

CHEMICAL HERITAGE FOUNDATION

GREGORY S. PAYNE

The Pew Scholars Program in the Biomedical Sciences

Transcript of an Interview
Conducted by

Neil D. Hathaway

at

UCLA Center for the Health Sciences
Los Angeles, California

on

12, 22, and 27 September and 16 November 1992

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ACKNOWLEDGEMENT

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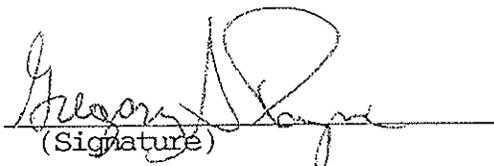
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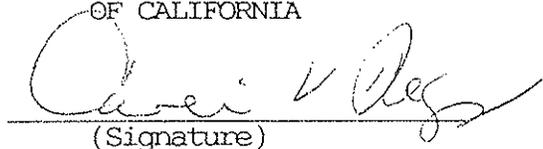
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GREGORY S. PAYNE

1953 Born in San Francisco, California, on 14 July

Education

1977 B.S., Cell Biology with honors in Drama, University of Michigan
1982 Ph.D., Biochemistry, University of California, San Francisco

Professional Experience

1982-1987 University of California, Berkeley
Postdoctoral Fellow, Department of Biochemistry

1987-present University of California, Los Angeles, School of Medicine
Assistant Professor, Department of Biological Chemistry

Honors

1971-1972 Regents Scholarship, University of Michigan
1977-1978 Regents Scholarship, University of California
1982-1985 Jane Coffin Childs Memorial Fund for Medical Research
1982-1985 American Cancer Society, California division
1988-1992 Pew Scholars Program in the Biomedical Sciences

Selected Publications

- Payne, G.S. et al., 1981. Analysis of avian leukosis virus DNA and RNA in bursal tumors: Viral gene expression is not required for maintenance of the tumor state. *Cell*, 23:311-22.
- Payne, G.S. et al., 1982. Multiple arrangements of proviral DNA and an activated cellular oncogene *c-myc* in bursal lymphomas. *Nature*, 295:209-14.
- Payne, G.S. and R. Schekman 1985. A test of clathrin in protein secretion and cell growth. *Science*, 230:1009-14.
- Payne, G.S. and R. Schekman, 1986. The role of clathrin in yeast cell growth and protein transport. In *Yeast Cell Biology*, ed. J. Hicks. New York: Alan R. Liss, Inc.
- Payne, G.S. et al., 1987. Genetic and biochemical characterization of clathrin-deficient yeast. *Molecular and Cellular Biology*, 7:3888-98.
- Payne, G.S. et al., 1988. Protein transport to the vacuole and receptor-mediated endocytosis by

- clathrin-deficient yeast. *Journal of Cell Biology*, 106:1453-61.
- Payne, G.S. and R. Schekman, 1989. Clathrin: A role in the intracellular retention of a Golgi membrane protein. *Science*, 245:1358-65.
- Payne, G.S., 1990. Genetic analysis of clathrin function in yeast. *Journal of Membrane Biology*, 106:93-105.

ABSTRACT

Gregory S. Payne was born in San Francisco, California, but was raised, after a brief stint in Silver Spring, Maryland, in Ann Arbor, Michigan, the oldest of three siblings. Both of his parents were scientists: his mother had a PhD in physiology, though took time off to raise her children before returning to a professorship in the Departments of Obstetrics and Gynecology and of Biological Chemistry at the University of Michigan; his father received his MD, then went to Walter Reed Army Medical Center to study viruses and to the University of Michigan for postdoctoral work with Thomas Francis, Jr., before accepting a position in the Department of Epidemiology at the university. Excepting the loss of one of his sisters to leukemia, Payne had what he considered a relatively normal childhood, playing with friends, and playing hockey, tennis, and the violin. Payne's parents insisted that he have a well-rounded education; he rarely went to his parents' labs.

