CHEMICAL HERITAGE FOUNDATION

WILLIAM W. MATTOX

The Pew Scholars Program in the Biomedical Sciences

Transcript of an Interview
Conducted by

Helene L. Cohen

at

University of Texas, M.D. Anderson Cancer Center
Houston, Texas

on

13, 14, and 17 March 2000

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.

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Interviewee agrees to participate in a series of University-conducted tape-recorded interviews, commencing on or about March 13, 2000, and tentatively entitled "Interview with William W. Mattox". 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."

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If to University:

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Attention: Director

If to Interviewee:

William W. Mattox
Department of Molecular Genetics
University of Texas
M.D. Anderson Cancer Center
1515 Holcombe Boulevard, Box 045
Houston, Texas 77030

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

INTERVIEWEE

(Signature)

William W. Mattox
(Typed Name)

University of Texas
(Address)

M.D. Anderson Cancer Center

Houston, Texas 77030

Date 3-14-00

THE REGENTS OF THE UNIVERSITY OF CALIFORNIA

(Signature)

Dale E. Treleven
(Typed Name)

Director, Oral History Program
(Title)

Date 4/20/00

Pew Scholars in the Biomedical Sciences

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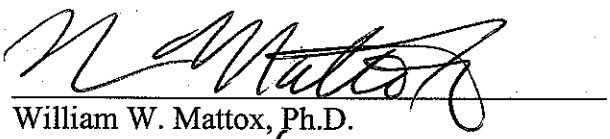

William W. Mattox, Ph.D.

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WILLIAM W. MATTOX

1957 Born in South Bend, Indiana, on 27 October

Education

1980 B.S., Michigan State University
1986 Ph.D., California Institute of Technology

Professional Experience

Stanford University
1986-1992 Postdoctoral Fellow, Department of Biology

University of Texas, M.D. Anderson Cancer Center
1992-1999 Assistant Professor, Department of Molecular Genetics
1999-present Associate Professor

University of Texas Graduate School of Biomedical Sciences
1993-present Regular Member, Graduate Faculty of the Medical Genetics Center

Honors

1986-1989 Helen Hay Whitney Postdoctoral Research Fellow
1989-1991 American Cancer Society Senior Postdoctoral Research Fellow
1994 Pew Scholar in the Biomedical Sciences

Selected Publications

Falkenthal, S. et al., 1984. *Drosophila melanogaster* has only one myosin alkali light-chain gene which encodes a protein with considerable amino acid sequence homology to chicken myosin alkali light-chains. *Molecular and Cellular Biology* 4:956-65.

Mattox, W.W. and N. Davidson, 1984. Isolation and characterization of the Beadex locus of *Drosophila melanogaster*: A putative *cis* acting negative regulatory element for the heldup-A gene. *Molecular and Cellular Biology* 4: 1343-53.

Mattox, W. et al., 1990. Alternative splicing of the sex determination gene transformer-2 is sex-specific in the germ line but not in the soma. *Genes and Development* 4:789-805.

Mattox, W. and B.S. Baker, 1991. Autoregulation of the splicing of transcripts from the transformer-2 gene of *Drosophila*. *Genes and Development* 5:786-96.
Mattox, W. et al., 1992. Autoregulation and multifunctionality among trans-acting factors that regulate alternative pre-mRNA processing. *Journal of Biological Chemistry* 267:19023-26.
Mattox, W. et al., 1996. A negative feedback mechanism revealed by functional analysis of the alternative isoforms of the splicing regulator transformer-2. *Genetics* 143:303-14.
Duawalder, B. et al., 1996. A human homologue of the *Drosophila* sex determination factor transformer-2 has conserved splicing regulatory functions. *Proceedings of the National Academy of Sciences USA* 93:9004-9.
Chandler, D. et al., 1997. Evolutionary conservation of regulatory strategies for the sex determination factor transformer-2. *Molecular and Cellular Biology* 17:2908-19.
Cooper, T.A. and W. Mattox, 1997. The regulation of splice site selection and its role in human disease. *American Journal of Human Genetics* 61:259-66.
McGuffin, M.E. et al., 1998. Autoregulation of transformer-2 alternative splicing is necessary for normal male fertility. *Genetics* 149:1477-86.
Dauwalder, B. and W. Mattox, 1998. Analysis of RS domain functional specificity in vivo. *European Molecular Biology Organization Journal* 17:6049-60.
Du, C. et al., 1998. Protein phosphorylation plays an essential role in the regulation of alternative splicing and sex determination in *Drosophila*. *Molecular Cell* 2:741-50.

