CHEMICAL HERITAGE FOUNDATION

DAVID E. LEVY

The Pew Scholars Program in the Biomedical Sciences

Transcript of an Interview
Conducted by

Andrea R. Maestrejuan

at

New York University School of Medicine
New York, New York

on

23, 24, 25 and 29 July 1997

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:

Holly Polish, Program Intern, Oral History, Chemical Heritage Foundation. B.A. History, American University.

David J. Caruso, Program Manager, Oral History, 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. 970731

This Interview Agreement is made and entered into this 26th day of May, 1998 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 DAVID E. LEVY, having an address at New York University Medical Center, Department of Pathology, 550 First Avenue, New York, New York 10016, hereinafter called "Interviewee."

Interviewee agrees to participate in a series of University-conducted tape-recorded interviews, commencing on or about July 23, 1997, and tentatively entitled "Interview with David E. Levy". 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 Research Administration
University of California, Los Angeles
P.O. Box 951406
Los Angeles, California 90095-1406

Attention: Ms. Carli V. Rogers
Copyright Officer

If to Interviewee:

David E. Levy
New York University Medical Center
Department of Pathology
550 First Avenue
New York, New York 10016

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

INTERVIEWEE	THE REGENTS OF THE UNIVERSITY OF CALIFORNIA
(Signature)	(Signature)
David E. Levy (Typed Name)	Carli V. Rogers (Typed Name)
New York University Medical Center	Copyright Officer (Title)
550 First Avenue (Address)	
New York, New York 10016	
Date 7/23/97	Date 5/26/98

Chemical Heritage Foundation
Oral History Program
315 Chestnut Street
Philadelphia, Pennsylvania 19106

DAVID E. LEVY

1952 Born in Knoxville, Tennessee

Education

1974 B.A., University of Tennessee
1985 Ph.D., California Institute of Technology

Professional Experience

Oak Ridge National Laboratory, Oak Ridge, Tennessee
1975-1977 Research Assistant, Molecular Anatomy Program

University of Tennessee, Knoxville, Tennessee
1977-1978 Research Assistant, Memorial Research Center

Rockefeller University, New York, New York
1984-1987 Postdoctoral Fellow, Laboratory of Molecular Cell Biology
1987-1988 Postdoctoral Associate, Laboratory of Molecular Cell Biology
1988-present Adjunct Faculty

New York University, New York, New York
1989-present Faculty, Sackler Institute for Graduate Biomedical Sciences

New York University School of Medicine, New York, New York
1988-1995 Assistant Professor, Department of Pathology
1995-present Associate Professor, Department of Pathology

Honors

1991-1995 Pew Scholars Program in the Biomedical Sciences Grant
1992-1993 Whitehead Presidential Fellow, New York University
1995-1999 Hirschl Trust Career Scientist

Selected Publications

Levy, D.E. et al., 1985. The *Gv-1* locus coordinately regulates the expression of multiple endogenous murine retroviruses. *Cell* 41:289-99.

Levy, D.E. et al., 1986. Interferon-simulated transcription: Isolation of an inducible gene and identification of its regulatory region. *Proceedings of the National Academy of Sciences USA* 83:8929-33.

Levy, D.E. et al., 1988. Interferon-induced nuclear factors that bind a shared promoter element correlate with positive and negative transcriptional control. *Genes and Development* 2:383-93.

Levy, D.E. et al., 1989. Cytoplasmic activation of ISGF3, the positive activator of interferon-Į stimulated transcription, reconstituted in vitro. *Genes and Development* 3:1362-71.

Kessler, D.S. et al., 1990. IFNĮ regulates nuclear translocation and DNA-binding affinity of ISGF3, a multimeric transcriptional activator. *Genes and Development* 4:1753-65.

Veals, S.A. et al., 1993. Two domains of ISGF3Û that mediate protein-DNA and protein-protein interaction during transcription factor assembly contribute to DNA-binding specificity. *Molecular Cellular Biology* 13:196-206.

Silvennoinen, O. et al., 1993. Ras-independent growth factor signaling by transcription factor tyrosine phosphorylat ion. *Science* 261:1736-39.

Silvennoinen, O. et al., 1993. Interferon-induced nuclear signaling by JAK protein tyrosine kinases. *Nature* 366:583-85.

Raz, R. et al., 1994. Acute phase response factor and additional members of the ISGF3 family integrate diverse signals from cytokines, interferons, and growth factors. *Journal of Biological Chemistry* 269:24391-95.

Durbin, J.E. et al., 1996. Targeted disruption of the mouse *Stat1* gene results in compromised innate immunity to viral disease. *Cell* 84:443-50.

