

CHEMICAL HERITAGE FOUNDATION

**MANFRED FRASCH**

The Pew Scholars Program in the Biomedical Sciences

Transcript of an Interview  
Conducted by

Andrea R. Maestrejuan

at

Mount Sinai School of Medicine  
New York City, New York

on

17-19 December 1998

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

## ACKNOWLEDGEMENT

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Brookdale Center for Molecular Biology  
One Gustave L. Levy Place  
Box 1126  
New York, New York 10029

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

INTERVIEWEE

THE REGENTS OF THE UNIVERSITY  
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(Signature)

Dale E. Treleven  
(Signature)

Manfred Frasch  
(Typed Name)

\_\_\_\_\_  
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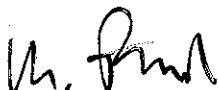
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Manfred Frasch, Ph.D.

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## MANFRED FRASCH

1954 Born in Holzgerlingen, Germany on 15 March

### Education

1981 Diploma, University of Tübingen  
1985 Ph.D., University of Tübingen

### Professional Experience

1981-1986	Max Planck Institute for Developmental Biology
1988-1991	Postdoctoral Fellow, Department of Physical Biology Research Fellow, Department of Genetics
1986-1988	Columbia University Postdoctoral Fellow, Department of Biology
1991-1995	Brookdale Center for Molecular Biology, Mount Sinai School of Medicine Assistant Professor
1996-present	Associate Professor

### Honors

1986-1988	Deutsche Forschungsgemeinschaft Fellowship
1989-1991	Deutsche Forschungsgemeinschaft Research Award
1993-1997	Pew Scholar in the Biomedical Sciences

### Selected Publications

- Risau, W. et al., 1983. Nonpackaging and packaging proteins of hnRNA in *Drosophila melanogaster*. *Cell* 33:529-41.
- Frasch, M. et al., 1987. Characterization and localization of the *even-skipped* protein of *Drosophila*. *European Molecular Biology Organization Journal* 6:749-59.
- Frasch, M. et al., 1987. Complementary patterns of *even-skipped* and *fushi tarazu* expression involve their differential regulation by a common set of segmentation genes in *Drosophila*. *Genes and Development* 1:981-95.
- Frasch, M. and H. Saumweber, 1989. Two proteins from *Drosophila* nuclei are bound to



- chromatin and are detected in a series of puffs on polytene chromosomes. *Chromosoma* 97:272-81.
- Dohrmann, C. et al., 1990. A new *Drosophila* homeobox gene is expressed in mesodermal precursor cells of distinct muscles during embryogenesis. *Genes and Development* 4:2098-111.
- Frasch, M., 1991. The maternally expressed *Drosophila* gene encoding the chromatin-binding protein *BJ1* is a homolog of the vertebrate gene regulator of chromatin condensation, *RCC1*. *European Molecular Biology Organization Journal* 10:1225-36.
- Azpiazu, N. and M. Frasch, 1993. *Tinman* and *bagpipe*: two homeobox genes that determine cell fates in the dorsal mesoderm of *Drosophila*. *Genes and Development* 7:1325-40.
- Frasch, M., 1995. Induction of visceral and cardiac mesoderm by ectodermal Dpp in the early *Drosophila* embryo. *Nature* 374:464-67.
- Azpiazu, N. et al., 1996. Segmentation and specification of the *Drosophila* mesoderm. *Genes and Development* 10:3183-94.
- Yin, Z. et al., 1997. Regulation of the *twist* target gene *tinman* by modular cis-regulatory elements during early mesoderm development. *Development* 124:4971-82.
- Xu, X. et al., 1998. *Smad* proteins act in combination with synergistic and antagonistic regulators to target Dpp responses to the *Drosophila* mesoderm. *Genes and Development* 12:2354-70.
- Knirr, S. et al., 1999. The role of the NK-homeobox gene *slouch* (*S59*) in somatic muscle patterning. *Development* 126:4525-35.

