CHEMICAL HERITAGE FOUNDATION

EDWIN R. CHAPMAN

The Pew Scholars Program in the Biomedical Sciences

Transcript of an Interview
Conducted by

Karen A. Frenkel

at

Medical School of the University of Wisconsin
Madison, Wisconsin

on

5, 6, and 7 December 2005

ACKNOWLEDGEMENT

This oral history is part of a series supported by a grant from the Pew Charitable Trusts based on the Pew Scholars Program in the Biomedical Sciences. This collection is an important resource for the history of biomedicine, recording the life and careers of young, distinguished biomedical scientists and of Pew Biomedical Scholar Advisory Committee members.

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EDWIN R. CHAPMAN

Born in Bellingham, Washington

Education

1985	B.S., Chemical Biology, Western Washington University
1992	Ph.D., Department of Pharmacology, University of Washington

Professional Experience

Genetic Systems Inc., Seattle Washington

1985-1987	Research Technician II

Yale University, New Haven, Connecticut

1992-1996	Postdoctoral Fellow, Howard Hughes Medical Institute, with Dr. Reinhard Jahn

University of Wisconsin, Madison, Madison, Wisconsin

1996-2001	Assistant Professor. Dept. of Physiology
2001-2005	Associate Professor, Dept. of Physiology
2005-present	Professor, Dept. of Physiology
2005-present	Investigator, Howard Hughes Medical Institute

Honors

1981-1985	Deans List, Western Washington University
1985	Sea Bong Chang Memorial Chemistry Scholarship, Western Washington University
1988-1991	Molecular and Cellular Biology Training Grant, University of Washington
1992-1996	Howard Hughes Postdoctoral Associate, Yale University
1996	University of Wisconsin/Howard Hughes Medical Institute Career Development Award
1996	University of Wisconsin/Howard Hughes Medical Institute Infomatics Award
1996	Hilldale, UW-Bookstore, and HHMI Awards (undergraduate)
1998	Shaw Scientists Award
1999	Dave McClain American Heart Research Award
1999-2003	Pew Scholars Award

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Selected Publications

Au, D., Apel, E.D., Chapman, E.R., Estep, R.P., Nicolson, T.A., and D.R. Storm (1989). Expression of cDNAs encoding wild-type and mutant neuromodulins in *Escherichia coli* : comparison with the native protein from bovine brain. *Biochemistry* 28, 8142-8148.

Chapman, E.R., Au. D., Nicolson, T.A. and D.R. Storm (1991a). Mutagenesis of the calmodulin binding domain of neuromodulin. In *Prog. Brain Res.* W.H. Gispen and A. Routtenberg eds. (Elsevier Science Publishers B.V.): 89, 37-44.

Chapman, E.R., Au. D., Alexander K.A., Nicolson, T.A. and D.R. Storm (1991b). Characterization of the calmodulin binding domain of neuromodulin: functional significance of serine 41 and phenylalanine 42. *J. Biol. Chem.* 266, 207-213.

Liu, Y., Chapman, E.R. and D.R. Storm (1991). Targeting of neuromodulin (GAP-43) fusion proteins to growth cones in cultured rat embryonic neurons. *Neuron* 6, 411-421.

Chapman, E.R., Vorherr, T., Alexander, K., Wang, A., Carafoli, E. and D.R. Storm (1992a). Fluorescence energy transfer analysis of calmodulin • peptide complexes. *Biochemistry* 31, 12819-12825.

Chapman, E.R., Estep, R. and D.R.Storm (1992b). Palmitoylation of neuromodulin (GAP-43) is not required for phosphorylation by protein kinase C. *J. Biol. Chem.* 267, 2533-2538.

Blasi, J., Chapman, E.R., Link, E., Binz, T., Yamasaki, S., De Camilli, P., Südhof, T.C., Niemann, H. and R. Jahn (1993a). Botulinum neurotoxin A selectively cleaves the synaptic protein SNAP-25. *Nature* 365, 160-163.

Blasi, J., Chapman, E.R., Yamasaki, S., Binz, T., Niemann, H. and R. Jahn (1993b). Botulinum neurotoxin C blocks neurotransmitter release by means of cleaving HPC-1/syntaxin. *EMBO J.* 12, 482 1-4828.

Chapman, E.R. and R. Jahn (1994a). Calcium-dependent interaction of the cytoplasmic domain of synaptotagmin with membranes: autonomous function of a single C2-homologous domain. *J. Biol. Chem.* 269, 5735-5741.

Chapman, E.R. and R. Jahn (1994b). On the trail of the calcium receptor(s) for exocytosis. *Sem. Neurosci.* 6, 302.1-302.7.

