

CHEMICAL HERITAGE FOUNDATION

**MICHAEL D. SHEETS**

The Pew Scholars Program in the Biomedical Sciences

Transcript of an Interview  
Conducted by

William Van Benschoten

at

University of Wisconsin, Madison  
Madison, Wisconsin

on

29-30 March 2004

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



Michael D. Sheets

## ACKNOWLEDGEMENT

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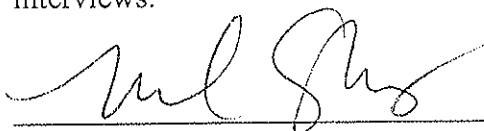
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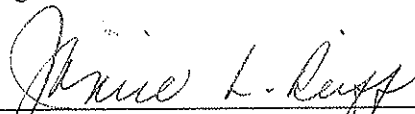
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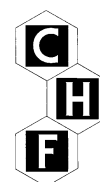
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## MICHAEL D. SHEETS

Born in West Lafayette, Indiana

### Education

1982 B.S., Purdue University  
1989 Ph.D., University of Wisconsin, Madison

### Professional Experience

1990-1992 University of Wisconsin, Madison  
Postdoctoral Fellow  
1996-present Associate Professor, Biomolecular Chemistry

1992-1996 University of California, Berkeley  
Postdoctoral Fellow

### Honors

1995 American Cancer Society Fellow  
1997 March of Dimes Basil O'Connor Scholar  
1998-2002 Pew Scholar  
1998 Beckman Young Investigator Award

### Selected Publications

- Sheets, M.D. (1998) Turning the frog into a princely model. *Nature Biotechnology* 16: 233-234.
- Sheets, M.D., Amersdorfer, P., Finnern, R., Sargent, P., Schier, R., Wong, C., Gerhart, J., and J. Marks. (1998) Efficient construction of a large non-immune phage antibody library: the production of panels of high affinity human single chain antibodies to protein antigens. *PNAS* 95(11):6157-62.
- Lane, M. C. and M.D Sheets. (2000). Designation of the anterior/ posterior axis in pre-gastrula *Xenopus* embryos. *Developmental Biology* 220(1): 37-58.
- Fritz, B.R, and M.D. Sheets. (2001) Regulation of the mRNAs encoding proteins of the BMP signaling pathway during the maternal stages of *Xenopus* development. *Developmental Biology* 236(1): 230-243.
- Wong C. Waibel R. Sheets M.D. Mach JP. Finnern R. (2001) Human scFv antibody fragments specific for the epithelial tumour marker MUC- 1 ,selected by phage display. *Cancer Immunotherapy*. 50(2): 93-101.



- Mitchell T.M., and M.D. Sheets. (2001) The FGFR pathway is required for the trunk-inducing functions of Spemann's organizer. *Developmental Biology*. 237(2): 295-305.
- Lane, M. C. and M.D. Sheets. (2002). Primitive and definitive blood share a common origin in *Xenopus* embryos. *Developmental Biology* (248) 52-67.
- Audic, Y. Fritz, B. Garbrecht, M. Sheets, M.D. and R. S. Hartley (2002). Zygotic control of maternal cyclin A1 translation. *Developmental Dynamics* 225 (4) 511-521.
- Lane, M. C. and M.D. Sheets. (2002). Rethinking axial patterning in *Xenopus* embryos (Review). *Developmental Dynamics* 225 (4) 434-447.
- Abler L.L., and M.D. Sheets (2003) Expression of scFv antibodies in *Xenopus* embryos to disrupt protein function: implications for large-scale evaluation of the embryonic proteome. *Genesis* 35(2) 107-113.
- Lane, M. C. and M.D. Sheets (2004) Fate Mapping Hematopoietic Lineages in the *Xenopus* Embryo. *Methods in Molecular Medicine*. 105:137-48, 2004. Good PJ. Abler L. Herring D. Sheets MD. (2004) *Xenopus* embryonic poly(A) binding protein 2 (ePABP2) defines a new family of cytoplasmic Poly(A) binding proteins expressed during the early stages of vertebrate development. *Genesis*. 38(4): 166-175.
- Lane, M. C. Davidson, L., and M.D. Sheets (2004) BMP antagonism by Spemann's organizer regulates rostral/caudal fate of mesoderm. *Developmental Biology*. 275(2):356-74, 2004.
- Sheets, M.D. (1998) Turning the frog into a princely model. *Nature Biotechnology* 16: 233-234.
- Sheets, M.D., Amersdorfer, P., Finnern, R., Sargent, P., Schier, R., Wong, C., Gerhart, J., and J. Marks. (1998) Efficient construction of a large non-immune phage antibody library: the production of panels of high affinity human single chain antibodies to protein antigens. *PNAS* 95(1 1):6157-62.
- Lane, M. C. and M.D. Sheets. (2000). Designation of the anterior/posterior axis in pre-gastrula *Xenopus* embryos. *Developmental Biology* 220(1): 37-58.
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- Wong C. Waibel R. Sheets M.D. Mach JP. Finnern R. (2001) Human scFv antibody fragments specific for the epithelial tumour marker MUC-1, selected by phage display. *Cancer Immunotherapy*. 50(2): 93-101.
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- Lane, M. C. and M.D. Sheets. (2002). Rethinking axial patterning in *Xenopus* embryos (Review). *Developmental Dynamics* 225 (4) 434-447.
- Abler L.L., and M.D. Sheets (2003) Expression of scFv antibodies in *Xenopus* embryos to disrupt protein function: implications for large-scale evaluation of the embryonic proteome. *Genesis* 35(2) 107-113.
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- Good PJ, Abler L, Herring D, Sheets MD. (2004) Xenopus embryonic poly(A) binding protein 2 (ePABP2) defines a new family of cytoplasmic Poly(A) binding proteins expressed during the early stages of vertebrate development. *Genesis*. 38(4): 166-175.
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## ABSTRACT

