

CHEMICAL HERITAGE FOUNDATION

**JEFFREY WILUSZ**

The Pew Scholars Program in the Biomedical Sciences

Transcript of an Interview  
Conducted by

Andrea R. Maestrejuan

at

University of Medicine and Dentistry of New Jersey  
Newark, New Jersey

on

19, 20, and 21 January 1998

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## **ACKNOWLEDGEMENT**

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Interviewee agrees to participate in a series of University-conducted tape-recorded interviews, commencing on or about January 19, 1998, and tentatively entitled "Interview with Jeffrey Wilusz". 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."

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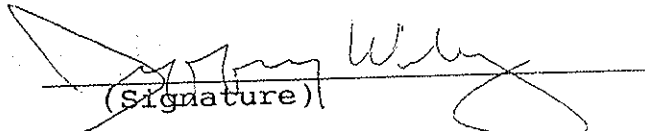
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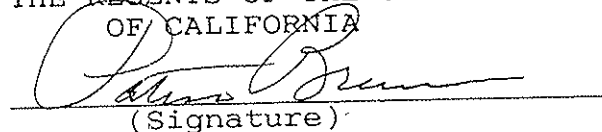
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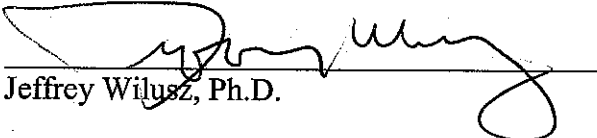
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## JEFFREY WILUSZ

1959 Born in South Amboy, New Jersey, on 29 October

### Education

1981 B.S., Animal Science, Rutgers (Cook College) the State University  
1985 Ph.D., Molecular Virology, Duke University

### Professional Experience

1985-1989 Princeton University, Princeton, New Jersey  
Postdoctoral Fellow, Department of Biology

1989-1995 University of Medicine and Dentistry of New Jersey, Newark,  
New Jersey  
Assistant Professor, Department of Microbiology and  
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1995-present Associate Professor, Department of Microbiology and  
Molecular Genetics

### Honors

1982-1985 National Science Foundation Graduate Fellowship  
1986-1989 American Cancer Society Postdoctoral Fellowship  
1989 Howard Hughes Medical Institute Postdoctoral Fellowship  
1992-1996 Pew Scholar in the Biomedical Sciences  
1996 Gallo Award for Cancer Research  
1996 Golden Apple Award

### Selected Publications

Wilusz, J. et al., 1983. A host protein *La* binds to a unique species of minus-sense leader RNA during replication of vesicular stomatitis virus. *Proceedings of the National Academy of Sciences USA* 80:5827-31.

Wilusz, J. and J.D. Keene, 1984. Interaction of plus and minus strand leader RNAs of the New Jersey serotype of vesicular stomatitis virus with the cellular *La* protein. *Virology* 135:65-73.

Kiley, M.P. et al., 1986. Conservation of the 3' terminal nucleotide sequences of ebola and



- marburg virus. *Virology* 149:251-54.
- Wilusz, J. and J.D. Keene, 1986. Autoantibodies specific for U1 RNA and initiator methionine tRNA. *Journal of Biological Chemistry* 261:5467-72.
- Wilusz, J. and T. Shenk, 1988. A 64kd nuclear protein binds to RNA segments that include the AAUAAA polyadenylation motif. *Cell* 52:221-28.
- Wilusz, J. et al., 1988. The C proteins of heterogeneous nuclear ribonucleoprotein complexes interact with RNA sequences downstream of polyadenylation cleavage sites. *Molecular and Cellular Biology* 8:4477-83.
- Wilusz, J. and T. Shenk, 1990. A uridylyate tract mediates efficient heterogeneous nuclear ribonucleoprotein C protein-RNA cross-linking and functionally substitutes for the downstream element of the polyadenylation signal. *Molecular and Cellular Biology* 10:6397-407.
- Qian, Z. and J. Wilusz, 1991. An RNA binding protein specifically interacts with a functionally important domain of the downstream element of the simian virus 40 late polyadenylation signal. *Molecular and Cellular Biology* 11:5312-20.
- Qian, Z. and J. Wilusz, 1993. Cloning of a cDNA encoding an RNA binding protein by screen expression libraries using a northwestern strategy. *Analytical Biochemistry* 212:547-54.
- MacDonald, C.C. et al., 1994. The 64 kilodalton subunit of the CstF polyadenylation factor binds to pre-mRNAs downstream of the cleavage site and influences cleavage site location. *Molecular and Cellular Biology* 14:6647-54.
- Qian, Z. and J. Wilusz, 1994. GRSF-1: A poly (A)<sup>+</sup> mRNA binding protein which interacts with a conserved G-rich element. *Nucleic Acids Research* 22:2334-43.
- Bagga, P.S. et al., 1995. The G-rich auxiliary downstream element has distinct sequence and position requirements and mediates efficient 3' end pre-mRNA processing through a trans-acting factor. *Nucleic Acids Research* 23:1625-31.
- Chen, F. et al., 1995. Cleavage site determinants in the mammalian polyadenylation signal. *Nucleic Acids Research* 23:2614-20.
- Ford, L.P. et al., 1997. The poly(A) tail inhibits the assembly of a 3' to 5' exonuclease in an *in vitro* RNA stability system. *Molecular and Cellular Biology* 17:398-406.

