CHEMICAL HERITAGE FOUNDATION

MARTYN D. GOULDING

The Pew Scholars Program in the Biomedical Sciences

Transcript of an Interview
Conducted by

Helene L. Cohen

at

Salk Institute for Biological Studies
San Diego, California

on

9-11 January, 2001

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:

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. S0207 01B

This Interview Agreement is made and entered into this 7th day of February, 2001 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 MARTYN D. GOULDING, having an address at Molecular Neurobiology Laboratory, The Salk Institute for Biological Studies, 10010 North Torrey Pines Road, La Jolla, California 92037, hereinafter called "Interviewee."

Interviewee agrees to participate in a series of University-conducted tape-recorded interviews, commencing on or about January 9, 2001, and tentatively entitled, "Interview with Martyn D Goulding". 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:

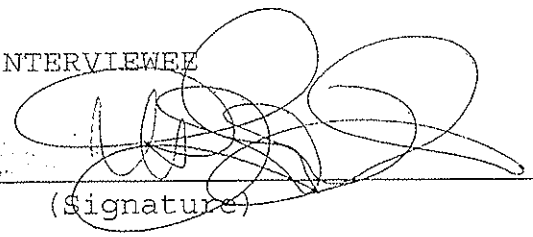
If to University: Oral History Program
University of California, Los Angeles
Box 951575
Los Angeles, California 90095-1575

Attention: Director

If to Interviewee: Martyn D. Goulding
Molecular Neurobiology Laboratory
The Salk Institute for Biological Studies
10010 North TOrrey Pines Road
La Jolla, California 92037

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

INTERVIEWEE

X 
(Signature)

Martyn D. Goulding
(Typed Name)

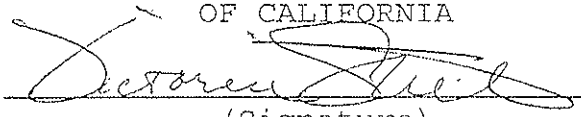
Molecular Neurobiology Laboratory
(Address)

The Salk Institute for Biological Studies

La Jolla, CA 92037

X Date JAN 9, 2001

THE REGENTS OF THE UNIVERSITY OF CALIFORNIA


(Signature)

Dale E. Treleven
(Typed Name)

Director, Oral History Program
(Title)

Date Feb. 7, 2001

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

MARTYN D. GOULDING

1958 Born in Auckland, New Zealand on 17 April

Education

1982 B.S., Auckland University
1988 Ph.D., Auckland University

Professional Experience

Max Planck Institute for Biophysical Chemistry, Göttingen, Germany
1988-1991 Postdoctoral Fellow

University of London, London, England
1991-1992 Guy's Hospital, Senior Research Fellow

The Salk Institute for Biological Studies, San Diego, California
1992-present Assistant Professor

University of California, San Diego, San Diego, California
1992-present Adjunct Professor, Department of Biology

Honors

1993-1997 Pew Scholars Program in the Biomedical Sciences Grant

Selected Publications

Goulding, M. et al., 1991. *PAX-3*, a novel murine DNA binding protein expressed during early neurogenesis. *European Molecular Biology Organization* 10:1135-47.

Chelepakis, G. et al., 1991. The molecular basis of the undulated *PAX-1* mutation. *Cell* 66:873-84.

Goulding, M. et al, 1993. Signals from the notochord and floor plate regulate the region-specific expression of two *PAX* genes in the developing spinal cord. *Development* 117:1001-17.

Goulding, M. et al., 1994. Regulation of *PAX-3* in the dermomytome and itsrole in muscle development. *Development* 120:957-71.

Daston, G. et al., 1996. *PAX-3* is necessary for migration but not differentiation of limb muscle precursors in the mouse. *Development* 122:1017-27.

Bang, A.G. and M. Goulding, 1996. Regulation of vertebrate neural cell fate by transcription

factors. *Current Opinions in Neurology* 6:10-17.
Bang, A.G. et al., 1997. Induction of *PAX-3* in the neural plate requires an early signal from posterior mesoderm. *Development* 124:2075-85.
Maroto, M. et al., 1997. Ectopic *PAX-3* activates MyoD and Myf-5 expression in both embryonic mesoderm and in neural tissue. *Cell* 89:139-48.
Burrill, J. et al., 1997. *PAX-2* is expressed in multiple spinal cord interneurons, including a population of En1 + interneurons that require *PAX-6* for their correct specification. *Development* 124:4493-503.

ABSTRACT

Martyn D. Goulding was born in 1958 in Auckland, New Zealand; the eldest of five siblings. His father was a blue-collar worker, originally from the Fiji Islands, who would later open his own plumbing manufacturing company. Goulding's mother suffered from increasing disabilities caused by polio during her childhood, and she worked several jobs intermittently. His family attended church regularly, as his maternal grandfather was a church minister; an experience which he credits as one of his most positive influences. Through high school and other influences Goulding came to appreciate science and medicine and decided to apply to medical school.

Goulding attended Auckland University Medical School with the original intention of earning an M.D. degree. His first laboratory experience with Raymond K. Ralph, however, gave him a newfound interest in research and he decided to switch to a Ph.D. program. Goulding stayed on in Ralph's lab studying the role of cyclic AMP in tumor cell growth regulation for which he earned a Bachelor of Science degree; he then did research on c-fos and other oncogenes to earn a Ph.D. He also met and married his wife, Yolanda Leenders, during his time at Auckland University. In 1988 Goulding began as a postdoctoral fellow in Peter Gruss's lab at the Max Planck Institute for Biophysical Chemistry, in Göttingen, Germany. During his time in Gruss's Lab, Goulding focused his research on PAX genes and their role in notochord development. He then spent some time in England, where he was a senior research fellow at Guy's Hospital, and spent five months doing research at the University of Nottingham.

In 1992 Goulding was appointed Adjunct Professor of Biology at the University of California, San Diego and was also appointed Assistant Professor at the Salk Institute for Biological Studies in San Diego, California. His current research concentrates on spinal chord interneurons and the genes and transcription factors which during development are crucial to the appropriate growth and function of these interneurons .

Throughout his oral history Goulding emphasizes that the goal of any true researcher should be to seek the truth, and cautions against financially motivated research. He has received the Pew Scholars Program in the Biomedical Sciences Grant, which he discusses in the oral history.

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: Goulding's office, the Salk Institute for Biological Studies, San Diego, California.

Dates, length of sessions: January 9, 2001 (109 minutes); January 10, 2001 (115); January 11, 2001 (103).

Total number of recorded hours: 5.2

Persons present during interview: Goulding 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 Goulding 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 Goulding'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 Goulding's childhood in Auckland, New Zealand, and continuing through his undergraduate and graduate work at University of Australian University, his postdoc at Max Planck Institute for Biophysical Chemistry, and the establishment of his own lab at the Salk Institute for Biological Studies. Major topics discussed include his decision to pursue research science rather than medicine, his study of cancer biology in the Raymond K. Ralph laboratory, and his current research on interneurons in the ventral spinal cord.

ORIGINAL EDITING:

Victoria Simmons, 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.

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

William Van Benschoten, senior writer, prepared the table of contents. Victoria Simmons assembled the biographical summary and interview history. Gail Ostergren, editor, compiled the index.

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