Link, E., Blasi, J., Chapman, E.R., Edelmann, L., Baumeister, A., Binz, T., Yamasaki, S. and R. Jahn (1994). Tetanus and botulinal neurotoxins: tools to understand exocytosis in neurons. In *Molecular and cellular mechanisms of neurotransmitter release.* L. Stjärne, P. Greengard, S. Grillner, T. Hökfelt and D. Ottoson, eds. (New York: Raven Press Inc.): 49-60.

Chapman, E.R., An, S., Barton, N.J., and R. Jahn (1994). SNAP-25: a t-SNARE which binds to both syntaxin and synaptobrevin via domains that may form coiled coils. *J. Biol. Chem.* 269, 27427-27432.

Li, C., Takei, K., Geppert, M., Daniels, L., Stenius, K., Chapman, E.R., Jahn, R., De Camilli, P. and T.C. Südhof (1994). Rabphilin: a synaptic vesicle calcium sensor whose synaptic targeting depends on rab3A. *Neuron* 13, 885-898.

Edelmann, L., Hanson, P., Chapman, E.R., and R. Jahn (1995). Synaptobrevin binding to synaptophysin: a potential mechanism for controlling the exocytotic fusion machine *EMBO J.* 14, 224-23 1.

Solimena, C.W., Blasi, J., Edelmann, L., Chapman, E.R., Fisher von Mollard, G. and R. Jahn (1995). The t-SNAREs syntaxin and SNAP-25 are present on organelles that participate in synaptic vesicle recycling *J. Cell Biol.* 128, 637-645.

Chapman, E.R., Hanson, P.I., An, S., and R. Jahn (1995). Ca^{2+} regulates the interaction between synaptotagmin and syntaxin. *J. Biol. Chem.* 270, 23667-23671.

Otto, H., Hanson, P.I., Chapman, E.R., Blasi, J. and R. Jahn (1995). Poisoning by botulinum neurotoxin A does not inhibit formation and disassembly of the synaptosomal fusion complex. *Biochem. Biophys. Res. Commun.* 212, 945-952.

Chapman, E.R., Hanson, P.I. and R. Jahn (1995). The exocytotic fusion machine: some new developments. *Neuropharm.* 34, 1343-1349.

Chapman, E.R., An, S., Edwardson, J.M. and R. Jahn (1996). A novel function for the second C2-domain of synaptotagmin: Ca^{2+}-triggered dimerization. *J. Biol. Chem.* 271, 5844-5849.

Chapman, E.R., Blasi, J., An, S., Südhof, T.C. and R. Jahn (1996). Fatty acylation of synaptotagmin in PC-12 cells and synaptosomes. *Biochem. Biophys. Res. Commun.* 225, 326-332.

Ruiz-Montasell, Aguado, F., Chapman, E.R., Canals, J.M., Marsal, J. and J. Blasi (1996). Differential distribution of syntaxin isoforms IA and B in the rat central nervous system. *Eur. J. Neurosci.* 8(12):2544-2552.

Chapman, E.R. and A.F. Davis. (1998). Direct interaction of a Ca^{2+}-binding loop of synaptotagmin with lipid bilayers. *J. Biol. Chem.* 273, 13995-14001.

Littleton, J.T., Chapman, E.R., Kreber, R., Garment, M.B., Carlson, S.D. and B. Ganetzky. (1998). Paralytic mutations demonstrate that assembly and disassembly of the SNARE-complex are essential steps in neurotransmitter release. *Neuron* 21, 401- 413.

Chae, Y.K., Abildgaard, F., Chapman, E.R. and Markley, J.L. (1998). Lipid binding ridge on loops 2 and 3 of the C2A-domain of synaptotagmin I as revealed by NMR spectroscopy. *J. Biol. Chem.* 273, 25659-25663.

Chapman, E.R., Desai, R., Davis, A.F. and Tornhel, C. (1998). Delineation of the oligomerization, AP-2- and synprint-binding region of the C2B-domain of synaptotagmin. *J. Biol. Chem.* 273, 32966-32972.

Littleton, J.T., Sereno, T.L., Rubin, G.M., Ganetzky, B. and Chapman, E.R. (1999). Synaptic function modulated by changes in the ratio of synaptotagmin I and IV. *Nature* 400, 757-760.

Davis, A.F., Bai, J., Fasshauer, D., Wolowick, M.J., Lewis, J.L. and Chapman, E.R. (1999). Kinetics of synaptotagmin responses to Ca^{2+} and assembly with the core SNARE complex onto membranes. *Neuron* 24, 363-376.

