

CURRICULUM VITAE

David M. Lovinger, Ph.D.

Current Contact Information

Laboratory for Integrative Neuroscience
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Personal Information

Birthdate: December 28, 1959

Birthplace: Flint, Michigan

Citizenship: United States

Education and Experience

- 1977-1981 University of Arizona, B.A. with honors 1981, Major: Psychology.
- 1981-1984 Northwestern University, M.S. 1984, Major Field: Psychology, Behavioral Neurobiology Program, Advisor: Dr. Aryeh Routtenberg.
- 1985-1987 Northwestern University, Ph.D. 1987, Major Field: Psychology, Behavioral Neurobiology Program, Advisor: Dr. Aryeh Routtenberg, Dissertation Title: Regulation of the Maintenance of Hippocampal Long-Term Potentiation by Protein Kinase C and Protein Fl.
- 1987-1988 IRTA Fellow, NINCDS, Supervisor: Dr. Forrest F. Weight.
- 1988-1991 Staff Fellow, NIAAA, Supervisor: Dr. Forrest F. Weight.

1991-1994 Assistant Professor, Departments of Molecular Physiology and Biophysics and Pharmacology Vanderbilt University School of Medicine. Kennedy Center Investigator, Vanderbilt University.

1994-1998 Associate Professor with tenure, Departments of Molecular Physiology and Biophysics and Pharmacology Vanderbilt University School of Medicine. Kennedy Center Investigator, Vanderbilt University.

1998-2002 Professor, Departments of Molecular Physiology & Biophysics, and Pharmacology Vanderbilt University School of Medicine. Associate Professor of Anesthesiology Vanderbilt University School of Medicine. Kennedy Center Investigator, Vanderbilt University. Deputy Director for Biomedical Science and Director of Neuroscience Core, Kennedy Center, Vanderbilt University (2000-2001).

2002-Present Chief, Laboratory for Integrative Neuroscience, NIAAA, NIH Tenured Investigator

Awards

1989 National Research Council travel award to attend the International Congress of Physiological Sciences.

1991 Pharmaceutical Manufacturers Association Research Fellowship.

1991 Alcoholic Beverage Medical Research Foundation Research Fellowship.

1992 Woodrow W. Patterson Award.

1992 Research Society on Alcoholism Young Investigators Award.

1999 Sigrid Juselius Foundation Grant to support research during summer visit to the University of Turku, Finland.

2000 MERIT Award, NIAAA.

Professional Affiliations

1990-Present Society for Neuroscience

1990-Present	Research Society on Alcoholism
1995-Present	International Society for Biomedical Research on Alcoholism
1992-2001	Biophysical Society
1996-2001	American Association for the Advancement of Science

Research Interests

Synaptic transmission, modulation and plasticity in the striatum and amygdala. Role of endocannabinoids in synaptic plasticity.

Role of cortico-basal ganglia circuitry in control and learning of actions. Cellular and molecular mechanisms involved in learning and memory involving this circuitry.

Interactions of intoxicating and general anesthetic agents with synaptic transmission in mammalian neurons, and the contributions of such interactions to intoxication and substance use/abuse.

Characterization of the biophysical properties of 5-HT₃ receptor-channels.

Teaching Experience

1981-1985	Teaching assistant and senior teaching assistant for Introduction to Neuroscience, taught by Dr. Aryeh Routtenberg.
1984-1985	Teaching assistant for Experimental Psychology.
1983-1985	Trained technician to perform in vivo electrophysiological experiments on the anesthetized rat. Supervised technician's research.
1989-1991	Assisted in training technicians to culture neurons from fetal mouse brain.
1991-Present	Trained postdoctoral fellow and graduate students to perform patch-clamp experiments. Trained graduate students and postdoctoral fellows to perform brain

slice experiments. Supervised activities of technicians including use of cell culture, brain slice and molecular biological techniques.

Served on Biophysics Track committee and participated in review and oral portion of qualifying examinations.

Served on thesis committee for several students from Molecular Physiology and Biophysics Dept, as well as Pharmacology at Vanderbilt University. Served on dissertation committee for student in the George Washington University Department of Pharmacology.

1992-2001

Lectured in:

Medical Physiology (6 contact hours per year at present)

Human Physiology and Molecular Medicine (1-3 contact hours per year)

Interdisciplinary Graduate Program Core Course (2 contact hours per year)

Cellular and Integrative Neuroscience (responsible for organizing one third of the course, 7 contact hours per year)

Co-organizer and lecturer in Excitable Membrane Properties in Nerve and Muscle (10-15 contact hours per year)

Lectures in Special Topics in Neuroscience as needed (<1 lecture per year)

Lectures in Molecular Neuroscience, Psychopharmacology section (~2 lectures per year)

2002-Present

Four 2 hour lectures in Introductory Neuroscience course, George Washington University School of Medicine, Neuroscience Graduate Program

Two 2 hour lectures in Introductory Neuroscience course, Georgetown University School of Medicine, Neuroscience Graduate Program

Supervision, Mentoring and Departmental Graduate Training

Faculty Members

Faculty mentor for Dr. Danny Winder, Department of Molecular Physiology and Biophysics, Vanderbilt University School of Medicine, 1999-2001, Dr. Winder is now a tenured Full Professor within the MPB Department at Vanderbilt.

Dr. Andrew Holmes, Chief, Section on Behavioral Science and Genetics within the Laboratory for Integrative Neuroscience, NIAAA Division of Intramural Clinical and Basic Research, 2003-Present. Dr. Holmes was recently approved for tenure.

Dr. Rui Costa, Acting Chief, Section on In Vivo Neural Function within LIN, NIAAA, DICBR, January 2006-2009. Dr. Costa held a tenure track position equivalent in rank to Assistant Professor. He is now a senior scientist at the Champalimaud Research Institute in Lisbon, Portugal.

Dr. Veronica Alvarez, Acting Chief, Section on Neuronal Structure within LIN, NIAAA, DICBR, January 2008-Present. This is a tenure track position equivalent in rank to Assistant Professor.

Dr. Margaret I. Davis, Staff Scientist, Laboratory for Integrative Neuroscience, NIAAA Division of Clinical and Basic Research, 2003-Present. This position is equivalent to a Research Track faculty position.

