CHEMICAL HERITAGE FOUNDATION

MICHAEL R. KOELLE

The Pew Scholars Program in the Biomedical Sciences

Transcript of an Interview
Conducted by

William Van Benschoten

at

Yale University, School of Medicine
New Haven, Connecticut

on

6, 7, and 8 January 2003

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

ACKNOWLEDGEMENT

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REFORMATTING:

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Pew Scholars in the Biomedical Sciences

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Michael R. Koelle, Ph.D.

02/25/2008

Date

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MICHAEL R. KOELLE

1964 Born in Los Alamos, New Mexico, on 18 February

Education

1986 B.S., Mathematics and Biology, University of Washington
1992 Ph.D., Biochemistry, Stanford University

Professional Experience

Massachusetts Institute of Technology
1992-1996 Postdoctoral Fellow, Laboratory of Dr. H. Robert Horvitz

Yale University, School of Medicine
1996-2001 Assistant Professor, Department of Molecular Biophysics and Biochemistry
2001-2005 Associate Professor, Department of Molecular Biophysics and Biochemistry
2005-present Tenured Associate Professor, Department of Molecular Biophysics and Biochemistry

Honors

1986-1989 NSF Predoctoral Fellowship
1992-1995 Helen Hay Whitney Foundation postdoctoral fellowship
1995-1996 Senior Postdoctoral Fellowship, The Medical Foundation
1997-2001 Pew Scholars Program in the Biomedical Sciences Grant
1999-2004 Leukemia Society Scholar
2001 Dylan Hixon ‘88 Prize for Teaching Excellence in the Natural Sciences at Yale

Selected Publications

Invited Reviews and Book Chapters:

Hess, H.A., and Koelle, M.R. (2004). Reverse genetics using targeted gene deletions in *C. elegans.* In WormBook (an online resource of WormBase, Chalfie, M. and Girard, L., eds.)

Chase, D.L., and Koelle, M.R. (2004). Genetic analysis of RGS protein function in *Caenorhabditis elegans.* Methods Enz., 389, 305-320.

Koelle, M.R. (2001) *C. elegans* as a model for human biology and disease. *In Genetic Models in Cardiology.* (Haddad, G.G. and Xu, T. eds.) Vol 156, pp. 2 1-34, Marcel Dekker, New York, NY.

Koelle, M.R. (1997) A new family of regulators of G-protein signaling - the RGS proteins. Cur. Op. Cell Biol. 9, 143-147.

Peer Reviewed Articles:

Palmitessa, A., Hess, H.A., Bany, I.A., Koelle, M.R., and Benovic, J.L. (2004). *C. elegans* arrestin regulates neural G protein signaling and olfactory adaptation. (In revision for publication in Neuron).

Jose, A.M., and Koelle, M.R. (2004). Domains, amino acid residues, and new isoforms of *C. elegans* diacyglycerol kinase DGK-1 important for terminating diacylglycerol signaling *in vivo.* (In revision for publication at J. Biol. Chem.)

HessH.A., Röper J.C., Grill, S.W., and Koelle, M.R. (2004). RGS-7 Completes a Receptor-Independent Heterotrimeric G Protein Cycle to Asymmetrically Regulate Mitotic Spindle Positioning in *C. elegans.* Cell, in press.

Chase, D.L., Pepper, J.S., and Koelle, M.R. (2004). Mechanism of extrasynaptic dopamine signaling in *C. elegans.* Nature Neurosci, 7, 1096-1103.

Moresco, J.J., and Koelle, M.R. (2004). Activation of EGL-47, a Gαo-coupled receptor, inhibits function of HSN motor neurons to regulate *Caenorhabditis elegans* egg-laying behavior. J. Neurosci., 24, 8522-8530.

Bany, I.A., Dong, M.Q., and Koelle, M.R. (2003). Genetic and cellular basis for acetylcholine inhibition of *Caenorhabditis elegans* egg-laying behavior. J. Neurosci. 23, 8060-8069.

Patikoglou, G.A. and Koelle, M.R. (2002). An N-terminal region of *C. elegans* RGS proteins *EGL-10* and EAT-16 directs inhibition of Gαo versus Gαq signaling. J. Biol. Chem. 277, 47004-13.

