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KURT WÜTHRICH

Transcript of an Interview
Conducted by

David C. Brock

at

Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy
Chicago, Illinois

on

9 March 2004

(With Subsequent Corrections and Additions)

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(Interviewee's Name) Kurt Wüthrich

(Interviewee's Signature) K. Wüthrich

(Date) 04 / 10 / 2006

KURT WÜTHRICH

1938 Born in Aarberg, Switzerland on 4 October
1963 Married to Marianne Briner

Education

1962 Licentiat in chemistry, physics, and mathematics, University of Bern,
Switzerland
1964 Ph.D., chemistry, University of Basel, Switzerland
1964 Eidgenössisches Turn- und Sportlehrerdiplom, University of Basel,
Switzerland
1964-1965 Postdoctoral training, University of Basel, Switzerland
1965-1967 Postdoctoral training, University of Berkeley, California, USA

Professional Experience

1967-1969 Bell Telephone Laboratories, Murray Hill, New Jersey, USA
Member of Technical Staff, Biophysics Department

Eidgenössische Technische Hochschule, Zürich, Switzerland
1970-1972 Privadozent
1972-1976 Assistant Professor of Biophysics
1976-1980 Associate Professor of Biophysics
1980- Professor of Biophysics
1995-2000 Chairman of Biology Department

Scripps Research Institute, La Jolla, California, USA
2001-2004 Cecil H. and Ida M. Green Visiting Professor of Structural
Biology
2004- Cecil H. and Ida M. Green Professor of Structural Biology

Awards

1974 Friedrich-Miescher-Preis, Schweizerische Gesellschaft für Biochemie
1983 Shield of the Faculty of Medicine, Tokyo University, Japan
1986 Médaille P. Bruylants, Université Catholique de Louvain, Belgium
1990 Stein and Moore Award of the Protein Society, USA
1991 Louisa Gross Horwitz Prize, Columbia University, New York
1991 Gilbert Newton Lewis Medal, University of California, Berkeley, USA

- 1992 Marcel Benoist-Preis, awarded by the Swiss Confederation
- 1993 Distinguished Service Award, The Miami Bio/Technology Winter Symposia, USA
- 1993 Prix Louis Jeantet de Médecine, Fondation Louis Jeantet, Geneva, Switzerland
- 1996 Kaj Linderstrøm-Lang Prize, Carlsberg Foundation, Copenhagen, Denmark
- 1997 Eminent Scientist of RIKEN, Tokyo, Japan
- 1998 Kyoto Prize in Advanced Technology, Inamori Foundation, Kyoto, Japan
- 1999 Günther Laukien Prize, Experimental NMR Conference (ENC), USA
- 1999 Otto-Warburg-Medaille, Gesellschaft für Biochemie und Molekularbiologie, Germany
- 2001 Médaille d'Honneur en Argent, Société d'Encouragement au Progrès, Paris, France
- 2002 Nobel Prize in Chemistry
- 2002 World 'Future' Award, The World Awards, Wien, Austria
- 2002 Swiss 'Society' Award, The Swiss Awards, Zürich, Switzerland
- 2002 Ehrenpreis 2002, City of Wallisellen, Switzerland
- 2003 Honorary Citizenship, City of Lyss, Switzerland

Academies and Honorary Memberships in Societies

- 1984 European Molecular Biology Organization (EMBO)
- 1987 Deutsche Akademie der Naturforscher Leopoldina
- 1989 Academia Europaea
- 1989 Foreign Fellow, Indian National Science Academy
- 1992 Foreign Associate, US National Academy of Sciences
- 1992 Honorary Fellow, The National Academy of Sciences, India
- 1993 Foreign Honorary Member, American Academy of Arts and Sciences
- 1993 Honorary Member, Japanese Biochemical Society
- 1998 Honorary Member, National Magnetic Resonance Society of India
- 1998 AAAS Fellow, American Association for the Advancement of Science
- 2000 Associé étranger, Académie des Sciences, Institut de France
- 2001 Schweizerische Akademie der Technischen Wissenschaften (SATW)
- 2002 Schweizerische Akademie der Medizinischen Wissenschaften (SAMW)
- 2002 IUPAC Fellow
- 2003 Honorary Member, The World Innovation Foundation, UK
- 2003 Honorary Fellow, The Royal Society of Chemistry, UK
- 2003 Honorary Fellow, The Royal Society of Edinburgh, UK
- 2003 Honorary Member, Swiss Chemical Society
- 2003 Honorary Member, Wallisellen Football Club, Switzerland
- 2003 Titular Member, European Academy of Arts, Sciences and Humanities
- 2004 Honorary Member, International Society for Magnetic Resonance in Medicine

- 2004 Honorary Member, Hungarian Academy of Sciences
- 2004 Honorary Member, World Academy of Young Scientists
- 2004 Honorary Member, World High Technology Society, Dalian, China
- 2004 Honorary Member, European Academy of Sciences and Arts
- 2004 Foreign Member, Latvian Academy of Sciences
- 2004 Honorary Member, Groupement Ampère
- 2004 Honorary Member, The Nuclear Magnetic Resonance Society of Japan
- 2005 Honorary Member, Indian Biophysical Society
- 2005 Corresponding Member, Nordrhein-Westfälische Akademie der
Wissenschaften
- 2005 Foreign Member, The Korean Academy of Science and Technology
- 2005 Honorary Member, The Korean Magnetic Resonance Society