Dr. Li Zhang, Staff Scientist, Laboratory for Integrative Neuroscience, NIAAA Division of Clinical and Basic Research, 2004-Present.

Dr. Yolanda Mateo, Staff Scientist, Laboratory for Integrative Neuroscience, NIAAA Division of Clinical and Basic Research, 2008-Present.

Postdoctoral fellows

Brian A. McCool, Ph.D. (1993-1997). Currently Associate Professor of Pharmacology and Physiology, Wake Forest University School of Medicine.

Honors and Awards: Recipient of a postdoctoral fellowship from NINDS, 1994-1997. Recipient of a travel award to attend the 2nd

International Meeting on Metabotropic Glutamate Receptors, Taormina Italy, September 1996. Recently awarded tenure. Has received R01 and R21 grants from NIH.

R. Lisa Popp, Ph.D. (winter 1995–November 2000), Currently Associate Professor, Department of Pharmacology and Toxicology, Texas Tech University Health Science University.
Honors and Awards: Recipient of a postdoctoral fellowship from NIAAA, 1997–1999. Recipient of an Alcoholic Beverage Medical Research Foundation grant, 1999–2001. Recipient of an R01 award from NIAAA. Recently awarded tenure.

Ki-Wug Sung, M.D. (February 1998–December 2000), Currently Professor and Chairman of Pharmacology, Catholic University of Korea Medical School.
Honors and Awards: Recipient of grants from the Korean Science and Engineering Foundation 1999–2000, 2004–Present.

Gabriella Stocca, Ph.D. (Spring 1998–2002) Currently in a research track position, Florence, Italy.
Honors and Awards: Recipient of a Huntington's Disease Society postdoctoral fellowship, 2001. Awarded a fellowship to attend the Cold Spring Harbor course on imaging, summer 2001.

Margaret Davis, Ph.D. (2002–present) Promoted to Staff Scientist, 2003.

Gabor Oroszi, M.D., Ph.D. (2002–2003) Currently Visiting Fellow in LNG, NIAAA/DICBR.

Xiang-Qun Hu, Ph.D. (2004–2005) Currently Research Assistant Professor, Iowa State University.

Pingjun Zhu, Ph.D. (2003–2005) Currently a senior research associate at Baylor University, Houston, TX.

Yumiko Honse, Ph.D. (2003–September 2006) Currently a Pharmacy intern.

Anton Sheinin, Ph.D. (August 2006–August 2007) Currently postdoctoral fellow at Tel Aviv University, Israel.

Henry Yin, Ph.D. (December 2004–July 2008) Currently Assistant Professor of Psychology, Duke University.
Honors and Awards: Recipient of an R22 transition award and an R01 from NIAAA.

Louise Adermark, Ph.D. (August 2005-December 2007) Currently Research Assistant Professor, University of Goteborg, Sweden.

Honors and Awards: Recipient of a postdoctoral fellowship and multiple research support fellowships from the Swedish government and foundations in Sweden.

Giuseppe Talani, Ph.D. (March 2007-March 2009) Currently Research Assistant Professor equivalent, University of Cagliari, Sardinia, Italy.

Sang Beom Jun, Ph.D. (January 2008-February 2011) Currently Assistant Professor of Biomedical Engineering, Ewha University, Seoul, Republic of Korea.

Brian Mathur, Ph.D. (October 2008-present)

Honors and Awards: Recipient of a travel award to attend the 2011 Gordon Conference on Cannabinoids in the CNS.

Virginia Cuzon Carlson, Ph.D. (December 2008-present)

Guohong Cui, Ph.D. (Autumn 2008-present)

Xin Jin, Ph.D. (Autumn 2008-present)

Christina Gremel (Autumn 2008-present)

Honors and Awards: Recipient of a poster presentation award at the 2010 meeting of the International Basal Ganglia Society. Recipient of a travel award to attend the 2011 Winter Conference on Brain Research.

Brady Atwood (March 2011-present)

Graduate students

Elizabeth Tyler (Vanderbilt University, M.D./Ph.D., 1997), Currently affiliated with Neurological Surgery Department, University of Pittsburgh Medical School.

Qing Zhou (Vanderbilt University, Ph.D., 1997), Currently working in Biomedical Informatics.

Honors and Awards: Received a postdoctoral fellowship from NIAAA, 1999.

Sukwoo Choi (Vanderbilt University, Ph.D., 1997), Completed a postdoctoral fellowship in the laboratory of Dr. Richard W. Tsien, Department of Cellular and Molecular Physiology, Stanford University

Medical School. Currently Assistant Professor at Seoul National University, Republic of Korea.

Honors and Awards: Recipient of a Stanford University postdoctoral fellowship, 1998-1999.

John Partridge (Vanderbilt University, Ph.D., 2000), Currently a Research Assistant Professor in the laboratory of Dr. Stefano Vicini, Georgetown University Medical School.

Honors and Awards: Received the Best Poster Award at the 1998 meeting of the Southeastern Pharmacological Society.

Ka-Choi "Jeffrey" Tang (Vanderbilt University, Ph.D., 2000), Currently working for Molecular Devices.

Honors and Awards: Received the Department of Molecular Physiology and Biophysics Student Poster Award, May 2000.

Gregory L. Gerdeman (Vanderbilt University, Ph.D., 2001) Currently Assistant Professor, Eckerd College, FL.

Honors and Awards: Recipient of a predoctoral fellowship from NIDA 1998-2000. Received the Student Presentation Award at the International Cannabinoid Research Society meetings in both 2000 and 2001.

Jennifer Ronesi (Vanderbilt University, Ph.D., 2005) Currently a postdoctoral fellow with Dr. Kimberly Huber at UT Southwestern Medical School.

Russell Morton (June 2007- present) George Washington University partnership student.

Academic Positions and Responsibilities Related to Education

Director of Graduate Studies, Molecular Physiology and Biophysics Department, June 1995-July 1998.

Director of Graduate Studies, Neuroscience Ph.D. Program, July 1998-January 2002.

Participant in organizing Neuroscience Graduate Curriculum, beginning August 1997.

Professional Service

Member of site visit team for NIAAA, University of North Carolina, November, 1992.

Ad Hoc reviewer for Veterans Administration Alcohol Research Merit Reviews 1991,1993,1994, 1995, 1997, 1999.

