals.* Madison, Wisconsin: Science Tech Publishers, 19-31.

ABSTRACT

Joseph P. Dougherty begins his oral history with a discussion of his youth in various parts of New York City and raises such topics as his family's religion and his father's experiences with the local unions. Dougherty received an education at a liberal Catholic high school where he became involved in the sciences. He attended New York University (NYU) for his undergraduate degree, which he felt was academically interesting because of the opportunity to pursue all manner of mathematics and science. Dougherty lived in and experienced Greenwich Village, a broad cultural education, though while at NYU, Dougherty became interested in genetic manipulations and gene therapy. (He also became a competitive street handball player in New York City during his undergraduate years.) Before pursuing graduate research, Dougherty worked as a laboratory technician with Arnold M. Katz and Munekazu Shigekawa at Mount Sinai Hospital. He undertook his graduate work at Yale University with Peter Lengyel in the biophysics department; because of his laboratory experiences at Mount Sinai, he was an accomplished researcher when he began his Ph.D. work at Yale. Following the completion of his Ph.D., Dougherty pursued post-doctoral research with Pierre Chambon in Strasbourg, France and subsequently with Howard Temin at the University of Wisconsin. The two very different post-doctoral experiences allowed Dougherty the opportunity to discuss funding and science in different countries and different types of academic institutions. Throughout the interview Dougherty talks openly about issues related to funding and his persistent interest in moving to France, and, additionally, the duty of the scientist to educate people.

UCLA INTERVIEW HISTORY

INTERVIEWER:

Neil D. Hathaway, Interviewer, UCLA Oral History Program. B.A., English and History, Georgetown University; M.A. and C.Phil., History, UCLA.

TIME AND SETTING OF INTERVIEW:

Place: Dougherty's office, Robert Wood Johnson Medical School, University of Medicine and Dentistry of New Jersey.

Dates, length of sessions: May 7, 1993 (86 minutes); May 11, 1993 (155) ; May 18, 1993 (116) ; May 21, 1993 (88).

Total number of recorded hours: 7.45

Persons present during interview: Dougherty and Hathaway.

CONDUCT OF INTERVIEW:

This interview is one in a series with Pew scholars in the biomedical sciences conducted by the UCLA Oral History Program in conjunction with the Pew Charitable Trusts's Pew Scholars in the Biomedical Sciences Oral History and Archives Project. The Project has been designed to document the backgrounds, education, and research of biomedical scientists awarded four-year Pew scholarships, from 1988 through 1992.

In preparing for this interview, Hathaway, in consultation with the director of the UCLA Oral History Program and three UCLA faculty project consultants, developed a topic outline to provide an overall interview framework. Hathaway then held a telephone preinterview conversation with Dougherty to obtain extensive written background information (curriculum vitae, copies of published articles, etc.) and agree on a research and interviewing timetable.

Hathaway further reviewed the documentation in Dougherty's file at the Pew Scholars Program office in San Francisco, including his proposal application, letters of recommendation, and reviews by Pew Scholars Program national advisory committee members. For general background on the recent history of the biological sciences, Hathaway consulted such works as: J.D. Watson et al., *The Molecular Biology of the Gene.* 4th ed. 2 vols. Menlo Park, CA: Benjamin/Cummings, 1987; Lubert Stryer, *Biochemistry.* 3d ed. New York: W.H. Freeman, 1988; *The Journal of the History of Biology;* H.F. Judson, *The Eighth Day of Creation: Makers of the Revolution in Biology.* New York: Simon and Schuster, 1979; and recent issues of *Science, Nature,* and *Cell.*

The interview is organized chronologically, beginning with Dougherty's childhood and education in Brooklyn, continuing through his work at New York University, Yale University, Université Louis Pasteur and University of Wisconsin-Madison, and concluding with his career at University of Medicine and Dentistry of New Jersey Robert Wood Johnson Medical School. Major topics discussed include AIDS education, lab management, research on $(2'\text{-}5')(A)_n$ synthetase, retrovirus vector studies, and applications of genetic manipulation in combatting

auto immune disorders.

ORIGINAL EDITING:

Steven J. Novak, senior editor, edited the interview. He checked the verbatim transcript of the interview against the original tape recordings, edited for punctuation, paragraphing, and spelling, and verified proper names. Words and phrases inserted by the editor have been bracketed.

Dougherty answered questions regarding the transcript in a telephone conversation with Novak. He verified some proper names and made minor corrections.

Kristian London, assistant editor, prepared the table of contents and the interview history. Novak assembled the biographical summary. Gregory M. Beyrer, editorial assistant, compiled the index.

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