

CHEMICAL HERITAGE FOUNDATION

**ROBERT D. NICHOLLS**

The Pew Scholars Program in the Biomedical Sciences

Transcript of an Interview  
Conducted by

Andrea R. Maestrejuan

at

Case Western Reserve University  
Cleveland, Ohio

on

3, 4 and 5 September 1997

From the Original Collection of the University of California, Los Angeles

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(Signature)

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## **ROBERT D. NICHOLLS**

1960 Born in Ballarat, Victoria, Australia, in March

### Education

1980 B.Sc., University of Melbourne  
1986 D.Phil., Oxford University

### Professional Experience

1987-1989 Howard Hughes Medical Institute, Chevy Chase, Maryland  
Research Fellow, Pediatrics

1987-1989 Department of Medicine and Mental Retardation Center/The Children's  
Hospital and Department of Pediatrics, Harvard Medical School, Boston,  
Massachusetts  
Research Fellow

1990-1993 University of Florida College of Medicine, Gainesville, Florida  
Assistant Professor, Departments of Neuroscience and Pediatrics  
1993-1995 Courtesy Associate Professor

1993-present Case Western Reserve University and Center for Human Genetics,  
Cleveland, Ohio  
Associate Professor, Department of Genetics

### Honors

1989 Postdoctoral Clinical Research Award, American Society of Human  
Genetics

1990 Outstanding Achievement and Performance Award, State University  
System

1991-present Elected member, Human Genome Organisation

1990-1993 Basil O'Connor Fellow, March of Dimes Birth Defects Foundation

1991-1995 Pew Scholars Program in the Biomedical Sciences Grant

### Selected Publications

- Nicholls, R.D. et al., 1985. Recombination within the human embryonic xi-globin locus: A common chromosome produced by gene conversion of the psi xi gene. *Cell* 42:809-19.
- Nicholls, R.D. et al., 1987. Recombination at the human alpha-globin gene cluster: Sequence features and topological constraints. *Cell* 49:369-78.
- Nicholls, R.D. et al., 1989. Genetic imprinting suggested by maternal heterodisomy in non-deletion Prader-Willi syndrome. *Nature* 342:281-85.
- Mascari, M.J. et al., 1992. The frequency of uniparental disomy in Prader-Willi syndrome: Implications for molecular diagnosis. *New England Journal of Medicine* 326:1599-1607.
- Rinchik, E.M. et al., 1993. A gene for the mouse pin-eyed dilution locus and for human type II oculocutaneous albinism. *Nature* 361:72-76.
- Buiting, K. et al., 1995. Inherited microdeletions in the Angelman and Prader-Willi syndromes define an imprinting center on human chromosome 15. *Nature Genetics* 9:395-400.
- Saitoh, S. et al., 1996. Minimal definition of the imprinting center and fixation of a chromosome 15q11-q13 epigenotype by imprinting mutations. *Proceedings of the National Academy of Sciences USA* 93:7811-15.
- Nicholls, R.D. et al., 1998. Imprinting in Prader-Willi and Angelman syndromes. *Trends in Genetics* 14:194-200.
- Gabriel, J.M. et al., 1998. A model system to study genomic imprinting of human genes. *Proceedings of the National Academy of Sciences USA*, Resubmitted.
- Ji, T. et al., 1998. The ancestral Prader-Willi/Angelman syndrome deletion breakpoint region gene encodes a giant protein implicated in protein trafficking and is mutated in *fdf2* mice with neuromuscular and spermiogenic abnormalities. *Cell* Resubmitted.
- Gabriel, J.M. et al., 1998. A transgene insertion creating a heritable chromosome deletion mouse model of Prader-Willi and Angelman syndromes. Submitted.
- Gray, T.A. et al., 1998. An imprinted, mammalian bicistronic transcript encodes two nuclear proteins. *Nature*, submitted.



## ABSTRACT

**Robert D. Nicholls** was born in a small town near Melbourne, Australia, one of four children. His father was in the Forests Commission, so the family moved fairly often until Robert's parents divorced when he was a teenager, at which time Mrs. Nicholls and the children moved to Inverloch, a town near the ocean. Though they moved often, they stayed within Victoria, and all the towns they lived in were small. As a result, Nicholls grew up loving the countryside and animals. He and his brother collected and raised frogs and tortoises. Schools were of variable quality; his last year in high school turned out to have some very good teachers for his interests, already science and medicine. He attributes his interest in part also to his sister's illness, which kept her in hospital for six or seven years when she was a child.

Nicholls wanted to study science, particularly biology, and he chose the University of Melbourne as the best school in the area. He found that he needed new study habits; he also needed a new sport, as he had quit Australian football and cricket, so he took up running, which he pursues to this day. During his first three years his lab work consisted of doing programmed experiments; in his fourth—honors—year, for which he had to qualify, he did his first real lab work. He worked in Barrie Davidson's lab on tyrosine amino acid biosynthesis in *E. coli*. He wanted to go to England after his fourth year, but the school year was different, so he spent eight months working, first delivering auto parts and then tutoring biochemistry.

Nicholls won the Royal Commission fellowship to work in David Weatherall's department. He went to work in Douglas Higgs' lab to study genetic disease involving brain function; he had 18 papers before finishing his PhD. Finally settling on the genetics of retardation, in particular Prader-Willi and Angelman syndromes, he chose Harvard as the best place to continue. He accepted a postdoc in Samuel Latt's lab because Latt was working with humans, not mice. He found Harvard aggressively competitive; when Latt died unexpectedly Nicholls left for University of Florida. He met Jacqueline Kreutzer, his fiancée, there, but otherwise did not find the support he desired, and he has now arrived at Case Western University as an associate professor in genetics. His fiancée, a pediatric cardiologist, is in Boston, Massachusetts, which adds to the complications suffered by two-career couples.

Angelman and Prader-Willi syndromes are random and so not preventable. Nicholls, who is close to his patients and their families, hopes that since neurological diseases are not amenable to gene therapy, an understanding of molecular mechanisms will eventually be helpful in treatment if not prevention. He is working on the implications of imprinting, collaborating with Bernhard Horsthemke's lab. He continues to write grants, publish, and run.

## 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:** Nicholls's office, Case Western University.

**Dates, length of sessions:** September 3, 1997 (118 minutes); September 4, 1997 (124) ; September 5, 1997 (150).

**Total number of recorded hours:** 6.55

**Persons present during interview:** Nicholls 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 Nicholls 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 Nicholls '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 Nicholls's childhood and continuing through his undergraduate education at University of Melbourne, his graduate studies at Oxford University, his postdoc at Harvard Medical School, and the establishment of his own labs at University of Florida and Case Western University. Major topics discussed include the differences in scientific research in Australia, the United Kingdom, and the United States; genetic imprinting; Prader-Willi and Angelman syndromes; balancing career and personal life; and collaboration, competition, and funding in the sciences.

### ORIGINAL EDITING:

Jin Ah Lee, 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. Lee assembled the biographical summary and interview history.

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

William Van Benschoten, editor, prepared the table of contents.

Ödül Bozkurt, editorial assistant, compiled the index.

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