Ad Hoc reviewer for NIAAAA/ADAMHA ALCB-2 study section, October 1993, February 1994.

Ad Hoc reviewer for NIH review groups including: MDCN-3, Fall 2001; MDCN-4, Spring 2003; and SYN, Winter 2006.

Member of Research Society on Alcoholism Program Committee, 1993, 1997, 2000, 2003, 2005, 2006.

Member of ALCB-2 study section beginning in 1995. Changed name to ALTX-3 in 1996. Service completed in June 1998.

Ad Hoc reviewer for special NIH review panels 1997, 1998 and 2000, 2004, 2007, 2008, 2009.

Participant in NIAAAA Neuroscience and Behavior portfolio review, May 1998.

Review of NIAAAA Center Grant application, April 2000.

Member, Scientific Advisory Board, Dystonia Medical Research Foundation, 2005.

Member and Chair, NIAAAA DICBR Promotion and Tenure Committee, 2002-2010.

Chair, Fishers Lane Animal Care User's Committee, 2005 - present.

Chair, NIAAAA DICBR Animal Care and Use Committee, 2009 - present.

Member of NIH Central Tenure Committee, September 2010 - present.

Publications

Routtenberg, A., **Lovinger, D.** and Steward, O. (1985), Selective increase in the phosphorylation of a 47kD protein (F1) directly related to long-term potentiation, Behav. Neur. Biol., 43: 3-11.

Lovinger, D., Akers, R., Nelson, R., Barnes, C., McNaughton, B. and Routtenberg, A. (1985), A selective increase in hippocampal protein F1 phosphorylation directly related to three day growth of long-term synaptic enhancement. Brain Res., 343: 137-148.

- Akers, R., **Lovinger, D.**, Colley, P., Linden, D. and Routtenberg, A. (1986), Translocation of protein kinase C activity may mediate hippocampal long-term potentiation, Science, 231: 587-589.
- Routtenberg, A., Colley, P., Linden, D., **Lovinger, D.**, Murakami, K. and Sheu, F-S. (1986), Phorbol ester promotes growth of synaptic plasticity, Brain Res., 378: 374-378.
- Lovinger, D.**, Colley, P.A., Akers, R.F., Nelson, R.B. and Routtenberg, A. (1987), Direct relation of long-term synaptic potentiation to phosphorylation of membrane protein F1: A substrate for membrane protein kinase C, Brain Res., 399: 205-211.
- Lovinger, D.**, Wong, K.L., Murakami, K. and Routtenberg, A. (1987) Protein kinase C inhibitors eliminate hippocampal long-term potentiation, Brain Res., 436: 177-183.
- Lovinger, D.** and Routtenberg, A. (1988), Synapse-specific protein kinase C activation enhances maintenance of long-term potentiation in rat hippocampus, J. Physiol., 400: 321-334.
- Barnes, C.A., Mizumori, S.J.Y., **Lovinger, D.M.**, Sheu, F.-S., Murakami, K., Chan, S.Y. Linden, D.J., Nelson, R.B. and Routtenberg, A. (1988), Selective decline in protein F1 phosphorylation in hippocampus of senescent rats, Neurobiol. of Aging, 9: 393-398.
- Lovinger, D.M.** and Weight, F.F. (1988), Glutamate induces a depolarization of adult rat dorsal root ganglion neurons that is mediated predominantly by NMDA receptors, Neurosci. Lett., 94: 314-320.
- Lovinger, D.M.**, White, G. and Weight, F.F. (1989), Ethanol inhibits NMDA-activated ion current in hippocampal neurons, Science, 243: 1721-1724.
- Lovinger, D.M.** and White, G. (1989), Postnatal development of burst firing behavior and the low-threshold transient calcium current examined using freshly isolated neurons from rat dorsal root ganglia, Neurosci. Lett., 102: 50-57.
- White, G., **Lovinger, D.M.** and Weight, F.F. (1989), A transient low-threshold Ca^{2+} current triggers burst firing through an afterdepolarization in an adult mammalian neuron, Proc. Nat'l Acad. Sci. USA, 86: 6802-6806.
- White, G., **Lovinger, D.M.** and Weight, F.F. (1990) Ethanol inhibits NMDA-activated current but does not affect GABA-activated current in an isolated adult mammalian neuron, Brain Res., 507: 332-336.

Lovinger, D.M., White, G. and Weight, F.F. (1990) NMDA receptor-mediated synaptic excitation selectively inhibited by ethanol in hippocampal slice from adult rat, J. Neurosci., 10: 1372-1379.

Lovinger, D.M., White, G. and Weight, F.F. (1990) Ethanol inhibits NMDA receptor-mediated excitation in neurons from mammalian CNS, Annals of Medicine, 22 (4): 247-252.

Harrison, N.L., **Lovinger, D.M.**, Lambert, N.A., Teyler, T.J., Prager, R., Ong, J. and Kerr, D.I.B. (1990) Antagonism at presynaptic GABA_B receptors in the rat hippocampus by 2-hydroxy-saclofen, Neurosci. Lett., 119: 272-276.

White, G., **Lovinger, D.M.**, Peoples, R.W. and Weight, F.F. (1990) Inhibition of N-methyl-D-aspartate activated ion current by desmethylimipramine, Brain Res., 537: 337-339..

Lovinger, D.M. (1991) Ethanol potentiates 5-HT₃ receptor-mediated ion current in NCB-20 neuroblastoma cells, Neurosci Lett., 122: 54-56.

Lovinger, D.M. (1991) Trans-1-amino-cyclopentane-1,3-dicarboxylic acid (t-ACPD) decreases synaptic excitation in rat striatal slices through a presynaptic action, Neurosci. Lett., 129: 17-21.

Lovinger, D.M. and White, G. (1991) Ethanol potentiation of 5-HT₃ receptor-mediated ion current in neuroblastoma cells and adult mammalian neurons, Mol. Pharm., 40(2): 263-270.

Lovinger, D.M. (1991) Inhibition of 5-HT₃ receptor-mediated ion current by divalent metal cations in NCB-20 neuroblastoma cells, J. Neurophys., 66(4): 1329-1337.

Lovinger, D.M., Harrison, N.L. and Lambert, N.A. (1992) The actions of 3-aminopropanephosphinic acid at GABA_B receptors in rat hippocampus, Eur. J. Pharmacol., 211: 337-341.