Bai, J., Earles, C., Lewis, J. and Chapman, E.R. (2000). Membrane-embedded synaptotagmin interacts with *cis* and *trans* target membranes and assembles into oligomers via a novel mechanism *J. Biol. Chem.* 275, 25427-2543 5.

Desai, R., Vyas, B., Earles, C., Littleton, J.T., Kowalchyck, J., Martin, T.F.J. and Chapman, E.R. (2000). The C2B-domain of synaptotagmin is a Ca2 + sensing module essential for exocytosis. *J. Cell Biol.* 150(5), 1125-1135.

Haucke, V., Wenk, M.R., Chapman, E.R., Farsad, K., and De Camilli, P. (2000). Dual interaction of synaptotagmin with the mu2 and alpha subunits of AP-2 facilitates clathrin pit nucleation. *EMBO J.* 19, 6011-6019.

Littleton, J.T., Bai, J., Vyas, B., Desai, R., Baltus, A.E., Garment, M.B., Carlson, S.D., Ganetzky, B. and Chapman, E.R. (2001). *synaptotagmin* mutants reveal essential functions

for the C2B-domain in Ca^{2+}-triggered fusion and recycling of synaptic vesicles *in vivo. J. Neuroscience* 21(5), 1421-1433.
Lewis, J., Dong, M. and Chapman, E.R. (2001). The transmembrane domain of syntaxin 1A is critical for cytoplasmic domain protein-protein interactions. *J. Biol. Chem.* 276, 15458-15465.
Earles, C.*, Bai, J.*, Wang, P. and Chapman, E.R. (2001). The tandem C2- domains of synaptotagmin contain redundant Ca^{2+} binding sites that cooperate to engage t-SNAREs and trigger exocytosis *J. Cell Biol.* 154(6), 1117-1123. *these authors contributed equally to this study
Littleton, J.T., Barnard, R.J.O., Titus, S., Slind, J., Chapman, E.R., and Ganetzky, B. (2001) SNARE complex disassembly by NSF following synaptic vesicle fusion *Proc. Natl. Acad. Sci. USA* 98(21), 12233-12238.
Wang, C.-T., Grishanin, R., Earles, C.A., Chang, P.Y., Martin, T.F.J., Chapman, E.R. and Jackson, M.B. (2001). Synaptotagmin modulation of fusion pore kinetics in regulated exocytosis. *Science* 294, 1111-1114.
*Bai, J., *Wang, P. and Chapman, E.R. (2002). C2A activates a cryptic Ca^{2+}- triggered membrane penetration activity within the C2B domain of synaptotagmin I. *Proc. Natl. Acad. Sci. USA* 99(3), 1665-1670.*these authors contributed equally to this study.
Chapman, E.R. (2002). Synaptotagmin: a Ca^{2+}-sensor that triggers exocytosis? *Nature Rev. Mol. Cell Biol.* 3(7), 498-508.
W.C. Tucker and Chapman, E.R. (2002). Role of synaptotagmin during Ca^{2+}- triggered exocytosis. *Biochem. J.* 366, 1-13
Bai, J. and Chapman, E.R. (2003). Application of fluorescent probes to determine the mechanics and dynamics of Ca^{2+}-triggered synaptotagmin C2-domain-membrane interactions. *Methods in Enzymology* 360, 23 8-258.
Wu, Y., He, Y., Bai, B., Ji, S.R., Tucker, W.C., Chapman, E.R.* and Sui, S.F.* (2003).. Visualization of synaptotagmin I oligomers assembled onto lipid monolayers. *Proc. Natl. Acad. Sci. USA* 100; 2082-2087. *corresponding authors.
Tucker, W.C., Edwardson, J.M., Bai, J., Kim, H.J., Martin, T.F.J. and Chapman, E.R. (2003). Identification of synaptotagmin effectors via acute inhibition of secretion from cracked PC12 cells. *J. Cell Biol.* 162: 199-209.
Dong, M., Goodnough, M.C., Tepp, W.H., Johnson, E.A. and Chapman, E.R. (2003). Synaptotagmins I and II mediate entry of botulinum neurotoxin B into cells. *J. Cell Biol.* 162: 1293-1303.
Edwardson, J.M., Wang, C.T., Gong, B., Wyttenbach, A., Bai, J., Jackson, M.B., Chapman, E.R. and Morton, A.J. (2003). Mutant huntingtin expression inhibits exocytosis in PC12 cells by depletion of complexin II. *J. Biol. Chem.* 278: 30849- 30853.
Wang, C.-T., Lu, J.C., Bai, J., Martin, T.F.J., Chapman, E.R. and Jackson, M.B. (2003). Different domains of synaptotagmin control the choice between kiss-and-run and full-fusion. *Nature* 424: 943-947.
Wang, P., Wang, C.T., Bai, J., Jackson, M.B. and Chapman, E.R. (2003). Mutations in the effector binding loops in the C2A and C2B domains of synaptotagmin I disrupt exocytosis in a non-additive manner. *J. Biol. Chem.* 278(47): 47030-47037
Liu, W., Montana, V., Chapman, E. R., Mohideen, U. and Parpura, V.. (2003) Botulinum Toxin type B micromechanosensor. *Proc. Natl. Acad. Sci. USA* 100(23): 13621-13625
Bai, J., Tucker, W.C. and Chapman, E.R. (2004). PIP2 increases the speed-ofresponse of

