

Dwight E. Bergles, Ph.D.

The Solomon H. Snyder Department of Neuroscience
The Johns Hopkins University
WBSB 1001, 725 N. Wolfe St.
Baltimore, MD 21205
410/955-6939 (tel.), 410/614-6249 (fax)
dbergles@jhmi.edu
lab website: www.bergleslab.com

Current positions:

2011 – present Professor, The Solomon H. Snyder Department of Neuroscience,
The Johns Hopkins University

Professor, Department of Otolaryngology-Head and Neck Surgery,
The Johns Hopkins University
(Secondary appointment)

Director, Multiphoton Imaging Core
The Solomon H. Snyder Department of Neuroscience

Prior positions:

2005 – 2011 Associate Professor, Department of Neuroscience
The Johns Hopkins University

Associate Professor, Department of Otolaryngology-Head and Neck Surgery,
The Johns Hopkins University
(Secondary appointment)

Director, Multiphoton Imaging Core
The Solomon H. Snyder Department of Neuroscience

2000 – 2005 Assistant Professor, Department of Neuroscience
The Johns Hopkins University

2004, 2005 Faculty, Neurobiology course
Marine Biological Laboratory, Woods Hole, Massachusetts

Postdoctoral Experience:

1995 – 2000 Vollum Institute for Advanced Biomedical Research
Oregon Health Sciences University, Portland, Oregon
Advisor: Craig Jahr, Ph.D.

Graduate Study:

1990 – 1995 Stanford University, Stanford, California
Department of Molecular and Cellular Physiology
Ph.D., Molecular and Cellular Physiology
Thesis: *The Actions of Norepinephrine on Hippocampal Interneurons*
Advisor: Stephen J Smith, Ph.D.

Undergraduate Study:

1986 – 1990 Boston University, Boston, Massachusetts
B.A., *summa cum laude* with distinction
major: Biology; minor: Archaeology

Awards/honors

1990 Phi Beta Kappa
1990 Cancer Federation Award
1991 NIH Training Grant, Stanford University
1992–94 National Science Foundation Predoctoral Fellowship
1995–98 NIH Training Grant, OHSU
2002 Alfred P. Sloan Foundation Research Fellow
2002 Basil O'Connor Starter Scholar Award, March of Dimes Foundation
2002 Winter Conference on Brain Research Travel Fellow
2004 Spring Brain Conference Young Investigator Travel Fellow
2005 NARSAD Young Investigator Award

Advisory/Grant Review Committees

Ad hoc member for review of Conte Centers for Neuroscience (2001)
Ad hoc member of MDCN-4 study section (NINDS) (2001-2004)
Ad hoc member of NTRC study section (2005-2006)
Ad hoc member of NDGB (ZRG1) study section (2006)
Reviewer for The Wellcome Trust (2004)
Reviewer for the NASA Biomedical Focused Flight ILS initiative (2004)
Reviewer for the Royal National Institute for the Deaf (2006)
External Thesis Examiner, Hotchkiss Brain Institute, University of Calgary (2006)
Ad hoc member of CMBG study section (2007-2009)
Ad hoc member of ZRG1 MDCN-F(03) study section (2008)
Reviewer for the Singapore Biomedical Research Council (2008)
North Carolina Biotechnology Center; Institutional Development Grant Program (2007-2008)
Operating Committee, The Robert Packard Center for ALS Research at Johns Hopkins
(2008-present)
External Advisory Board Member, Center of Biomedical Research Excellence (COBRE) grant
University of North Dakota (2008-2010)
Ad hoc member of ZRG-1 MDCN-C(02) (2009)
Ad hoc member of the Board of Scientific Counselors, NINDS (2009)
Member, CMBG study section (2009-present)
External Advisory Board, Minnesota PPG Grant (2009-2012)
Reviewer, Motor Neurone Disease Association (England) (2010)
Ad hoc member of BDCN N03 Special Emphasis Panel (2011)
Reviewer, Belgian Research Programme, InterUniversity Attraction Poles (2012)
Reviewer, French National Research Agency (ANR) (2012)
Co-Chair, Cold Spring Harbor Laboratory meeting on "Glia in Health and Disease" (2012)
Co-Chair, Cold Spring Harbor Laboratory meeting on "Glia in Health and Disease" (2014)