Swartz, K.J, Merritt, A., Bean, B.P. and **Lovinger, D.M.** (1993) Protein kinase C modulates glutamate receptor inhibition of Ca channels and synaptic transmission, Nature, 361: 165-168.

Lovinger, D.M., Zimmerman, S.A, Levitin, M., Jones, M.L. and Harrison, N.L. (1993) Trichloroethanol potentiates synaptic transmission mediated by GABA_A receptors in hippocampal neurons, J. Pharmacol. Exper. Therap., 264: 1097-1103.

- Lovinger, D.M.**, Tyler, E., Fidler, S. and Merritt, A. (1993) Properties of a presynaptic metabotropic glutamate receptor in rat neostriatal slices, J. Neurophys., 69: 1236-1244.
- Harrison, N.L., Radke, H.K., Tamkun, M.M. and **Lovinger, D.M.** (1993) Modulation of gating of cloned rat and human K⁺ channels by micromolar Zn²⁺, Mol. Pharmacol., 43: 482-486.
- Lovinger, D.M.** and Zhou, Q. (1993) Trichloroethanol potentiation of 5-HT₃ receptor-mediated ion current in nodose ganglion neurons from adult rat, J. Pharmacol. Exper. Therap., 264: 1097-1103.
- Lovinger, D.M.** (1993) High ethanol sensitivity of recombinant AMPA-type glutamate receptors expressed in mammalian cells, Neurosci. Lett., 159: 83-87.
- Lovinger, D.M.**, Tyler, E. and Merritt, A. (1993) Short and long term synaptic depression in rat neostriatum, J. Neurophys., 70 (5): 1937-1949.
- Deal, K.K., **Lovinger, D.M.** and Tamkun, M.M. (1994) The brain Kv1.1 potassium channel: In vitro and in vivo studies on subunit assembly and posttranslational processing, J. Neurosci., 14 (3): 1666-1676.
- Lovinger, D.M.**, Merritt, A. and Reyes, D. (1994) Involvement of N- and non-N-type Calcium Channels in Synaptic Transmission at Corticostriatal Synapses, Neurosci., 62(1): 31-40.
- Lovinger, D.M.** and Zhou, Q. (1994) Alcohols potentiate ion current mediated by recombinant 5-HT₃RA receptors expressed in a mammalian cell line, Neuropharmacol., 33: 1567-1572.
- Lovinger, D.M.** and McCool, B.A. (1995) Activation of presynaptic metabotropic glutamate receptors at corticostriatal synapses by mGluR_{2,3} specific agonists. J. Neurophys., 73(3): 1076-1083.
- Ikeda, S.R., **Lovinger, D.M.**, McCool, B.A. and Lewis, D.A. (1995) Heterologous expression of metabotropic glutamate receptors in adult rat sympathetic neurons: Subtype specific coupling to ion channels. Neuron, 14: 1029-1038.
- Lovinger, D.M.** (1995) Developmental decrease in ethanol sensitivity of NMDA receptors on cortical neurons: Relation to the actions of ifenprodil. J. Pharmacol. Exper. Therap., 274(1): 164-172.
- McCool, B.A. and **Lovinger, D.M.** (1995) Ifenprodil inhibition of the 5-hydroxytryptamine₃ receptor. Neuropharm., 34(6): 621-629.

Tyler, E.C. and **Lovinger, D.M.** (1995) Metabotropic glutamate receptor modulation of synaptic transmission at corticostriatal co-cultures: Role of calcium influx. Neuropharm., Special Issue on Metabotropic Glutamate Receptors, 34(8): 939-952.

Lovinger, D.M. and Choi, S. (1995) Activation of adenosine A1 receptors is necessary for initiation of short-term synaptic depression in striatum. Neurosci. Lett., 199: 9-12.

Choi, S. and **Lovinger, D.M.** (1996) Metabotropic glutamate receptor modulation of voltage-gated Ca²⁺ channels involves multiple receptor subtypes in cortical neurons. J. Neurosci., 16(1): 36-45.

Zhou, Q. and **Lovinger, D.M.** (1996) Pharmacologic characteristics of potentiation of 5-HT₃ receptors by alcohols and diethyl ether in NCB-20 neuroblastoma cells. J. Pharmacol. Exper. Therap., 278: 732-740.

Lakhlani, P.P., **Lovinger, D.M.** and Limbird, L.E. (1996) Genetic evidence for involvement of multiple effector systems in alpha_{2A} adrenergic receptor inhibition of stimulus-secretion coupling. Mol. Pharm., 50: 96-103.

McCool, B.A., Pin, J-P., Brust, P.F., Harpold, M.M. and **Lovinger, D.M.** (1996) Heterologous expression of rat group II metabotropic glutamate receptors (mGluR_{2&3}) in HEK 293 cells: Functional coupling to a stably expressed Ω -conotoxin GVIA-sensitive calcium channel. Mol. Pharm., 50: 912-922.

Choi, S. and **Lovinger, D.M.** (1997) Decreased probability of neurotransmitter release underlies striatal LTD and postnatal development of corticostriatal synapses. Proc. Natl. Acad. Sci., 94: 2665-2670.

Strack, S., Choi, S., **Lovinger, D.M.** and Colbran, R.J. (1997) Translocation of autophosphorylated calcium/calmodulin-dependent protein kinase II to the postsynaptic density. J. Biol. Chem., 272(21): 13467-13470.

Lakhlani, P.P., McCool, B.A., **Lovinger, D.M.** and Limbird, L.E. (1997) Loss of electrophysiological responses to α ₂-adrenoreceptor agonists in D79N α _{2a}-adrenoreceptor mutant mice. Proc. Natl. Acad. Sci., 94: 9950-9955.

Choi, S. and **Lovinger, D.M.** (1997) Decreased frequency but not amplitude of quantal synaptic responses associated with expression of corticostriatal long-term depression. J. Neurosci., 17(21): 8613-8620.

Peoples, R.W., White, G., **Lovinger, D.M.** and Weight, F.F. (1997) Ethanol inhibition of N-methyl-D-aspartate-activated current in mouse hippocampal neurones: whole-cell patch-clamp analysis. Br. J. Pharmacol. 122: 1035-1042.