synaptotagmin and steers its membrane penetration activity toward the plasma membrane. *Nature Struct. Mol. Biol.* 11(1): 3 6-44

Chieregatti, E., Chicka, M.C., Chapman, E.R. and Baldini, G. (2004). SNAP-23 functions in docking/fusion of granules at low Ca^{2+}. *Mol. Biol. Cell* 15(4):1918-30

Bai, J. and Chapman, E.R. (2004).The C2-domains of synaptotagmin: partners in exocytosis. *TIBS* 29(3): 143-151

Berdiev, B.K., Jovov, B., Ganeshan, H.L.R., Tucker, W., Naren, A.P., Fuller, C.M., Chapman, E.R. and Benos, D.J. (2004). The effects of syntaxin 1A on ENaC. AJP: Renal Physiology 286: F1 100-F1 106.

Bai, J., Wang, C.T., Jackson, M.B. and Chapman, E.R. (2004) Fusion pore dynamics are regulated by synaptotagmin•t-SNARE interactions. *Neuron* 41: 929-942.

Han, X., Wang, C.T., Bai, J., Chapman, E.R. and Jackson, M.B. (2004) Transmembrane segments of syntaxin line the fusion pore of Ca^{2+}-triggered exocytosis. *Science* 304: 289-292

Tucker, W.T., Weber, T. and Chapman, E.R.. (2004) Reconstitution of Ca^{2+}- triggered membrane fusion by synaptotagmin and SNAREs. *Science* 304: 435-43 8.

Grishanin, R.N., Kowalchyk, J.A., Klenchin, V.A., Ann K-S., Earles, C.A., Chapman, E.R., Gerona, R.R.L., and Martin, T.F.J. (2004). CAPS acts at a pre-fusion step in dense-core vesicle exocytosis as a PIP2-binding protein. *Neuron* 43: 55 1-562.

Dong, M., Goodnough, M.C., Tepp, W.H., Johnson, E.A. and Chapman, E.R.. (2004). Using fluorescent sensors to detect botulinum neurotoxin activity *in vitro* and in living cells. *Proc. Natl. Acad. Sci. USA* 101: 14701-14706

Richards, D., Bai, J. and Chapman, E.R. (2005). Two modes of exocytosis revealed by the rate of FM1-43 efflux in hippocampal boutons. *J. Cell Biology* 168(6): 929-939.

Hui, E., Bai, J., Sugimori, M., Llinas, R. and Chapman, E.R.. (2005). Three distinct kinetic groupings of the synaptotagmin family – candidate sensors for rapid and delayed exocytosis. *Proc. Natl. Acad. Sci. USA* 102(14): 5210-5214.

Shen S.S., Tucker, W.C., Chapman, E.R. and Steinhardt, R.A. (2005) Molecular regulation of membrane resealing in 3T3 fibroblasts. *J. Biol. Chem.* 280:1652-60

Madziva, M.T., Bai, J., Bhalla, A., Chapman, E.R. and Edwardson, J.M. (2005). Effects of synaptotagmin reveal two distinct mechanisms of agonist-stimulated internalization of the M4 muscarinic acetylcholine receptor. Brit. J. Pharm. 144(6): 761-71.

Maher, B., MacKinnon II, R.L., Bai, J., Chapman, E.R. and Kelly, P.T. (2005). Activation of intracellular Ca^{2+} stores modulates glutamate receptor cycling in hippocampal neurons. *J. Neurophysiol.* 93: 178-188.

Liu, T., Tucker, W., Bhalla, A., Chapman, E..R. and Weisshaar, J.C. (2005). SNARE-driven, 25- millisecond vesicle fusion *in vitro. Biophysical J.* 89(4): 2458-72.

Wang, P., Chicka, M.C., Bhalla, A., Richards, D. and Chapman, E.R.. (2005). Synaptotagmin VII is targeted to secretory organelles in PC 12 cells where it functions as a high affinity calcium sensor. *Mol. Cell. Biol.* 25(19): 8693-702.

