CHEMICAL HERITAGE FOUNDATION

JOHN M. LEONG

The Pew Scholars Program in the Biomedical Sciences

Transcript of an Interview
Conducted by

Andrea R. Maestrejuan

at

University of Massachusetts Medical Center
Worcester, Massachusetts

on

5-7 February 1997

John M. Leong

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 the Pew Scholars Program in the Biomedical Sciences Advisory Committee members.

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REFORMATTING:

Marnie Berkowitz, Consultant to the Chemical Heritage Foundation. B.A., Classical Languages and Literatures, University of Minnesota; Ford Foundation Fellowship, Classical Languages and Literatures, University of Chicago.

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. B980810

This Interview Agreement is made and entered into this 6th day of August, 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 JOHN M. LEONG, having an address at University of Massachusetts Medical Center, Department of Molecular Genetics and Microbiology, hereinafter called "Interviewee."

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

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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:

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University of California, Los Angeles
P.O. Box 951406
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Attention: Ms. Carli V. Rogers
Copyright Officer

If to Interviewee: John M. Leong
University of Massachusetts Medical Center
Department of Molecular Genetics and Microbiology
55 Lake Avenue North
Worcester, MA 01655

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

INTERVIEWEE

(Signature)

John M. Leong
(Typed Name)

Universityof Massachusetts
Medical Center

55 Lake Avenue North
(Address)

Worcester, MA 01655

Date

THE REGENTS OF THE UNIVERSITY OF CALIFORNIA

(Signature)

Patricia Brennan, Director
for/Copyright Officer
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1400 Ueberroth Building
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(Title)

Date 8/6/98

Pew Scholars in the Biomedical Sciences

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I, John M. Leong, M.D., Ph.D., hereby request that my wishes be followed as per the checked selection below with regards to posting portions of the digital copy of the audio-taped interview of me and the related written transcript on the internet for non-commercial, educational use only.

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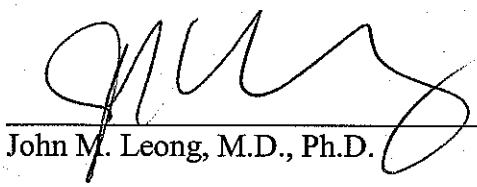

John M. Leong, M.D., Ph.D.

2/14/08

Date

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315 Chestnut Street
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JOHN M. LEONG

1957	Born in Berkeley, California on 23 January

Education

1979	B.A., Brown University
1985	Ph.D., Brown University
1987	M.D., Brown University

Professional Experience

	Tufts University School of Medicine
1987-1990	Postdoctoral Fellow
1993-1995	Graduate Faculty Member, Department of Molecular Biology and Microbiology
	New England Medical Center
1990-1995	Assistant Professor of Medicine, Department of Rheumatology and Immunology
	University of Massachusetts Medical Center
1995-present	Assistant Professor, Department of Molecular Genetics and Microbiology

Honors

1979	Phi Beta Kappa
1985	Barry Rosen Memorial Award, Brown University
1992-1996	Pew Scholar in the Biomedical Sciences

Selected Publications

Argos, P. et al., 1986. The integrase family of site-specific recombinases: Regional similarities and global diversity. *EMBO Journal* 5:433-40.

Isberg, R.R. and J.M. Leong, 1988. Cultured mammalian cells attach to the invasin protein of *Yersinia pseudotuberculosis. Proceedings of the National Academy of Sciences USA* 5:6682-86.

Isberg, R.R. and J.M. Leong, 1990. Multiple ß$_1$ chain integrins are receptors for invasin, a protein that promotes bacterial penetration into mammalian cells. *Cell* 60:861-71.

Leong, J.M. et al., 1990. Identification of the integrin-binding domain of the *Yersinia pseudotuberculosis* invasin protein. *EMBO Journal* 9:1979-89.