Smothers, C.T., Mrotek, J. and **Lovinger, D.M.** (1997) Enhancement of NMDA receptor function following chronic ethanol exposure in cultured hippocampal neurons. J. Pharmacol Exper. Therap., 283: 1214-1222.

McCool, B.A., Harpold, M.M., Stauderman, K.A. and **Lovinger, D.M.** (1997) Relative contributions of G protein, channel and receptor to modulation of voltage-gated calcium channels. Neurosci. Lett., 239: 89-92.

McCool, B.A., Brust, P.F., Harpold, M.M. and **Lovinger, D.M.** (1998) Group I metabotropic glutamate receptors modulate voltage-gated calcium channels via multiple, convergent signaling pathways. J. Neurophysiol., 79: 379-391.

Zhou, Q., Verdoorn, T.A. and **Lovinger, D.M.** (1998) Alcohols potentiate the function of 5-HT₃ receptor-channels on NCB-20 neuroblastoma cells by favouring and stabilizing the open channel state. J. Physiol. (London), 507.2: 335-352.

Popp, R.L., Lickteig, R., Browning, M.D. and **Lovinger, D.M.** (1998) Ethanol sensitivity and subunit composition of NMDA receptors in cultured striatal neurons. Neuropharm., 37: 45-56.

Hewlett, W.A., Trivedi, B.L., Zhang, Z-J., De Paulis, T., Schmidt, D.E., **Lovinger, D.M.**, Ansari, M.S. and Ebert, M.H. (1999) In vitro characterization of (S)-Des-4-amino-3-[¹²⁵I] iodozacopride ([¹²⁵I]DAIZAC), a selective high-affinity radioligand for 5-HT₃ receptors. J. Pharmacol. Exper. Therap., 288(1):221-231.

Popp, R.L., Lickteig, R. and **Lovinger, D.M.** (1999) Factors that enhance ethanol inhibition of NMDA receptors in cerebellar granule neurons. J. Pharmacol. Exper. Therap., 289: 1564-1574.

Tang, K-C. and **Lovinger, D.M.** (2000) Role of pertussis toxin sensitive G-proteins in striatal synaptic transmission and long term depression. J. Neurophysiol., 83: 60-69.

Lovinger, D.M., Sung, K-W. and Zhou, Q. (2000) Ethanol and trichloroethanol increase the probability of opening of 5-HT₃ receptor-channels in NCB-20 neuroblastoma cells. Neuropharm., 39: 561-570.

- Popp, R.L. and **Lovinger, D.M.** (2000) Interaction of acamprosate with ethanol and spermine on NMDA receptors expressed in primary cultured neurons. Eur. J. Pharmacol., 394: 221-231.
- Sung, K-W., Engel, S., Allan, A. and **Lovinger, D.M.** (2000) 5-HT₃ Receptor function and potentiation by alcohols in frontal cortex neurons from transgenic mice overexpressing the receptor. Neuropharm., 39(12):2346-2351.
- Partridge, J., Tang, K-C. and **Lovinger, D.M.** (2000) Regional and developmental heterogeneity in activity-dependent striatal synaptic plasticity. J. Neurophysiol., 84: 1422-1429.
- Sung, K-W., Kirby, M., McDonald, M.P., **Lovinger, D.M.** and Delpire, E. (2000) Abnormal GABA_A receptor-mediated currents in dorsal root ganglion neurons isolated from Na-K-2Cl cotransporter null mice. J. Neurosci. 20:7531-7538.
- Gerdeman, G.L. and **Lovinger, D.M.** (2001) The CB1 cannabinoid receptor inhibits synaptic release of glutamate in rat dorsolateral striatum. J. Neurophysiol., 85(1):468-471.
- Tang, K-C., Low, M.J., Grandy, D.K. and **Lovinger, D.M.** (2001) Dopamine-dependent developmental changes in presynaptic function in striatum. Proc. Natl. Acad. Sci. USA, 98(3): 1255-1260.
- Möykkynen, T., Uusi-Oukari, M., **Lovinger, D.M.** and Korpi, E.R. (2001) Magnesium modulation of GABA_A receptors. Neuroreport 12(10):2175-2179.
- Sung, K-W., Choi, S. and **Lovinger, D.M.** (2001) Activation of group I metabotropic glutamate receptors is necessary for induction of long-term synaptic depression at striatal synapses. J. Neurophysiol., 86(5):2405-2412.
- Woo, N.-S., Delpire, E., Lue, J., England, R., McClellan, R., Dufour, S., Deutch, A.Y. and **Lovinger, D.M.** (2002) Hyper-excitability and epilepsy associated with disruption of the mouse neuronal-specific K-Cl cotransporter gene. Hippocampus, 12(2):258-268.
- Partridge, J. and **Lovinger, D.M.** (2002) Nicotinic Acetylcholine Receptors Interact with Dopamine in Induction of Striatal Long-Term Depression. J. Neurosci., 22(7):2541-2549.
- Gerdeman, G., Ronesi, J., and **Lovinger, D.M.** (2002) Postsynaptic endocannabinoid release is necessary for long-term depression in the striatum. Nature Neuroscience, 5(5):446-451.

de Paulis T., Schmidt D.E., Bruchey A.K., Kirby M.T., McDonald M.P., Commers, P., **Lovinger, D.M.**, and Martin PR. (2002) Dicinnamoylquinides in roasted coffee inhibit the human adenosine transporter. Eur. J. Pharmacol. 442(3):215-223.

Stocca, G. and **Lovinger, D.M.** (2003) Phorbol ester uncouples adenosine inhibition of presynaptic Ca²⁺ transients at hippocampal synapses. Hippocampus. 13:355-360.

Möykkynen, T., Korpi, E., and **Lovinger, D.M.** (2003) Ethanol inhibits AMPA receptor function in CNS neurons by increasing desensitization. J. Pharmacol. Exper. Therap. 306(2):546-555.

Sessoms-Sikes, J.S., Hamilton, M.E., Liu, I.X., **Lovinger, D.M.**, and Machu, T.K. (2003) A Mutation in transmembrane domain II of the 5-hydroxytryptamine_{3A} receptor stabilizes channel opening and alters alcohol modulatory actions. J. Pharmacol. Exper. Therap. 306(2):595-604.