Professional Societies

Society for Neuroscience, Association for Research in Otolaryngology (ARO), Marine Biological Laboratory Corporation

Publications

Journal Articles:

1. Dailey ME, Buchanan JA, **Bergles DE**, and Smith SJ (1994) Mossy Fiber growth and synaptogenesis in rat hippocampal slices in vitro. *Journal of Neuroscience*. 14:1060-1078.
2. **Bergles DE**, Doze VA, Madison DV, and Smith SJ (1996) Excitatory actions of norepinephrine on multiple classes of hippocampal interneurons. *Journal of Neuroscience*. 16:572-585.
3. **Bergles DE**, Dzubay JA, and Jahr CE (1997) Glutamate transporter currents in Bergmann glial cells follow the time course of extrasynaptic glutamate. *Proceedings of the National Academy of Sciences, USA*. 94:14821-14825.
4. **Bergles DE** and Jahr CE (1997) Synaptic activation of glutamate transporters in hippocampal astrocytes. *Neuron*. 19:1297-1308.
5. Diamond JS, **Bergles DE**, and Jahr CE (1998) Glutamate release monitored with astrocyte transporter currents during LTP. *Neuron*. 21:425-433.
6. **Bergles DE** and Jahr CE (1998) Glial contribution to glutamate uptake in the hippocampus. *Journal of Neuroscience*. 18:7709-7716.
7. **Bergles DE**, Roberts JDB, Somogyi P, and Jahr CE (2000) Glutamatergic synapses on oligodendrocyte precursor cells in the hippocampus. *Nature*. 405:187-191.
* see mini review in *PNAS*. 97:8196-8197.
8. **Bergles DE**, Tzingounis AV, and Jahr CE (2002) Comparison of coupled and uncoupled currents during glutamate uptake by GLT-1 transporters. *Journal of Neuroscience*. 22:10153-10162.
9. Huang YH, Dykes-Hoberg M, Tanaka K, Rothstein JD, and **Bergles DE** (2004) Climbing Fiber Activation of EAAT4 transporters and Kainate Receptors in Cerebellar Purkinje Cells. *Journal of Neuroscience*. 24:103-111.
10. Lin S-C and **Bergles DE** (2004) Synaptic signaling between GABAergic interneurons and oligodendrocyte precursor cells in the hippocampus. *Nature Neuroscience*. 7:24-32.
* see mini review in *TINS*. 28:59-62.
11. Huang YH, Dykes-Hoberg M, Tanaka K, Rothstein JD, and **Bergles DE** (2004) Astrocyte glutamate transporters regulate metabotropic glutamate receptor-mediated excitation of hippocampal interneurons. *Journal of Neuroscience*. 24:4551-4559.
12. Rothstein JD, Patel S, Regan MR, Haenggeli C, Huang YH, **Bergles DE**, Jin L, Dykes-Hoberg M, Vidensky S, Chung DS, Toan SV, Bruijn LI, Su Z-Z, Gupta P, and Fisher PB (2005) β Lactam antibiotics increase neurotransmitter glutamate transporter expression and function by gene activation. *Nature*. 433:73-77.
* see mini review in *Science*. 308:361-362.
13. Huang YH, Sinha SR, Fedoryak OD, Ellis-Davies GCR, and **Bergles DE** (2005) Synthesis and characterization of 4-methoxy-7-nitroindolyl-D-aspartate, a caged compound for selective activation of glutamate transporters and N-methyl-D-aspartate (NMDA) receptors in brain tissue. *Biochemistry*. 44:3316-3326.
14. Lin S-C, Huck JHJ, Roberts JDB, Macklin WB, Somogyi P, and **Bergles DE** (2005) Climbing fiber innervation of NG2 expressing glia in the mammalian cerebellum. *Neuron*. 46:773-785.
* see mini review in *Neuron*. 46:694-696.
15. Huang YH, Muralidharan S, Sinha SR, Kao JPY, and **Bergles DE** (2005) Ncm-D-Aspartate: a novel caged D-aspartate suitable for activation of glutamate transporters and N-methyl-D-aspartate (NMDA) receptors in brain tissue. *Neuropharmacology*. 49:831-842.