Bhalla, A., Tucker, W. and Chapman, E.R. (2005). Synaptotagmin isoforms couple distinct ranges of Ca^{2+}, Ba^{2+} and Sr^{2+} concentration to SNARE-mediated membrane fusion. *Mol. Biol. Cell* 16(10): 4755-64.

Wang, C.T., Bai, J., Chang, P.Y., Chapman, E.R. and Jackson, M.B. (2005). Synaptotagmin•Ca^{2+} triggers two sequential steps in regulated exocytosis in rat PC12 cells: fusion pore opening and fusion pore dilation. *Journal of Physiology (in press)*

ABSTRACT

Edwin R. Chapman grew up in Bellingham, Washington, the youngest of four children. His father taught drafting and shop in high school, and his mother stayed at home to raise the children. From an early age Chapman was interested in science, especially in chemistry. He had chemistry sets and a buddy whose father was a pharmacist and who had access to recipes and chemicals; as a result, Chapman set his room on fire several times. His parents were devout Lutherans, but Chapman found religion "didn't make sense" even then. His maternal grandmother came from Romania and had thirteen children; his grandfather came also from Eastern Europe, but it is not clear from exactly where. The thirteen children all had large families, so Chapman has dozens of cousins.

Chapman recalls his education in the Bellingham public schools as being unusual and very good, though not especially challenging. He was interested in marine biology, rock collecting, and taking things apart. His father worked construction during summers, and he taught Chapman to do many things around the house. The elder Chapman built a wood lathe, now sixty-one years old, and the two still work together with it

Following, as Chapman says, the path of least resistance, he decided to go to college, and for the same reason he applied to his hometown college, Western Washington University. He discovered there the joy of academic hard work in an organic chemistry class taught by Donald Pavia, whom he considers the best lecturer he has ever encountered. He recently went back to Western Washington University to give a talk and was grateful to show his professors how well he had done because of them. Although the school's emphasis was on classroom teaching, Chapman did his first lab research in the lab of Donald Schwemmin, whom he also remembers fondly. He was yard man at a rental store to support himself during college.

For two years after graduation, still not sure what he wanted to do, Chapman worked as a lab technician, designing HIV assays, at Genetic Systems in Seattle. Not wanting to "dead end" there, he realized he needed a Ph.D., so again "following the path of least resistance" he attended the University of Washington, working in Daniel Storm's lab. Fascinated by the workings of the brain, he decided on pharmacology. Wanting to continue his neuroscience studies, he accepted a Howard Hughes Medical Institute award for a postdoctoral fellowship at Yale in the lab of Reinhard Jahn. Himself a sociable man, Chapman found there people with whom to enjoy talking science and to collaborate. Chapman here compares Jahn's mentoring style and lab management with his own; he then discusses competition and collaboration in science; publishing; his own advice to students.

After four years Chapman accepted a position at the University of Wisconsin, Madison, where he is now a full professor. He discusses his funding history and explains how he set up and manages his lab. He goes on to talk about funding in general; writing grants; peer review system; his professional duties; his current research on membrane fusion, synaptic transmission, and neurotoxins; tenure; teaching and travel commitments; educating people in science. He talks about his Chinese students and his impressions of China, and about foreign students in general. His fascination with the brain has resulted in a practical application: his obsession with listening to music on "high-end audio"; this he explains as changing the brain by training it. Chapman describes his future research in the relationship between presynaptic function and behavior and memory; and practical applications of his work, including his collaboration with

Meyer Jackson; his view of the qualities of a good scientist; and his professional and personal goals.

UCLA INTERVIEW HISTORY

INTERVIEWER:

Karen A. Frenkel, Interviewer, UCLA Oral History Program; B.A., Hampshire College, 1978; M.S., Boston University, 1982

TIME AND SETTING OF INTERVIEW:

Place: Edwin Chapman's office at Medical School of the University of Wisconsin, Madison, WI.

Date: December 5, 6, and 7, 2005.

Total number of recorded hours: 5.5

Persons present during interview: Long and Frenkel.

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' 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, Frenkel held a telephone pre-interview conversation with Chapman to obtain written background information (curriculum vitae, website address, copies of published articles, etc.) and agree on an interviewing schedule. She also reviewed the documentation in Chapman'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.

ORIGINAL EDITING

Carol Squires edited the interview. She edited for punctuation, paragraphing, and spelling, and verified proper names. Words and phrases inserted by the editor have been bracketed.

Chapman reviewed the transcript. He verified proper names and made a number of corrections and deletions.

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