Begg, M., Mo, F-M., Offertaler, L., Razdan, R.K., **Lovinger, D.M.**, and Kunos, G. (2003) Modulation of a Ca²⁺-dependent K⁺-current by a G protein-coupled endothelial receptor for atypical cannabinoid ligands. J. Biol. Chem. 278(46): 46188-46194.

Davis, M.I., Ronesi, J., and **Lovinger, D.M.** (2003) A predominant role for inhibition of the adenylate cyclase PKA pathway in ERK activation by CB1 receptors in N1E-115 neuroblastoma cells. J. Biol. Chem. 278(49): 48973-48980.

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Lovinger, D.M., Davis, M.I. and Costa, R.M. (2010) Endocannabinoid Signaling in the Striatum. In: Handbook of Basal Ganglia Structure

and Function, Vol. 20, Handbook of Behavioral Neuroscience, Tseng, K., and Steiner, H. (Eds.), Elsevier, p. 167-186.

Lovinger, D.M. (2010) Neurobiological Basis of Drug Reward and Reinforcement. In: Addiction Medicine, Johnson, B.A. (Ed.), Springer, p. 255-282.

Lovinger, D.M. and Roberto, M. (2010) Synaptic Effects Induced by Alcohol. In: Behavioural Neurobiology of Alcohol Addiction, Current Topics in Behavioral Neurosciences, Sommer, W.H. and Spanagel, R. (Eds.), Springer, Invited Chapter submitted.

Editorial Experience

Ad hoc editorial review of manuscripts for journals including Alcohol, Alcoholism: Clinical and Experimental Research, American Journal of Physiology, Biological Psychiatry, Brain Research, British Journal of Pharmacology, Cerebral Cortex, Journal of Comparative Neurology, European Journal of Pharmacology, European Journal of Neuroscience, Experimental Brain Research, FASEB Journal, Frontiers in Neuroscience, Hippocampus, Journal of Biological Chemistry, Journal of Neurochemistry, Journal of Neurophysiology, Journal of Neuroscience, Journal of Pharmacology and Experimental Therapeutics, Journal of Physiology, Learning and Memory, Molecular Pharmacology, Molecular Psychiatry, Nature, Nature Neuroscience, Neuron, Neuropharmacology, Neuroscience, Neuroscience Letters, Pflugers Archives of Physiology, Psychopharmacology, Synapse, and Science.

Co-editor with Dr. Thomas Dunwiddie of the book Presynaptic Receptors in the Mammalian Brain, 1993, Birkhäuser, Boston.

Member of Editorial Advisory Board for Alcohol Research & Health, 2000-2002.

Co-editor with Dr. Yuan Liu of the book Methods in Alcohol-Related Neuroscience Research, CRC Press, 2002.

Member, Editorial Board of the journal Pharmacology and Therapeutics, summer 2003 - 2007.

Associate Editor of the journal Alcohol, January 2005 - present.

Member, Editorial Board, Frontiers in Neuroscience, October 2007 - present.

Reviewing Editor, *Neuropharmacology*, June 2008 - April 2010, Section Editor April 2010 - present.

Review Editor, *Journal of Physiology (London)*, January 2010 - present.

Editorial Board member, *Neuropsychopharmacology*, January 2011 - present.

Editorial Board member, *Basal Ganglia*, January 2011 - present.

Presentations

Participated in specialized panel entitled "Receptor-operated ion channels: key factors in the CNS response to ethanol?", at the 1989 Winter Conference on Brain Research.

Participated in a symposium entitled "Ethanol and the NMDA receptor", at the 1989 meeting of the Research Society on Alcoholism.

Main speaker in a symposium entitled "Long-term potentiation and plasticity" at the 1989 International Congress of Physiological Sciences.

Chaired a workshop entitled "Cellular and molecular mechanisms contributing to long-term synaptic plasticity in hippocampus" at the 1990 Winter Conference on Brain Research.

Participated in a scientific symposium on "Alcohol and Brain" sponsored by ALKO, the Finnish alcohol monopoly, during the Medicine 90 meeting of the Finnish Medical Association in January 1990.

Presented a talk on "Mechanisms of Alcohol Intoxication" at the NIH Clinical Grand Rounds in March 1990.

Participated in a symposium entitled "Changing Trends in Maternal and Fetal Health" at Howard University in April 1990.

Selected to deliver a brief oral presentation at the RSA/ISBRA meeting June 1990.

Participated as a panel discussant in a symposium entitled "Pharmacological Aspects of Ion Channel Function" November 1990.

Co-organized and participated in a symposium on 5-HT₃ receptors and alcohol at the Research Society on Alcoholism meeting June 1991.

Speaker in a panel entitled "Receptive systems for ethanol: The changing view of alcohol's actions" at the annual meeting of the American College of Neuropsychopharmacology in December 1991.

Co-organized and participated in a Workshop entitled "Neurotransmitter receptors as molecular targets for general anesthetics" at the Winter Conference on Brain Research in January 1992.

Speaker in the Marcus Wallenberg Symposium on Alcohol, Cell Membranes and Signal Transduction in Brain, Lund, Sweden, July 1992.

Speaker in a symposium on "Ligand-gated ion channels" at the annual meeting of the American Society of Pharmacology and Experimental Therapeutics, August, 1992.

Speaker in a Workshop on Ligand-gated ion channels and the actions of alcohol at the Winter Conference on Brain Research in January 1993.

Speaker in a Symposium on alcohol actions on ligand-gated ion channels at the Research Society on Alcoholism Annual meeting, June 1993.

Speaker in the electrophysiology section of the 1st International Symposium on Metabotropic Glutamate Receptors, Taormina, Sicily, September 1993.

Participated in two workshops at the 1994 Winter Conference on Brain Research, January, 1994. Co-organizer of one of the workshops.

Participated in a symposium on Alcohol and Neurotransmitter receptors at the 1994 meeting of the Research Society on Alcoholism.

Participated in a workshop on Alcohol and Neuronal Development: NMDA Receptors, at the 1995 meeting of the Research Society on Alcoholism.

Participated as an overview speaker in the "Campral Symposium" satellite to the 1995 ESBRA meeting in Stuttgart, Germany September 1995.