16. Holmseth S, Dehnes Y, Bjornsen LP, Boulland JL, Furness DN, **Bergles D**, and Danbolt NC (2005) Specificity of antibodies: unexpected cross reactivity of antibodies directed against the excitatory amino acid transporter 3 (EAAT3). *Neuroscience*. 136:649-660.
17. Glowatzki E, Cheng N, Hiel H, Yi E, Tanaka K, Ellis-Davies GCR, Rothstein JD, and **Bergles DE** (2006) The Glutamate-aspartate Transporter (GLAST) mediates glutamate uptake at inner hair cell afferent synapses in the mammalian cochlea. *Journal of Neuroscience*. 26:7659-7664.
18. Gincel D, Regan MR, Jin L, Watkins AM, **Bergles DE**, Rothstein JD (2006) Analysis of cerebellar Purkinje cells using EAAT glutamate transporter promoter reporter in mice generated via bacterial artificial chromosome-mediated transgenesis. *Exp. Neurol.* 203:205-212.
19. Ziskin J, Nishiyama A, Rubio M, Fukaya M, and **Bergles DE** (2007) Vesicular release of glutamate from unmyelinated axons in white matter. *Nature Neuroscience*. 10:321-330.
 * see News and Views article in *Nature Neuroscience* 10:267-269
 and Research Highlight in *Nature Reviews Neuroscience*. 8:243.
 * cover art
20. Ellis-Davies GCR, Matsuzaki M, Paukert M, Kasai H, and **Bergles DE** (2007) 4-Carboxymethoxy-5,7-dinitroindolyl-Glu: An improved caged glutamate for expeditious ultraviolet and two-photon photolysis in brain slices. *Journal of Neuroscience*. 27:6601-6604.
21. Regan MR, Huang YH, Kim YS, Dykes-Hoberg MI, Jin L, Watkins AM, **Bergles DE***, and Rothstein JD* (2007) Variations in Promoter Activity Reveal a Differential Expression and Physiology of Glutamate Transporters by Glia in the Developing and Mature CNS. *Journal of Neuroscience*. 27:6607-6619.
 * co-corresponding authors
 * highlighted in "This Week in the Journal," *Journal of Neuroscience*. 27:i
22. Tritsch NX, Yi E, Gale JE, Glowatzki E, and **Bergles DE** (2007) The origin of spontaneous activity in the developing auditory system. *Nature*. 450:50-55.
 * see News and Views in *Nature*. 450:43-44.
23. Zhu X, **Bergles DE**, and Nishiyama A (2008) NG2 cells generate both oligodendrocytes and gray matter astrocytes. *Development*. 135:145-157.
24. Do MTH, Kang SH, Xue T, Zhong H, Liao H-W, **Bergles DE**, and Yau K-W (2009) Photon capture and signalling by melanopsin retinal ganglion cells. *Nature*. 457:281-287.
25. Tritsch NX and **Bergles DE** (2010) Developmental regulation of spontaneous activity in the mammalian cochlea. *Journal of Neuroscience*. 30:1539-1550.
26. DeBiase L, Nishiyama A, and **Bergles DE** (2010) Excitability and synaptic communication within the oligodendrocyte lineage. *Journal of Neuroscience*. 30:3600-3611.
 * cover art
27. Paukert M, Huang YH, Tanaka K, Rothstein JD, and **Bergles DE** (2010) Zones of enhanced glutamate release from climbing fibers in the mammalian cerebellum. *Journal of Neuroscience*. 30:7290-7299.
28. Tritsch NX, Zhang Y-X, Ellis-Davies G, and **Bergles DE** (2010) ATP-induced morphological changes in supporting cells of the developing cochlea. *Purinergic Signaling*. 6:155-166.
29. Tritsch NX, Rodríguez-Contreras A, Crins TTH, Wang HC, Borst JGG, and **Bergles DE** (2010) Calcium action potentials in hair cells pattern auditory neuron activity before hearing onset. *Nature Neuroscience*. 13:1050-1052.
30. Kang SH, Fukaya M, Yang JK, Rothstein JD, and **Bergles DE** (2010) NG2⁺ CNS glial precursor cells remain committed to the oligodendrocyte lineage in postnatal life and following neurodegeneration. *Neuron*. 68:668-681.