Chase, D.L., Patikoglou, G.A, and Koelle, M.R. (2001). Two RGS proteins that inhibit Gao and Gaq signaling in *C. elegans* neurons require a Gß5-like subunit for function. Current Biology 11, 222-231.

Dong, M.Q., Chase, D., Patikoglou, G.A., and Koelle, M.R. (2000). Multiple RGS proteins alter neural G protein signaling to allow *C. elegans* to rapidly change behavior when fed. Genes Dev. 14, 2003-2014.

Hajdu-Cronin, Y.M., Chen, W.J., Patikoglou, G., Koelle, M.R., Sternberg, P.W. (1999) Antagonism between Goa and Gqa in *Caenorhabditis elegans:* the RGS protein EAT-16 is necessary for Goa signaling and regulates Gqa activity. Genes Dev. 13, 1780- 1793.

Koelle, M.R., and Horvitz, H.R. (1996) *egl-10* regulates G protein signaling in the *C. elegans* nervous system and shares a conserved domain with many mammalian proteins. Cell 84, 115-125.

Koelle, M.R., Talbot, W.S., Segraves, W.A., Bender, M.T., Cherbas, P. and Hogness, D.S. (1991) The *Drosophila EcR* gene encodes an ecdysone receptor, a new member of the steroid receptor superfamily. Cell 67, 59-77.

ABSTRACT

Michael R. Koelle was born in Los Alamos, New Mexico but was raised mainly in Seattle, Washington, the youngest of the family's three children. Both of his parents were German emigrants (his father as an infant, his mother during the 1930s). Koelle's father worked as an electrical engineer in Los Alamos until the age of fifty when he started his own business focused on electronic identification technologies; his mother raised the children on her own in Seattle while working as a special education teacher. Koelle's older brother, who studied medicine, encouraged Koelle to study science; Koelle was also very interested in pursuing music.

His first laboratory experiences were during high school when he had the opportunity to work in the labs of Barbara L. and Stephen M. Schwartz at the University of Washington, Seattle. After completing high school he attended the University of Washington where he majored in biochemistry (after taking a course on recombinant DNA technology) and worked in Theodore Young's laboratory in his junior year. Deciding to continue his study of biochemistry, Koelle pursued his doctoral degree at Stanford University with David Hogness, working on hormonal controlled development and the ecdysone hormone receptor. Following the completion of his Ph.D., Koelle undertook post-doctoral research on the genes involved in neural function and on the mechanics of neurotransmission with H. Robert Horvitz at the Massachusetts Institute of Technology. He then accepted a position at Yale University, focusing his research on G protein signaling and regulation and planning to expand his research on the molecular mechanisms of neurotransmission as a means of studying embryogenesis.

Koelle spends much of the interview talking about the multiple duties of an academic scientist, like teaching, lab and research administration, mentoring, and participating in professional duties, and about his views on the practice of science in contemporary society, like, the issue of patenting intellectual property, the privatization of scientific research, competition and collaboration in science, the national scientific agenda, and educating the public. The interview ends with his thoughts on the Pew Scholars Program in the Biomedical Sciences and its role in his own research and scientific research generally.

UCLA INTERVIEW HISTORY

INTERVIEWER:

William Van Benschoten, Interviewer, UCLA Oral History Program. B.A., History, University of California, Riverside; M.A., History, University of California, Riverside; C. Phil., History, UCLA

TIME AND SETTING OF INTERVIEW:

Place: Yale University School of Medicine.

Dates, length of sessions: January 6, 2003; January 7, 2003; and January 8, 2003.

Total number of recorded hours: 6.0

Persons present during interview: Koelle and Van Benschoten.

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, Van Benschoten held a telephone preinterview conversation with Koelle to obtain written background information (curriculum vitae, copies of published articles, etc.) and agree on an interviewing schedule. He also reviewed documentation in Koelle's file at the Pew Scholars Program office in San Francisco, including Koelle's proposal application, letters of recommendation, and reviews by Pew Scholars Program national advisory committee members.

ORIGINAL EDITING:

Carol Squires 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.

Koelle reviewed the transcript. He verified proper names and made a minor number of corrections and additions.

Carol Squires prepared the table of contents and TechniType Transcripts compiled the guide to proper names.

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