CHEMICAL HERITAGE FOUNDATION

RORY M. MARKS

The Pew Scholars Program in the Biomedical Sciences

Transcript of an Interview
Conducted by

Andrea R. Maestrejuan

at

University of Michigan
Ann Arbor, Michigan

on

5, 6 and 7 November 1997

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:

Holly Polish, Program Intern, Oral History, Chemical Heritage Foundation. B.A. History, American University.

David J. Caruso, Program Manager, Oral History, 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. 971113

This Interview Agreement is made and entered into this 26th day of May, 1998 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 RORY M. MARKS, having an address at Department of Internal Medicine, University of Michigan, Kresge Building 1, Room 4570, Ann Arbor, Michigan, 48109-0531, hereinafter called "Interviewee."

Interviewee agrees to participate in a series of University-conducted tape-recorded interviews, commencing on or about November 5, 1997, and tentatively entitled "Interview with Rory M. Marks" 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 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:

Office of Research Administration
University of California, Los Angeles
P.O. Box 951406
Los Angeles, California 90095-1406

Attention: Ms. Carli V. Rogers
Copyright Officer

If to Interviewee:

Rory M. Marks
Department of Internal Medicine
University of Michigan
Kresge 1 Building, Room 4570
Ann Arbor, Michigan 48109-0531

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

INTERVIEWEE	THE REGENTS OF THE UNIVERSITY OF CALIFORNIA
Rory Marks (Signature)	(Signature)
Rory M. Marks (Typed Name)	Carli V. Rogers (Typed Name)
Department of Internal Medicine	Copyright Officer (Title)
University of Michigan (Address)	
Kresge 1 Building, Room 4570	
Ann Arbor, MI 48109-0531	
Date 11/5/97	Date 6/26/98

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

RORY M. MARKS

1952 Born in Sydney, Australia, in March

Education

1973 B.Sc., University of New South Wales
1976 M.B., University of New South Wales

Professional Experience

Saint Vincent's Hospital, Sydney, Australia
1977 Intern
1978 Resident Medical Officer
1981 Clinical Immunology Registrar

Royal Newcastle Hospital, New South Wales, Australia
1979 Medical Registrar

Royal Prince Alfred Hospital, Sydney, Australia
1980 Medical Registrar

University of New South Wales, Sydney, Australia
1982-1986 Fellow in Medicine

University of Michigan, Ann Arbor, Michigan
1987-1989 Postdoctoral Fellow in Pathology
1990-1997 Assistant Professor, Department of Internal Medicine
1998 Associate Professor

University Hospital, Ann Arbor, Michigan
1990-present Attending Physician

Ann Arbor Veterans Administration Hospital, Ann Arbor, Michigan
1997-present Attending Physician

Honors

1973 National Health and Medical Research Council of Australia
Undergraduate Medical Research Scholarship

1982	Medical Postgraduate Scholarship
1987	Neil Hamilton Fairley Overseas Travelling Fellowship
1986	Royal Australasian College of Physicians D.E.V. Starr Overseas Research Fellowship
1991-1995	Pew Scholars Program in the Biomedical Sciences Grant

Selected Publications

Marks, R.M. et al., 1975. Salmonella enteritis infection in rats: Antigens involved in cell mediated immunity. *Australian Journal of Experimental Biology and Medical Science* 53:315-24.

Marks, R.M. and R. Penny, 1976. Lymphokine-like activity in the serum of patients with haemopoietic malignancies. *Australian Journal of Experimental Biology and Medical Science* 54:107-10.

Marks, R.M. et al., 1986. Mast cell granules cause proliferation of human microvascular endothelial cells. *Laboratory Investigations* 55:289-94.

Marks, R.M. et al., 1988. The effects of scleroderma serum on human microvascular endothelial cells: Induction of antibody dependent cellular cytotoxicity. *Arthritic Rheumatology* 31:1524-34.

Marks, R.M. et al., 1989. Rapid induction of neutrophil-endothelial adhesion by endothelial complement fixation. *Nature* 339:314-17.

Dixit, V.M. et al., 1990. Tumor necrosis factor alpha induction of novel gene products in human endothelial cells including a macrophage specific chemotaxin. *Journal of Biological Chemistry* 265:2973-78.

