CHEMICAL HERITAGE FOUNDATION

RUDOLPH E. TANZI

The Pew Scholars Program in the Biomedical Sciences

Transcript of an Interview
Conducted by

Andrea R. Maestrejuan

at

Massachusetts General Hospital
Boston, Massachusetts

on

16-18, 24 November 1998

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 the Pew Scholars Program in the Biomedical Sciences 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:

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. T0126990

This Interview Agreement is made and entered into this 27th day of January, 1999 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 RUDOLPH E. TANZI, having an address at Neurology Department, Genetics and Aging Unit, Massachusetts General Hospital, Building 149, 13th Street, Charlestown, Massachusetts 02129, hereinafter called "Interviewee."

Interviewee agrees to participate in a series of University-conducted tape-recorded interviews, commencing on or about November 16, 1998, and tentatively entitled "Interview with Rudolph E. Tanzi". 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: Office of Research Administration
University of California, Los Angeles
P.O. Box 951406
Los Angeles, California 90095-1406

Attention: _____

If to Interviewee: Rudolph E. Tanzi
Neurology Department, Genetics and Aging Unit
Massachusetts General Hospital
Building 149, 13th Street
Charlestown, Massachusetts 02129

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

INTERVIEWEE

(Signature)

Rudolph E. Tanzi
(Typed Name)

Neurology Department, Genetics and Aging Unit

Massachusetts General Hospital
(Address)

Charlestown, MA 02129

Date _____

THE REGENTS OF THE UNIVERSITY OF CALIFORNIA

(Signature)

Dale E. Treleven
(Typed Name)

Director, Oral History Program
(Title)

Date 1/27/99

Pew Scholars in the Biomedical Sciences

Chemical Heritage Foundation Internet Posting Release Form

I, Rudolph E. Tanzi, 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.

Please check one:

a. ✓ **No restrictions for Internet Posting.**
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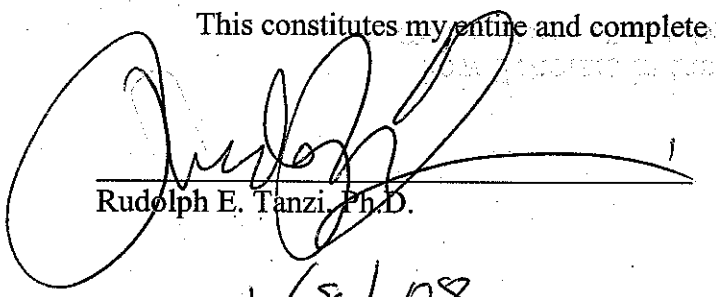
b. _____ **Semi-restricted Internet Postings** (My review of the material intended to post is required.)

c. _____ **Restricted access.** (Do not post.)

This constitutes my entire and complete understanding.



Rudolph E. Tanzi, Ph.D.

1/8/08

Date

Thanks RT

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

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RUDOLPH E. TANZI

1958 Born in Providence, Rhode Island on 18 September

Education

1980 B.A., University of Rochester
1990 Ph.D., Harvard University

Professional Experience

Massachusetts General Hospital
1980-1982 Research Assistant, Genetics Unit
1982-1985 Senior Research Assistant
1990-1994 Assistant Geneticist, Neurology
1994-present Associate Geneticist, Neurology
1995-present Director, Genetics and Aging Unit

Harvard University
1990-1992 Instructor, Neurology
1992-1994 Assistant Professor
1993-present Faculty Affiliate, Neuroscience
1994-present Associate Professor

Honors

1985 National Research Service Award
1993-1997 Pew Scholar in the Biomedical Sciences
1995 The Metropolitan Life Foundation Award for Medical Research
1996 The Potamkin Prize for Research in Pick's, Alzheimer's, and Related Disorders
1997 Alzheimer's Association T.L.L. Temple Foundation Discovery Award for Alzheimer's Disease Research

Selected Publications

Gusella, J.F. et al., 1983. A polymorphic DNA marker genetically linked to Huntington's Disease. *Nature* 306:234-38.

Tanzi, R.E. et al., 1987. The amyloid beta protein gene: cDNA cloning, mRNA distribution, and genetic linkage near the Alzheimer locus. *Science* 235:880-84.

Tanzi, R.E. et al., 1987. The genetic defect in familial Alzheimer's disease is not tightly linked to the amyloid beta protein gene. *Nature* 329:156-57.