## ABSTRACT

**Manfred Frasch** was born in Holzgerlingen, Germany, in Swabia. His father was what we would call a contractor, building mostly wooden roofs. This business was begun by Frasch's grandfather, and the Frasch family has lived in that area for many generations. Manfred lived on a farm, where his mother did the farming. His father's workshop was also on the farm. He was brought up in the Lutheran faith. He had an early curiosity about how things work, leading him to chemistry and biology. After finishing *gymnasium*, Frasch completed his compulsory military service.

He entered the University of Tübingen, where he majored in biochemistry. He also studied molecular biology at the University of Munich, with which Tübingen had an exchange program. His diploma thesis concerned gene regulation in *Drosophila*; he found *Drosophila* so fascinating that he has remained in that field.

Liking the projects, the atmosphere, and the independence of Tübingen, Frasch decided to stay there for his Ph.D., using biochemical rather than genetic techniques in his research into *Drosophila*. He eventually learned cloning techniques and decided to pursue genetic approaches rather than biochemical. He worked in Friedrich Bonhoeffer's lab, where he had a great deal of independence.

Wanting to see more of the world and wanting to expand his scientific horizons, he applied for postdocs in the United States. He accepted a position in Michael Levine's lab at Columbia University, working on the *even-skipped* gene. He had always intended to return to Germany, and he accepted a position as a research fellow in Christiane Nüsslein-Volhard's lab in the Department of Genetics at the Max Planck Institute for Developmental Biology, where his focus was on mesoderm development. There, work on *S59* led to the characterization of *tinman* and *bagpipe*. Frasch was not sanguine about his career prospects during his last year at the University of Tübingen, so he decided to return to the States, and accepted a position in the Brookdale Center for Molecular Biology at Mount Sinai School of Medicine in New York City. There he established his own lab, where he hopes to find clinical relevance for his mesoderm and heart development research. He began as an associate professor in the Brookdale but is now a tenured associate professor. He is married to Hanh Thi Nguyen, who is also a scientist.

## UCLA INTERVIEW HISTORY

### INTERVIEWER:

Andrea R. Maestrejuan, Interviewer, UCLA Oral History Program; B.A., History, University of California, Irvine, 1988; B.S., Biological Sciences, University of California, Irvine, 1988; C.Phil., History, University of California, Riverside.

### TIME AND SETTING OF INTERVIEW:

**Place:** Frasch's office, Mount Sinai School of Medicine.

**Dates, length of sessions:** December 17, 1998 (83 minutes); December 18, 1998 (127) ; December 19, 1998 (102).

**Total number of recorded hours:** 5.2

**Persons present during interview:** Frasch 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.

In preparing for this interview, Maestrejuan, 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. Maestrejuan then held a telephone pre interview conversation with Frasch to obtain extensive written background information (curriculum vitae, copies of published articles, etc.) and agree on a research and interviewing timetable.

Maestrejuan further reviewed 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 general background on the recent history of the biological sciences, Maestrejuan consulted J.D. Watson et al., *The Molecular Biology of the Gene*. 4th ed. 2 vols. Menlo Park, CA: Benjamin/Cummings, 1987; Lubert Stryer, *Biochemistry*. 3rd ed. New York: W.H. Freeman, 1988; 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 Frasch's childhood in Holzgerlingen, Germany and his undergraduate work at University of Tübingen and continuing through his graduate and postdoctoral work at Max Planck Institute for Developmental Biology, further postdoctoral work at Columbia University, and the establishment of his own lab at Mount Sinai School of Medicine. Major topics discussed include Frasch's work on S59 in the

Michael Levine lab, his characterization of the *tinman* and *bagpipe* genes, and differences between how science is conducted in Germany and in the United States.

#### 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.

Frasch reviewed the transcript. He verified proper names and made a number of corrections and additions.

William Van Benschoten, editor, prepared the table of contents and index. Kwon compiled the biographical summary and interview history.

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