Lowe, J.B. et al., 1991. ELAM-1-dependent cell adhesion to vascular endothelium determined by a transfected human fucosyltransferase cDNA. *Cell* 63:475-84.

Chen, Y. et al., 1996. Demonstration of binding of dengue virus envelope protein to target cells. *Journal of Virology* 70:8765-72.

Chen, Y. et al., 1997. Dengue virus infectivity depends on envelope protein binding to target cell heparin sulfate. *Nature Medicine* 3:866-71.

Hindmarsh, E.J. and R.M. Marks, 1998. Complement activation occurs on subendothelial extracellular matrix *in vitro*, and is initiated by retraction or removal of overlying endothelial cells. *Journal of Immunology* 160:6128-36.

ABSTRACT

Rory M. Marks was born in Sydney, Australia, the elder of two brothers. His parents had met in the Royal Australian Air Force, during World War II; there his father was an aircraft engineer and his mother a radio operator, but the senior Marks went into the fish business when he left the service. The family lived near the Sydney harbor, and the boys spent as much time as possible at the beach. Rory and his brother attended a rigorous Anglican school where grades were extremely important.

Rory was always interested in how things work, in the elegance of mathematical explanations and the creativity of science. He thought that differential calculus was the most beautiful thing. He also liked to take things apart (and he still does). He took apart the garbage disposal to see how it worked; soon there was garbage all around the foundations of the house, as he had not put the disposal back together correctly.

It was customary to attend college where one lived, so Rory went to the University of New South Wales and lived at home. Unaware that science did not have to mean medicine, he entered the medical school. Classes were large lecture classes, often on video. After his third year he did an optional year of research, working with T-cell immunity to salmonella in rats; he liked his mentors and the other students. He liked the clinical work and liked his boss, Ronald Penny, who was a very good clinician. During Christmas break he went to England, to Ian Clark's lab, then back to med school with Penny; after three or four years in the same lab he chose vascular biology for his field and wanted to go overseas. He went to Children's Hospital in Boston, Massachusetts, to Judah Folkman's lab and learned to grow blood vessel wall cells; then it was back to Australia. Next, he went to Griffith, Australia, a rural area, for his internship, then, no longer satisfied with his work in Penny's lab, he worked with Michael Berndt at a different hospital.

Rory decided that science was best done in the United States, so he took a scholarship to the University of Michigan, working in Peter Ward's lab on oxygen-deprived free radicals in vascular tissue damage. He attended a summer class in molecular biology at Smith College, where he was impressed by a talk given by Vishva Dixit, with whom he now works closely. He grew cells for Dixit, working on complement system. He met Faye Silverstein, who is now his wife. For that reason and because science is better in the United States, he did not want to return to Australia. He is still at the University of Michigan, where he had a breakthrough in his vascular complement fixation (VCF) work after nine years. He continues his interest in tropical diseases and their vascular implications. His wife is also a physician-scientist, a pediatric neurologist, and they are working together on a project concerning angiogenesis.

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: Marks's office, University of Michigan.

Dates, length of sessions: November 5, 1997 (117 minutes); November 6, 1997 (105); November 7, 1997 (97).

Total number of recorded hours: 5.3

Persons present during interview: Marks 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.

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, Maestrejuan held a telephone preinterview conversation with Marks to obtain written background information (curriculum vitae, copies of published articles, etc.) and to agree on an interviewing schedule. She also reviewed prior Pew scholars' interviews and the documentation in Marks'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 general background on the recent history of the biological sciences, Maestrejuan consulted J.D. Watson et al., *Molecular Biology of the Gene.* 4th ed. Menlo Park, CA: Benjamin/Cummings, 1987, and Bruce Alberts et al., *Molecular Biology of the Cell.* 3rd ed. New York: Garland.

The interview is organized chronologically, beginning with Marks's childhood in Sydney, Australia, and continuing through his graduate work at the University of New South Wales, his internship at St. Vincent's Hospital, Sydney, Australia, and his postdoc and the establishment of his own lab at the University of Michigan. Major topics discussed include complement activation and the induction of leukocyte adhesion, Marks's work on dengue virus, and the funding of science.

ORIGINAL EDITING:

Gregory M.D. Beyrer, editorial assistant, edited the interview. He 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.

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

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

Ödül Bozkurt, editorial assistant, compiled the index.

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