Tanzi, R.E. et al., 1988. Protease inhibitor domain encoded by an amyloid protein precursor mRNA associated with Alzheimer's disease. *Nature* 331:528-30.

Tanzi, R.E. et al., 1988. Genetic linkage map of human chromosome 21. *Genomics* 3 : 129-36.

Tanzi, R.E. et al., 1991. Alzheimer's mutation and translational regulation. *Nature* 350:564.

Tanzi, R.E. et al., 1992. Assessment of amyloid beta protein precursor gene mutations in a large set of familial and sporadic Alzheimer disease cases. *American Journal of Human Genetics* 51:273-82.

Sherrington, R. et al., 1995. Cloning of a novel gene bearing missense mutations in early onset familial Alzheimer disease. *Nature* 375:754-60.

Blacker, D. et al., 1998. Alpha-2 macroglobulin is genetically associated with Alzheimer's disease. *Nature Genetics* 19:357-60.

Liao A. et al., 1998. Genetic association of an alpha-2 macroglobulin polymorphism and Alzheimer's disease. *Human Molecular Genetics* 7:1953-56.

ABSTRACT

Rudolph E. Tanzi was born in Cranston, a suburb of Providence, Rhode Island, to parents of Italian descent. His father, until he suffered a fatal heart attack in his forties, was a baker in a family–run bakery in an Italian American community, and his mother started her own medical transcription business, in which Tanzi's twin sister, older by five minutes, also worked. Always interested in music, Tanzi began playing the accordion at a young age but soon switched to organ. He continued to play, even playing with some famous rock bands when he was a teenager, and now extemporizes his own music.

His parents wanted him to be a doctor, and he always understood that he would go to college, in spite of his preference for music. Luckily, he was also interested in the history of science; in high school he entered and won a number of important science competitions. He became interested in microbiology, in which he majored at the University of Rochester. In college he entered the Harry Tabor lab, from the beginning preferring research to medicine.

After college he became a technician for James Gusella at Massachusetts General Hospital, helping to identify the Huntington's chorea gene. He stayed there for four years, continuing at night to play "gigs" with his band. Somewhat tired of genetics, he applied to Harvard to study neuroscience. Work on the chromosome implicated in Down Syndrome led him to investigate Alzheimer's disease. He cloned and characterized the amyloid protein precursor (*APP*) gene. He returned to Gusella's lab after publishing several papers. Deciding to remain at Harvard, he has progressed from assistant professor to full professor; he is also the director of the genetics and aging unit at Massachusetts General Hospital. His research into Alzheimer's disease has resulted in the search for the amyloid gene and the discovery of the presenilin 1 and 2 genes. He continues to study the role of alpha-2 macroglobulin (A2M) in Alzheimer's disease; to seek to identify risk factors for Alzheimer's disease; and to look for new methods to discover the causes of AD. He is currently writing a book about Alzheimer's, a book for the layman.

UCLA INTERVIEW HISTORY

INTERVIEWER:

Andrea R. Maestrejuan, Interviewer, UCLA Oral History Program; B.S., Biological Sciences, University of California, Irvine, 1986; B.A., History, University of California, Irvine; M.A., History, University of California, Riverside, 1991; C.Phil., History, University of California, Riverside.

TIME AND SETTING OF INTERVIEW:

Place: Tanzi's office, Massachusetts General Hospital.

Dates, length of sessions: November 16, 1998 (87 minutes); November 17, 1998 (124); November 18, 1998 (101); November 24, 1998 (80).

Total number of recorded hours: 6.55

Persons present during interview: Tanzi 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 Tanzi 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 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 technical background, Maestrejuan consulted J.D. Watson et al., *Molecular Biology of the Gene.* 4th ed. Menlo Park, CA: Benjamin/Cummings, 1987; Bruce Alberts et al., *Molecular Biology of the Cell.* 3rd ed. New York: Garland, 1994.

The interview is organized chronologically, beginning with Tanzi's childhood in Providence, Rhode Island, and continuing through his undergraduate work at University of Rochester, his research assistantship at Massachusetts General Hospital, his graduate work at Harvard University, and the establishment of his own lab at Harvard. Major topics discussed include his interest in Eastern philosophy, his identification of the amyloid gene, scientists' ethical responsibilities, and his work identifying late-onset gene defects and risk factors in

Alzheimer's.

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.

Tanzi 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. Ji Young Kwon assembled the biographical summary and interview history.

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