Honorary Degrees

- 1997 Dottore ad Honorem in Chimica, Università degli Studi di Siena, Italy
- 1997 Dr. phil., honoris causa, Universität Zürich, Switzerland
- 2001 Docteur, honoris causa, Ecole Polytechnique Fédérale de Lausanne,
Switzerland
- 2004 Doctor, honoris causa, Universitat de València, Spain
- 2004 Doctor of Science, honoris causa, University of Sheffield, UK
- 2004 Honorary Professor, Dalian Institute of Chemical Physics, CAS, Dalian,
China
- 2004 Honorary Professor, Dalian Institute of Light Industry, Dalian, China
- 2004 Profesor Extraordinario con distinción de Académico Ilustre, U.N. de
Mar del Plata, Argentina
- 2005 Doctor of Science, honoris causa, King George's Medical University,
Lucknow, India

ABSTRACT

Kurt Wüthrich begins his interview by discussing the emergence of his interest in chemistry during his high school years, where a highly qualified group of professors taught him. He originally intended to become a sports instructor and received a degree equivalent to an M.S. in sports at the University of Basel. However, he remained interested in the sciences and divided his time between sports, physics, and chemistry, and in March 1964 he received his Ph.D. in chemistry, doing research with an electron paramagnetic resonance spectrometer [EPR] to study the catalytic action of metal compounds. After receiving his Ph.D. in Basel, he traveled to the University of California, Berkeley, to do his postdoctoral research in nuclear magnetic resonance spectroscopy. He was then offered a position in Bell Telephone Laboratories Biophysics Department and, in 1969, he traveled back to Switzerland to work at Eidgenössische Technische Hochschule Zürich, where he continued his research, rising through the ranks from Privatdozent to Chairman of the Biology Department. He concludes his interview by discussing his continued research in nuclear magnetic resonance spectroscopy as a Professor of Biophysics at ETH Zürich and a Professor of Structural Biology at the Scripps Research Institute in La Jolla, California.

INTERVIEWER

David C. Brock is a senior research fellow with the Center for Contemporary History and Policy of the Chemical Heritage Foundation. As an historian of science and technology, he specializes in oral history, the history of instrumentation, and the history of semiconductor science, technology, and industry. Brock has studied the philosophy, sociology, and history of science at Brown University, the University of Edinburgh, and Princeton University (respectively and chronologically). His most recent publication is *Understanding Moore's Law: Four Decades of Innovation* (Philadelphia: Chemical Heritage Press), 2006, which he edited and to which he contributed.

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- 1 School Life
Wüthrich works on chemistry on farm at home and in high school, where his interest in chemistry and physics is encouraged by demanding, well-trained professors. Attends University of Bern, but leaves to attend University of Basel in order to get University degree to be sports instructor. Earns degree equivalent to M.S. in sports.
- 2 Ph.D. at Basel
Starts working on Ph.D. in chemistry in fall of 1962. Works with thesis advisor, Professor Silvio Fallab, who supports Wüthrich's independent interests in spectroscopy. Studies EPR spectroscopy and realizes there are missing pieces in previous research. Works with EPR machine on copper proteins. Completes doctorate by March 1964. Starts work with vanadyl complexes.
- 5 Research at Berkeley
Travels to Berkeley to do postdoctoral research, starts to establish the theoretical foundation for the work that he had published previously. Works in the group of Robert E. Connick where he does research on physics of EPR and NMR spectroscopy, in particular spin-relaxation studies. Continues work with vanadyl ions.
- 6 Bell Telephone Laboratories
Wüthrich accepts job at Bell Labs to use techniques from his research to continue work with vanadyl ions and study enzymes. Begins to focus on NMR work with hemoproteins.
- 8 Appointment at Eidgenössische Technische Hochschule Zürich in Switzerland
Returns to Switzerland, after accepting an appointment there in response to his groundbreaking research at Bell Labs. Discovers ring flips in proteins, which sparks controversy with crystallographers and eventually contributes to acceptance of NMR spectroscopy as a key technique in structural biology.
- 13 Final Thoughts
Wüthrich has ongoing protein research program at ETH Zürich. Does research at the La Jolla-based Joint Center for Structural Genomics [JCSG] of the Scripps Research Institute in California and works to further advance NMR methods for structural biology and structural genomics.
- 15 Notes
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NOTES

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K. Wüthrich, "Elektronenspinresonanz-Untersuchungen von VO₂⁺-Komplexverbindungen in wässriger Lösung," *Helv. Chim. Acta.* 48 (1965): 779-790.
———, "Elektronenspinresonanz-Untersuchungen von VO₂⁺-Komplexverbindungen in wässriger Lösung II," *Helv. Chim. Acta.* 48 (1965): 1012-1017.
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