ABSTRACT

David E. Levy was born in Knoxville, Tennessee, and grew up in Oak Ridge, Tennessee, one of two children. His father was a chemist, his mother a classicist; both had been living in California but were assigned to Oak Ridge National Laboratory by the federal government, his father to work on the Manhattan Project, his mother for the Tennessee Valley Authority. Employees' families could attend an annual open house at the Laboratory, but otherwise David's father did not discuss his work. Even so, David remembers always having been interested in science; he had chemistry kits, he built rockets, he made his own chemicals for his dark room, and he observed the back-yard animals. In grade school once when pupils were asked to write about what they wanted to be when they grew up, David wrote about being a scientist, though he says he doubts that he would have known what that meant.

David did not investigate colleges, but entered the University of Tennessee. Interested in psychology, he took premed classes but soon changed to biology; he had almost a minor in chemistry, which he also liked. There were no experimentation classes, though they did "practicals." After graduation, still unsure what he wanted to do, David took a job at the Laboratory in the Molecular Anatomy Program (MAP), a kind of independent project established by Norman Anderson. When MAP was closed down, David worked for a year in immunologist Alan Solomon's lab at the University of Tennessee's Memorial Research Center. He had already taken some seminars at the Oak Ridge Extension branch of the University of Tennessee, and he had written two papers. During this time he realized that he wanted to be a scientist, that he was excited by the confluence of chemistry and biology. Hence, graduate school.

He was accepted at California Institute of Technology, where his father had studied, and began his research into immunology in William Dreyer's lab. Not long after he switched to Richard Lerner's lab at Scripps Research Institute, where he studied retroviruses. Upon finishing his PhD he accepted a postdoc at Rockefeller University offered by James Darnell, who was working on the development of organ systems. David remains an adjunct faculty member in the Laboratory of Molecular Cell Biology there; and he has added an assistant professorship at New York University, the Sackler Institute for Graduate Biomedical Sciences, and in the School of Medicine Department of Pathology, where he is now an associate professor. He established his lab to continue his research into gene expression in the liver system, hoping to discover how it is that during development different genes get turned on in different tissues; for him that is the basic question.

He devotes much of the end of the interview to comparing creative thinking, independence, and funding as found at Oak Ridge National Laboratory, California Institute of Technology, and Scripps Research Institute; to comparing the Pew Scholars in the Biomedical Sciences award with the National Institutes of Health grants; and to his conception of the ideal department or laboratory.

UCLA INTERVIEW HISTORY

INTERVIEWER:

Andrea R. Maestrejuan, Interviewer, UCLA Oral History Program; B.S., Biological Sciences, University of California, Irvine, 1986; M.A., History, University of California, Riverside, 1991; C.Phil., History, University of California, Riverside.

TIME AND SETTING OF INTERVIEW:

Place: Levy's Office Laboratory, New York University School of Medicine.

Dates, length of sessions: July 23, 1997 (67 minutes); July 24, 1997 (106); July 25, 1997 (155); July 29, 1997 (71).

Total number of recorded hours: 6.65

Persons present during interview: Levy and Maestrejuan.

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 since 1988.

To provide an overall framework for project interviews, the director of the UCLA Oral History Program and three UCLA faculty project consultants developed a topic outline. In preparing for this interview, Maestrejuan held a telephone preinterview conversation with Levy to obtain written background information (curriculum vitae, copies of published articles, etc.) and agree on an interviewing schedule. She also reviewed prior Pew scholars' interviews and the documentation in Levy'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 technical background, Maestrejuan consulted J.D. Watson et al., *Molecular Biology of the Gene.* 4th ed. Menlo Park, CA: Benjamin/Cummings, 1987; Bruce Alberts et al., *Molecular Biology of the Cell.* 3rd ed. New York: Garland, 1994; and Horace F. Judson, *The Eighth Day of Creation.* New York: Simon and Schuster, 1979.

The interview is organized chronologically, beginning with Levy's childhood in Oak Ridge, Tennessee, and continuing through his undergraduate work at the University of Tennessee, his graduate work at the California Institute of Technology and the Scripps Research Institute, his postdoctoral work at Rockefeller University, and the establishment of his own lab at New York University School of Medicine. Major topics discussed include Levy's work at the Oak Ridge National Laboratory in the Molecular Anatomy Program, his research on retroviral

gene products at Scripps, his work on the regulation of gene expression in the liver system at Rockefeller University, and the advantages and disadvantages of the current system of funding science in the U.S.

ORIGINAL EDITING:

Jennifer E. Levine, editorial assistant, edited the interview. She 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.

Levy reviewed the transcript. He verified proper names and made minor corrections and additions.

William Van Benschoten, editor, prepared the table of contents and interview history.

Jennifer Levine assembled the biographical summary.

Susan Croteau, editorial assistant, compiled the index.

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