Rankin, S. et al., 1992. The integrin-binding domain of invasin protein is sufficient to allow bacterial entry into mammalian cells. *Infectious Immunology* 60:3909-12.

Coburn, J. et al., 1993. Integrin $\propto_{IIb}ß_3$ mediates binding of the Lyme disease agent, *Borrelia burgdorferi*, to human platelets. *Proceedings of the National Academy of SciencesUSA* 90:7059-63.

Leong, J.M. et al., 1993. A 76-amino acid disulfide loop of the *Yersinia pseudotuberculosis* invasin protein is required for integrin receptor recognition. *Journal of Biological Chemistry* 268:20524-32.

Coburn, J.L. et al., 1994. Diverse Lyme disease spirochetes bind platelet integrin $\propto_{IIb}ß_3$. *Infection and Immunity* 62: 5559-67.

Leong, J.M. et al., 1995. An aspartate residue of the *Yersinia pseudotuberculosis* invasin protein that is critical for integrin binding. *EMBO Journal* 14:422-31.

Leong, J.M. et al., 1995. Hemagglutination and proteoglycan binding by the Lyme disease spirochete, *B. burgdorferi. Infection and Immunity* 63:874-83.

ABSTRACT

John M. Leong was born and raised in Berkeley, California, the third of three siblings. His parents are Chinese-American and had what John calls typical Chinese expectations for their children; viz., that all three should do well in school and attend Ivy League colleges, and that the boys, at least, should become doctors. This was particularly the case because John's grandfather was a dentist and his father a doctor manqué who became a mining engineer in order to support his family. John, however, was more interested in sports as a boy, playing tennis especially. He did well enough in school, though, to be accepted by a number of Ivy League colleges. He matriculated at Brown University in their Program in Liberal Medical Education, which grants both a BS and an MD degree in a shortened time period.

When he began college he was unsure what he wanted to do, but a class in molecular biology inspired him to become a research scientist. He decided to take time off from medicine in favor of earning a PhD. He entered Arthur Landy's lab, where he began working on φ80. During this time, he commuted for a few months to Mimi Susskind's lab at University of Massachusetts, where he worked with Philip Youderian on P22.

John accepted a postdoc at Tufts University, in Ralph Isberg's lab, though that lab had not yet been set up. There he worked on the inv gene of Yersinia pseudotuberculosis, from which he was nudged toward working on the Lyme spirochete. Deciding to accept a position in the medical school at Tufts University, he studied integrin binding and proteoglycan binding with B. burgdorferi in his attempts to characterize genes that encode ligands in B. burgdorferi.

Although he found that the clinical perspective provided by an MD degree made Lyme disease interesting, Leong felt that he thought more as a basic scientist, and he accepted a position at the University of Massachusetts. He has found that Lyme is a difficult experimental study and that there is a hostile political climate surrounding the study of Lyme, and he is thinking that he will work on enterohemorrhagic E. coli. He laughingly points out that there is more grant money in E. coli, too, an important factor for any scientist.

Although he likes his work, Leong says that he would also like to spend more time with his young daughter and his wife, who is a physician; and he would like to play more tennis. He believes that balancing act is faced by all two-career couples.

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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: Leong's office, University of Massachusetts Medical Center.

Dates, length of sessions: February 5, 1997 (87 minutes); February 6, 1997 (95); February 7, 1997 (76).

Total number of recorded hours: 4.3

Persons present during interview: Leong 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 Leong 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 Leong'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, 1994.

The interview is organized chronologically, beginning with Leong's childhood and continuing through his education at Brown University and Tufts University School of Medicine and the establishment of his labs at the New England Medical Center and the University of Massachusetts Medical Center. Major topics discussed include the current state of Lyme disease research, collaboration and competition, the pressures of a science career, and the relevance of an M.D. degree for a research scientist.

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.

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

Jane Collings, editor, prepared the table of contents. Beyrer compiled the biographical summary, interview history, and index.

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