ABSTRACT

William W. Mattox was born in South Bend, Indiana, two miles from the Michigan border; South Bend had the nearest hospital to his home town, Edwardsburg, Michigan. He has two brothers and one sister. His father began as a mechanic but moved into banking, beginning as a teller and eventually becoming the president of the bank and then of a network of community banks. His mother was a housewife, with a brief foray into real estate sales.

Mattox thinks he always liked science (perhaps he became interested in genetics because he is indirectly related to Sir Isaac Newton); from an early age he wanted to be a doctor. He liked and did well in school. In junior high school he had very good science classes, in particular one in which they built rockets. In high school his biology teacher, Clark Mead, introduced the class to regeneration by having them cut tails off newts. Mead's enthusiasm, encouragement, and influence determined that Mattox would become a biologist rather than a chemist. By this time Mattox had decided that medicine was not for him, but that he wanted to be a scientist, though he was not sure what specifically a scientist did.

Mattox matriculated at Michigan State University; he chose it over University of Michigan because he wanted to stay close to home, tuition was low, and State was more rural, he thought. In college he won an award for being the most outstanding biochemistry student of that year; the prize was delivered by Ilya Prigogine. As a junior he worked in Leonard Robbins' *Drosophila* lab; as a senior in Fritz Rottman's RNA processing lab; his ideas of science and of himself evolved from being around others in science, from reading, from coursework.

For graduate school he chose California Institute of Technology over Yale University partly because of its science and partly because of its climate. He worked in Norman Davidson's lab on *heldup-A* gene, the gene that causes some *Drosophila* to hold one wing up; he says data collection for his work was difficult and would have been much easier if he had had polymerase chain reaction, which was not discovered until two years after his graduation.

In graduate school he became interested in sex determination when he read a paper and heard a talk by Bruce Baker, who explained that temperature differences sometimes determine sex in a number of animals. Mattox was fascinated by this and accepted a postdoc in Baker's lab, at Stanford University, one of six postdocs that year hoping to learn genetics, while Baker hoped to learn molecular biology from them. While there, Mattox met his future wife; they married after his sixth year, just before they went to MD Anderson Cancer Center at the University of Texas. They now have a four-year-old daughter.

At MD Anderson, Mattox has found students more directed toward clinical work, while his lab stresses the importance of basic science, how things work. He teaches experimental genetics; he sits on many students' committees; he oversees a seminar series and the equipment budget; he attempts to keep up with the explosion of scientific technology and knowledge now so much more easily available; he publishes. Most important, he tries to balance all this with his life at home with wife and daughter.

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: Mattox's office, University of Texas, M.D. Anderson Cancer Center.

Dates, length of sessions: March 13, 2000 (107 minutes); March 14, 2000 (144); March 17, 2000 (130).

Total number of recorded hours: 6.3

Persons present during interview: Mattox 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 Mattox 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 Mattox'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, 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 Mattox's childhood in Edwardsburg, Michigan, and continuing through his undergraduate work at Michigan State University, his graduate work at California Institute of Technology, his postdoc at Stanford University, and the establishment of his own laboratory at University of Texas, M.D. Anderson Cancer Center. Major topics discussed include Mattox's research on the *heldup-A* gene and sexual differentiation in *Drosophila,* science funding, and the process and pitfalls of scientific discovery.

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.

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

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

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Postgraduate Years 42

Bruce Baker's work inspires Mattox, who accepts postdoc at Stanford University. More interested in genetics and less in molecular biology. Works on sex determination in Baker's lab. Meets future wife, Elizabeth Lindheim, secretary in molecular biology department. Wins Helen Hay Whitney and American Cancer Society awards. After four years at Stanford, begins to look for job.

Faculty Years 55

Accepts assistant professorship at M.D. Anderson Cancer Center at University of Texas in Houston. Pew Scholars Award in the Biomedical Sciences. Applicability to other systems of gene-splicing in *Drosophila*. Teaching responsibilities. Administrative responsibilities. Associate professorship. "Renewable" tenure. Sitting on students' committees. Directedness of students. Writing grants. Publishing. Keeping up with other scientific developments. Collaboration and competition. Creativity. Patents. Goals. Balancing work life with family life.

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