Participated as a speaker in the 2nd International Symposium on Metabotropic Glutamate Receptors, Taormina, Sicily, September, 1996.

Participated as a speaker in the Fifth International Conference on Molecular and Cellular Mechanisms of Anesthesia, Calgary, Canada, June, 1997.

Participated as a speaker in the Basal Ganglia Workshop at Emory University, Atlanta, September, 1997.

Participant in a Society for Neuroscience satellite meeting entitled "The Drunken Synapse", New Orleans, October, 1997.

Participated as a speaker in a symposium entitled "Alcohol and Neuronal Degeneration" at the 1998 meeting of the American Society for Neurochemistry, Denver, March 1998.

Co-organized and participated as a speaker in a symposium entitled "5-HT₃ Receptors and Alcohol: From Molecules to Monkeys" at the 1998 meeting of the Research Society on Alcoholism, Hilton Head, SC, June 1998.

Participated as a speaker in a symposium on serotonin receptors and alcoholism at the ISBRA meeting, Copenhagen, Denmark, June 1998.

Participated as a speaker in a session on ligand-gated ion channels at the Southeastern Pharmacology Society meeting, Nashville, TN, September 1998.

Participated as a speaker in a satellite symposium on the use of knockout mice in alcohol research, Society for Neuroscience annual meeting, Los Angeles, CA, November 1998.

Participated as a speaker in a symposium on metabotropic glutamate receptors in the basal ganglia, Winter Conference on Brain Research, Snowmass, CO, January 1999.

Participated as a speaker in the 3rd International Symposium on Metabotropic Glutamate Receptors, Taormina, Sicily, September, 1999.

Participated as a discussant in a satellite symposium on the role of the Cerebellum in alcohol actions, Society for Neuroscience annual meeting, Miami, FL, October 1999.

Participated as a speaker in a State of the Art in Addiction Medicine Research Symposium for the American College of Addiction Medicine, Washington, DC, November 1999.

Participated as a speaker at the Winter Conference on Neurobiology of Learning and Memory in Olympia Park, Utah, January 2000.

Participated as a speaker in two symposia at the ISBRA 2000 meeting in Yokohama, Japan, July 2000.

Participated in the Hereditary Disease Foundation Symposium focusing on Huntington's Disease. Boston, MA, August 2000.

Participated as a speaker at the 3rd Nordic-Baltic Symposium on Molecular Pharmacology of 7TM Receptors. Turku, Finland, August 2000.

Participated as a speaker at a symposium on Basal Ganglia Physiology in Mexico City, Mexico, December 2000.

Organizer and participant in a symposium entitled "Rodent Models and Alcohol Effects on the Brain", Research Society on Alcoholism, Montreal, Canada, June 2001.

Participated in a symposium on striatal NMDA receptors in the 2002 Winter Conference on Brain Research.

Speaker and co-organizer of Memorial symposium for Benedict Latteri, NIAAA, May 3, 2002.

Participated as a speaker at Dopamine 2002 conference in Portland, Oregon, July 2002.

Participated as a speaker at the 3rd International Symposium on Metabotropic Glutamate Receptors, Taormina, Sicily, September, 2002.

Participated as a speaker at New York Academy of Sciences Conference entitled "Glutamate and Disorders of Cognition and Motivation", April, 2003.

Participated as a speaker in symposium on alcohol and 5-HT₃ receptors, Research Society on Alcoholism, 2003 annual meeting, June 2003, Ft. Lauderdale Fl.

Participated as a speaker in symposium on Neural Actions of Drugs of Abuse at The 9th Southeast Asian-Western Pacific Regional Meeting of Pharmacologists, August 2003, Busan, ROK.

Participated in a workshop entitled "Electrophysiological Phenotype of HD: Impact of the NMDA Receptor", September 2003, Los Angeles, California.

Participated as a speaker in a State of the Art in Addiction Medicine Research Symposium for the American College of Addiction Medicine, October, 2003, Washington, DC.

Participated in a workshop on the pathophysiology of Dystonias, January 2004, Atlanta, Georgia.

Participated in a symposium on endocannabinoid roles in synaptic modulation and plasticity at the 2004 Winter Conference on Brain Research, January 2004, Copper Mountain, Colorado.

Participated as a speaker at NIH symposium on Synaptic Transmission: Molecular Mechanisms of Plasticity, February 2004, Bethesda, Maryland.

Participated as a speaker in a symposium on neurotransmitters, alcohol and drugs of abuse at the International Society on Addiction Medicine meeting, June 2004, Helsinki, Finland.

Participated as a speaker in a symposium on NMDA receptors and alcoholism at the 2004 meeting of the International Society for Biomedical Research on Alcoholism, October 2004, Mannheim, Germany.

Chaired a session of selected talks on the neural actions of alcohol at the annual meeting of the Research Society on Alcoholism, June 2005, Santa Barbara, California.

Participated as a speaker in a symposium on endocannabinoid-dependent synaptic plasticity at the 1st Gordon Research Conference on Cannabinoid Function in the CNS, July 2005, Bates College, Maine.

Participated as a speaker in the NIAAA-sponsored workshop Healthy People 2020, Shanghai, PRC, October 2005.

Co-organized and chaired sessions in "The 5-HT₃ Receptor: A model Cys-Loop Ligand-Gated Ion Channel", a satellite symposium for the 2005 Society for Neuroscience meeting, Washington, DC, November 2005.

Chaired a session in an NINDS workshop on Dystonias, Bethesda, MD, June 2006.

Organizer and chair of a symposium on Alcohol and Cannabinoid Interactions for the 2006 meeting of the International Society for Biomedical Research on Alcoholism, September 2006.

Oral presentation in a symposium on striatal synaptic plasticity at Dopamine: The First 50 Years, Gothenburg, Sweden, June 2007.

Organizer and chair of symposium entitled "The Role of Dorsal Striatum in Ethanol Actions, Habit Formation and Addiction" to be presented at the annual meeting of the Research Society on Alcoholism, July 2007.

Oral presentation at the Gordon Conference on Cannabinoid Function in the CNS, Les Diablerets, Switzerland, September 2007.

Oral presentation in the 17th Neuropharmacology Conference, entitled "Cannabinoid Signaling in the Nervous System", San Diego, California, October 2007.