## ABSTRACT

**Jeffrey Wilusz** grew up in South Amboy, New Jersey, in a Polish Roman Catholic family. His father worked in various capacities for the telephone company; his mother was a homemaker until her four children were in school, at which time she began secretarial work. Wilusz attended Roman Catholic schools all through high school (his religion continues to influence his children's lives). He entered Rutgers-the State University, where he decided to pursue veterinary medicine, and the death of his favorite dog confirmed him in that decision. He found thinking through scientific issues similar to solving puzzles, and running helped him both clarify his thinking and relax. Although his high-school education had not provided scientific training and opportunities, he studied microbiology for his undergraduate degree.

Wilusz became interested in virology and began graduate work at Duke University, where he overcame his lack of familiarity with new molecular ideas and procedures and intensified his interest in virology. Jack Keene (Pew Scholar Class of 1985) and Thomas Shenk became his mentors. He met and married Susan Miller, and they had two children.

Lessons learned in Keene's lab helped Wilusz identify a leader RNA that binds to *La* protein. The Keene lab switched from vesicular stomatitis virus research to autoantigen research, which contributed to Wilusz's ability to identify acidic ribosomal proteins in autoantigens. He began the sequencing of Ebola virus-identified RNA structural regions that recognize antibodies, and began studying VA RNA in the Shenk lab. He used *in vitro* polyadenylation to study protein-RNA interactions. Wilusz accepted a postdoc at Princeton University, where he had to juggle career and family life. Wilusz then moved on to a position at University of Medicine and Dentistry of New Jersey-New Jersey Medical School, where he continued to pursue his interest in RNA research.

During the interview he discusses the advantages and disadvantages of pursuing diverse lines of research in a lab; presenting research results at conferences; publishing; funding; and his current research projects. He answers questions about new technology's role in stimulating creative science; his greatest strengths as a scientist; his thoughts on scientific accountability and ethics. He describes how he juggles career and family life; the allocation of his time; his working relationship with graduate students; the problem of finding skilled lab personnel; his mentoring style; and the Pew Scholars Program in the Biomedical Sciences. Wilusz concludes his interview with his opinion about trends and problems in the biomedical sciences.

## UCLA INTERVIEW HISTORY

### INTERVIEWER:

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

### TIME AND SETTING OF INTERVIEW:

**Place:** Wilusz's office, University of Medicine and Dentistry of New Jersey-New Jersey Medical School.

**Dates, length of sessions:** January 19, 1998 (63 minutes); January 20, 1998 (148) ; January 21, 1998 (130).

**Total number of recorded hours:** 5.8

**Persons present during interview:** Wilusz 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 Wilusz 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 Wilusz'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, 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,

The interview is organized chronologically, beginning with Wilusz's childhood in South Amboy, New Jersey, and continuing through his graduate work at Duke University, his postdoc at Princeton University, and the establishment of his own lab at UMDNJ-New Jersey Medical School. Major topics discussed include his decision at Rutgers University to pursue microbiology rather than veterinary medicine, his identification of a leader RNA that binds to *La* protein, his discovery of acidic ribosomal proteins in autoantigens, his use of in vitro polyadenylation to study protein-RNA interactions, and the preconditions for producing creative

science.

#### ORIGINAL EDITING:

Gail Ostergren, assistant editor, 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.

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

William Van Benschoten, editor, prepared the table of contents and interview history. Ostergren assembled the biographical summary. Ödül Bozkurt, editorial assistant, compiled the index.

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