**Michael D. Sheets**, the oldest of three children, was born in West Lafayette, Indiana, while his father was studying at Purdue University. When Michael was about five, his father moved the family to East Lansing, Michigan, so that he (Michael's father) could obtain a master's degree; then they all moved back to a small town in Indiana; and the elder Sheets became a teacher of science and of industrial arts in high school. Sheets' mother had an associate's degree in accounting but chose to stay at home with her children. They lived on a very small farm, with a few animals and a large vegetable garden, and they were involved with 4H. Sheets liked to read; the family subscribed to the Time-Life Series of books, and their grandmother had a wall filled with *National Geographics*, both of which further increased his interests.

Sheets entered Purdue unsure just what he would study. Though he was interested in many of the sciences, he did not see a clear science path in the same way that he saw certain pre-professional options, but a counselor encouraged him to get lab experience, so he worked in Morris Levy's plant ecology lab his freshman year. After that year he switched to a chicken lab where he worked on gene expression. Excited by molecular biology but still not certain where to go to graduate school, he took Brian Larkins's advice and applied to the University of Wisconsin because they could provide a good general science education, as well as illuminating the many possibilities in science. There Michael worked on polyadenylation of RNA in Marvin Wickens's lab. He stayed in Wickens's lab for an extra two-year postdoc. He also met his future wife, Catherine Fox, in Wickens's lab, and they married just before going off to their postdocs.

Sheets accepted a postdoc at University of California at Berkeley, working in John Gerhart's laboratory, where he developed an antibody library for studying gene function during frog development. From Berkeley Michael and his wife had to find jobs at the same institution; the University of Wisconsin was their choice, as they love both the school and Madison, Wisconsin.

Today, Sheets continues his research on regulating gene expression in vertebrate development. He works at the bench, teaches, writes grant proposals and journal articles, and ponders the applicability of his research for clinical use. In addition, he and his wife have recently adopted a young son. Balancing work life and family life in a two-scientist family is difficult at best, but with his son's appearance, this balancing has become ever more complicated, though far more rewarding.

## UCLA INTERVIEW HISTORY

### INTERVIEWER:

William Van Benschoten, Interviewer, UCLA Oral History Program; B.A., History, University of California, Riverside, 1990; M.A., History, University of California, Riverside, 1991; C.Phil., History, University of California, Los Angeles, 1995.

### TIME AND SETTING OF INTERVIEW:

**Place:** Sheets's office at University of Wisconsin.

**Dates of sessions:** March 29, 2004; March 30, 2004.

**Total number of recorded hours:** 5.

**Persons present during interview:** Sheets and Van Benschoten.

### 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, Van Benschoten held a telephone preinterview conversation with Sheets to obtain written background information (curriculum vitae, copies of published articles, etc.) and agree on an interviewing schedule. He also reviewed documentation in Sheets's file at the Pew Scholars Program office in San Francisco, including Sheets's proposal application, letter of recommendation, and reviews by Pew Scholars Program national advisory committee members.

### ORIGINAL EDITING:

Carol Squires 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. Sheets reviewed the transcript. He verified proper names and made minor corrections and additions.

Carol Squires prepared the table of contents and TechniType Transcripts, and compiled the guide to proper names.

## SUPPORTING DOCUMENTS

The original tape recordings of the interview are in the university archives and are available under the regulations governing the use of permanent noncurrent records of the university.

Records relating to the interview are located in the office of the UCLA Oral History Program.

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