Participated in a symposium on dopamine/endocannabinoid interactions at the 2008 Winter Conference on Brain Research, Snowbird, Utah, January 2008.

Participated in a symposium on alcohol and ligand-gated ion channels, as well as a symposium on stress-alcohol interactions, Research Society on Alcoholism annual meeting, Washington, DC, June 2008.

Participated in a conference entitled: "International Symposium on Drug Addiction: Mechanisms and Therapeutic Approaches, Kunming, China, October 2008.

Participated in a symposium entitled: "How would we Perceive the World without Endocannabinoids?" at the 2009 Winter Conference on Brain Research, January 2009.

Chaired a session at the NIH meeting entitled "Synapses: Postsynaptic Mechanisms of Plasticity", Warrenton, VA, March, 2009.

Presented a Plenary Lecture at the 2009 meeting of the European Society for Biomedical Research on Alcoholism, Helsinki, Finland, June 2009.

Participated in a symposium on presynaptic actions of ethanol, Research Society on Alcoholism annual meeting, San Diego, CA, June 2009.

Gave an oral presentation and chaired a session at the 2009 Gordon Conference on Cannabinoid Function in the CNS, College of New England, August 2009.

Lectured in a course for students and at the annual meeting of the neuroscience societies of Argentina, Cordoba, Argentina, September 2009.

Chaired a symposium on the role of dorsal striatum in reward, reinforcement and addiction, Society for Neuroscience annual meeting, Chicago, IL, October 2009.

Participated in a satellite symposium to the 2010 IBNS meeting, Cagliari, Sardinia, Italy, June 2010

Chaired a symposium entitled "Atypical Neuromodulators in the Basal Ganglia - Beyond ACh and Dopamine" at the 2010 meeting of the International Basal Ganglia Society, Long Branch, New Jersey, June 2010

Co-chaired a session entitled "Subregions of the striatum mediate distinct roles in alcohol-related behaviors: Analyses from neurons to brain imaging" at the annual meeting of the Research Society on Alcoholism, San Antonio, TX, June 2010.

Participated in a symposium on ethanol effects on ligand-gated ion channels and the role of desensitization at the 2010 meeting of the International Society for Biomedical Research on Alcoholism, Paris, France, September 2010.

Lectured in the Neuroscience summer course at the University of Concepcion, Chile, January 2011.

Speaker in a symposium on Endocannabinoids at the Winter Eicosanoid Conference, Baltimore Maryland, March 2011.

Will chair a symposium on Alcohol, Stress and the Dorsal Striatum at the upcoming meeting on Alcoholism and Stress: A Framework for Future Treatment Strategies, Volterra, Italy, May 2011.

Will serve as Vice-Chair of the upcoming Gordon Conference on Cannabinoid Function in the CNS, May 2011, Les Diablerets, Switzerland. Elected as Co-Chair for the 2013 conference.

Invited seminars:

Spring-Summer 1991 - Duke University School of Medicine, University of Chicago School of Medicine

Fall 1991 - Ohio State University School of Medicine

Spring 1992 - Meharry Medical College

Spring 1993 - Bowman Gray School of Medicine

Fall 1993 - University of Cagliari (Sardinia, Italy), Tulane School of Medicine

Spring 1994 - Texas A&M University, University of Texas at Austin

Fall 1994 - Johns Hopkins School of Medicine, University of Illinois

Spring 1995 - Pfizer Pharmaceutical Corporation, University of California at San Francisco

Fall 1995 - Bowman Gray School of Medicine, University of Texas Medical School at San Antonio

Spring 1996 - University of Tennessee Medical School at Memphis

Fall 1996 - Medical College of Virginia

Spring 1997 - Scripps Research Institute

Fall 1997 - University of Massachusetts Medical School, Dept. of Psychiatry Substance Abuse Rounds VUMC

Spring 1998 - University of Kansas, Texas Tech University Medical School, University of New Mexico School of Medicine

Fall 1998 - University of Vermont, Colorado State University

Spring 1999 - Michigan State University

Summer 1999 - University of Kuopio Finland, Kansaan Terveyslaitos (Public Health Institute) of Finland, University of Turku Finland

Fall 1999- Vanderbilt University (Membrane Biology Group Conference)

Summer 2000 - Catholic University of Korea Medical School

Winter 2001 - Addiction Rounds, Department of Psychiatry, Vanderbilt University

Summer 2001 - National University of Singapore

Fall 2001 - Medical University of South Carolina, University of Tennessee Health Sciences Center

Winter 2002 - Southern Mississippi University.

Spring 2002 - Gallo Center at the University of California San Francisco, George Washington University School of Medicine.

Fall 2002 - Università degli Studi di Roma, Rome Italy, National Institute on Drug Abuse, Uniformed Services University of Health Sciences.

Winter 2003 - NIAAA Advisory Council, University of Alabama
Birmingham School of Medicine.

Summer 2003 - Seoul National University, Seoul, ROK, Junjoo
University, ROK.

Winter 2004 - Howard University School of Medicine

Fall 2004 - University of Texas at San Antonio Health Sciences Center

Winter-Spring 2005 - UT Southwestern School of Medicine, Indiana
University School of Medicine, Scripps Research Institute

Fall 2005 - Peking University

Winter-Spring 2006 - University of Maryland School of Medicine,
University of Wisconsin Madison

Summer 2006 - Oregon Health Sciences University

Fall 2006 - University of Arizona

Winter-Spring 2007 - Rochester University School of Medicine,
University of Helsinki.

Fall 2007 - INSERM, Bordeaux, France, Penn State Medical School.

Winter-Spring 2008 - University of Colorado Health Science Center,
University of Connecticut Medical School, Texas Tech University
Health Science Center (Alexander D. Kenny Memorial Lecture).

Fall 2008 - Catholic University of Korea.

Winter-Spring 2009 - George Mason University, Texas A&M University.

Fall 2009 - University of Buenos Aires, Howard University Medical
School, Uniformed Services University of Health Sciences

Winter-Spring 2010 - Louisiana State university Medical School, Emory
University Medical School, University of Texas, Champalimaud
Foundation Portugal

Fall 2010 - University of Chicago School of Medicine, Washington
State University.

Winter-Spring 2011 - University of Washington, SUNY Stony Brook,
Rosalind Franklin Medical School, University of New Mexico.