He entered the University of Michigan as an undergraduate and took part in an experimental program there called the Residential College. He took all the classes he needed for a degree in biochemistry but he concentrated almost exclusively on theater, particularly by his third year. Under the auspices of writing a senior thesis, Payne went to New York to study theater and then returned to Ann Arbor to look for positions in local theater companies. When nothing came from his search, he decided to get a job at a lab to make some money. He started as a dishwasher, but then was allowed to assist in making preparations for research into the movement of amino acids from the outside to the inside of the cell, specifically growing tumors in mice. He changed his major from theater to biology and decided to go to graduate school.

He matriculated at the University of California, San Francisco in the Department of Biochemistry and Biophysics and did a rotation hybridizing nucleic acids in John D. Baxter's lab, but then moved on to work with Harold E. Varmus and J. Michael Bishop studying RNA tumor viruses, specifically looking at how Rous-associated virus causes tumors. While there he collaborated with chicken geneticist Lyman B. Crittenden and experienced the lab's adoption of Edward M. Southern's blotting technique and other recombinant DNA technologies. From San Francisco Payne went on to a postdoctoral position with Randy Schekman at the University of California, Berkeley, trying to recreate in the test tube the process of transporting a protein from the Golgi apparatus to the vacuole, also developing an interest in clathrin's role in the secretory process. He took a reverse genetics approach, used antibodies to identify clathrin, and discovered that knocking out the clathrin gene did not kill cells, disputing successfully Sandra K. Lemmon and Elizabeth W. Jones's work. He then left Berkeley to start his own lab at the University of California, Los Angeles, researching proteins involved in cell transport.

The interview concludes with his thoughts on the Pew Scholars Program in the Biomedical Sciences grant and the importance of flexible funds; his collaboration with Frances M. Brodsky (Pew Scholar Class of 1988); overcoming skepticism about the significance of yeast analogies; how creative scientists identify the most promising approach and organism to solve a problem; and the relevance of research. At the end of the interview, Payne talks about becoming a principal investigator and a teacher; training his investigators to withstand criticism; the importance of basic science research; the value of competition in science; his mother's career as a scientist.

UCLA INTERVIEW HISTORY

INTERVIEWER:

Neil D. Hathaway, Interviewer, UCLA Oral History Program. B.A., English and History, Georgetown University; M.A. and C. Phil., History, UCLA.

TIME AND SETTING OF INTERVIEW:

Place: The office of David I. Meyer, UCLA Center for the Health Sciences.

Dates, length of sessions: September 12, 1992 (83 minutes); September 22, 1992 (126); September 27, 1992 (124); November 16, 1992 (40).

Total number of recorded hours: 6.25

Persons present during interview: Payne and Hathaway.

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 five-year Pew scholarships, from 1988 through 1992. In preparing for this interview, Hathaway, in consultation with the director of the UCLA Oral History Program and three UCLA faculty project consultants, developed a topic outline to provide an overall interview framework. Hathaway then held an in-person preinterview conversation with Payne to obtain extensive written background information (curriculum vitae, copies of published articles, etc.) and agree on a research and interviewing timetable. Hathaway further reviewed the documentation in Payne'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, Hathaway consulted such works as: J.D. Watson et al., *The Molecular Biology of the Gene*. 4th ed. 2 vols. Menlo Park, CA: Benjamin/Cummings, 1987; Lubert Stryer, *Biochemistry*. 3d ed. New York: W.H. Freeman, 1988; *The Journal of the History of Biology*; and H.F. Judson, *The Eighth Day of Creation: Makers of the Revolution in Biology*. New York: Simon and Schuster, 1979.

The interview is organized chronologically, beginning with Payne's childhood and education in Ann Arbor, Michigan, continuing through his work at the University of Michigan, the University of California, San Francisco, and the University of California, Berkeley, and concluding with his career at UCLA. Major topics discussed include research on transcriptional enhancers in tumor viruses, protein transport in the Golgi apparatus of yeast cells, gene knockouts, issues of laboratory management, teaching biology and training scientists, and the role of open-ended research questions in biomedical research.

ORIGINAL EDITING:

Steven J. Novak, editor, 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.

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

Novak also prepared the table of contents, biographical summary, interview history, and index.

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