CHEMICAL HERITAGE FOUNDATION

SAMUEL M. KUNES

The Pew Scholars Program in the Biomedical Sciences

Transcript of an Interview
Conducted by

Helene L. Cohen

at

Harvard University
Cambridge, Massachusetts

on

15-17 November 1999

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.

This oral history was completed under the auspices of the Oral History Project, University of California, Los Angeles (Copyright © 2001, The Regents of the University of California) and is made possible through the generosity of

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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:

Laurent Delavaux, Program Intern, Biomedical Sciences and Technologies, Chemical Heritage Foundation. B.S. Molecular Biology, Lehigh University.

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. TLZ0999B

This Interview Agreement is made and entered into this 14th day of December, 1999 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 SAMUEL M. KUNES, having an address at Department of Biochemistry and Molecular Biology, Harvard University, Room 433, 7 Divinity Avenue, Cambridge, Massachusetts 02138, hereinafter called "Interviewee."

Interviewee agrees to participate in a series of University-conducted tape-recorded interviews, commencing on or about November 15, 1999, and tentatively entitled "Interview with Samuel M. Kunes". 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, including electronic reproduction, 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: Oral History Program
University of California, Los Angeles
Box 951575
Los Angeles, California 90095-1575

Attention: Director

If to Interviewee: Samuel M. Kunes
Department of Biochemistry and Molecular Biology
Harvard University
Room 433
7 Divinity Avenue
Cambridge, Massachusetts 02138

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

INTERVIEWEE

X _____
(Signature)

Samuel M. Kunes
(Typed Name)

Harvard University
(Address)

Cambridge, Massachusetts 02138

X Date Nov 16/99

THE REGENTS OF THE UNIVERSITY OF CALIFORNIA

_____
(Signature)

Dale E. Treleven
(Typed Name)

Director, Oral History Program
(Title)

_____

Date December 14, 1999

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

SAMUEL M. KUNES

1957 Born in Trenton, New Jersey in December

Education

1981 B.S., University of Oregon
1988 Ph.D., Molecular Biology, Massachusetts Institute of Technology

Professional Experience

Massachusetts Institute of Technology
1988-1992 Postdoctoral Fellow, Department of Biology

Harvard University, Department of Biochemistry and Molecular Biology
1993-1999 Assistant Professor
1999-present Associate Professor

Honors

1988 Damon Runyon-Walter Winchell Foundation Scholarship
1994-1998 Pew Scholars Program in the Biomedical Sciences Grant

Selected Publications

Kunes, S. and H. Steller, 1991. Ablation of *Drosophila* photoreceptor cells by conditional expression of a toxin gene. *Genes Development* 5:970-83.

Kunes, S. et al., 1993. Independent guidance of retinal axons in the developing visual system of *Drosophila*. *Journal of Neuroscience* 13:752-67.

Kunes, S. and H. Steller, 1993. Topography in the *Drosophila* visual system. *Current Opinions in Neuroscience* 3:53-59.

Kaphingst, K. and S. Kunes, 1994. Pattern formation in the visual centers of the *Drosophila* brain: Wingless acts via decapentaplegic to specify the dorsoventral axis. *Cell* 78:437-48.

Huang, Z. and S. Kunes, 1996. Hedgehog, transmitted along retinal axons, triggers neurogenesis in the developing visual centers of the *Drosophila* brain. *Cell* 86:411-22.

Huang, Z. and S. Kunes, 1998. Signals transmitted along retinal axons in *Drosophila*: Hedgehog signal reception and the cell circuitry of lamina cartridge assembly. *Development* 125:3753-64.

Huang, Z. et al., 1998. A retinal axon fascicle uses Spitz, an EGF receptor ligand, to construct a synaptic cartridge in the brain of *Drosophila*. *Cell* 95:693-703.
Kunes, S., 1999. Stop or go in the target zone. *Neuron* 22:639-40.
Kunes, S., 2000. Axonal signals in the assembly of neural circuitry. *Current Opinions in Neurobiology* 10:58-62.

ABSTRACT

Samuel M. Kunes was born in Trenton, New Jersey, in 1957, the second of four siblings. His father was a public accountant for the state of New Jersey; his mother was a school teacher who later became a social worker. Kunes was mostly uninterested in school as a child and struggled to find direction after high school. His decision to drive across the country after high school graduation brought him to the town of Corvallis, Oregon, where he would begin to realize his academic potential.

Kunes attended Oregon State University until eventually transferring to the University of Oregon where he earned his Bachelor of Science degree in 1981. During this time he discovered his own interest in the sciences and did research at Cold Spring Harbor Laboratory. Kunes then applied to graduate school programs and successfully matriculated into a Ph.D. program at the Massachusetts Institute of Technology where he performed research in David Botstein's lab and Maurice S. Fox's lab. These graduate school years steered Kunes toward the study of genetics, in which field he earned his Ph.D. in 1988. He was awarded a postdoctoral fellowship in Hermann Stellar's lab at the Massachusetts Institute of Technology, where he studied the nervous system development of *Drosophila*, using what was then the very advanced technology of confocal microscopy.

In 1993 Kunes accepted an assistant professorship in the Department of Biochemistry and Molecular Biology at Harvard University and was promoted to associate professor in 1999. His current research at Harvard focuses on tracing the intricate steps and control of axonal development in fruit flies.

Throughout his oral history Kunes points out his aesthetic approach to science and the importance of remaining interested in the craftsmanship of scientific discovery. He has won several awards, including the Damon Runyon-Walter Winchell Foundation Scholarship and a Pew Scholars Program in the Biomedical Sciences Grant.

UCLA INTERVIEW HISTORY

INTERVIEWER:

Helene L. Cohen, Interviewer, UCLA Oral History Program. B.S., Nursing, UCLA; P.N.P., University of California, San Diego/UCLA; M.A., Theater, San Diego State University.

TIME AND SETTING OF INTERVIEW:

Place: Kunes's office, Harvard University..

Dates, length of sessions: November 15, 1999 (97 minutes); November 16, 1999 (86); November 17, 1999 (23).

Total number of recorded hours: 3.6

Persons present during interview: Kunes and Cohen.

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' 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, Cohen held a telephone preinterview conversation with Kunes 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 his 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, Cohen consulted J.D. Watson et al., *Molecular Biology of the Gene*. 4th ed. Menlo Park, California: Benjamin/Cummings, 1987; Bruce Alberts et al., *Molecular Biology of the Cell*. 3rd ed. New York: Garland, 1994; Horace F. Judson, *The Eighth Day of Creation*. New York: Simon and Schuster, 1979; and recent issues of *Science* and *Nature.*

The interview is organized chronologically, beginning with Kunes's childhood in Trenton, New Jersey, and continuing through his undergraduate work at University of Oregon, Corvallis, Oregon; his graduate work and postdoc at Massachusetts Institute of Technology; and the establishment of his own lab at Harvard University. Major topics discussed include the tenure process at Harvard University, issues involved in running a lab, Kune's research on the neurobiology of *Drosophila,* and the management and funding of his lab at Harvard University.

ORIGINAL EDITING:

Ji Young Kwon, 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.

Kunes did not review the transcript and therefore some names have not been verified.

William Van Benschoten, editor, prepared the table of contents. Kwon assembled the biographical summary and interview history. Stephen Wilson, editorial assistant, compiled the index.

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