31. Boersma M, Dresselhaus E, De Biase L, Mihalas A, **Bergles DE**, and Meffert M (2011) A requirement for NF- κ B in developmental and plasticity-associated synaptogenesis. *Journal of Neuroscience*. 31:5414-5425.
32. De Biase LM, Kang SH, Baxi EG, Fukaya M, Pucak ML, Mishina M, Calabresi PL, and **Bergles DE** (2011). NMDA receptor signaling in oligodendrocyte progenitors is not required for oligodendrogenesis and myelination. *Journal of Neuroscience*. 31:12650-12662.
* highlighted in "This Week in the Journal," *Journal of Neuroscience*. 31:i
33. Benediktsson AM, Marrs GS, Tu JC, Worley PF, Rothstein JD, **Bergles DE**, and Dailey ME (2011) Neuronal activity regulates glutamate transporter dynamics in developing astrocytes. *Glia*. 60:175-188
34. Holmseth S, Zhou Y, Follin-Arbelet VV, Lehre KP, **Bergles DE**, and Danbolt NC (2011) Specificity controls for immunocytochemistry: the antigen pre-adsorption test can lead to inaccurate assessment of antibody specificity. *Journal of Histochemistry & Cytochemistry*. 60:174-187.
35. Holmseth S, Dehnes Y, Huang YH, Follin-Arbelet V, Grutle NJ, Mylonakou M, Plachez C, Zhou Y, Furness D, **Bergles DE**, Lehre KP, and Danbolt NC (2012) The density of EAAC1 (EAAT3) glutamate transporters expressed by neurons in the mammalian CNS. *Journal of Neuroscience*. 32:6000-6013.
36. Paukert M, and **Bergles DE** (2012) Reduction of motion artifacts during in vivo two-photon imaging of brain through heartbeat triggered scanning. *Journal of Physiology*. Epub, April 16, 2012.
37. Kang SK, Li Y, Fukaya M, Lorenzini I, Cleveland DW, Ostrow LW, Rothstein JD, **Bergles DE**. (2013) *Nature Neuroscience*. Epub, March 31, 2013.
38. Hughes EG, Kang SH, Fukaya M, & **Bergles DE** (2013) Oligodendrocyte progenitors balance growth with self-repulsion to achieve homeostasis in the adult brain. *Nature Neuroscience*. Epub, April 28, 2013.

Invited reviews:

1. **Bergles DE**, Diamond JS, and Jahr CE (1999) Clearance of glutamate inside the synapse and beyond. *Current Opinion in Neurobiology*. 9:293-298.
2. **Bergles DE** (2001) Neurotransmitter transporters. *Encyclopedia of Life Sciences*. Online.
3. Lin S-C and **Bergles DE** (2003) Physiological characteristics of NG2-expressing glial cells. *Journal of Neurocytology*. 31:537-549.
4. Huang YH and **Bergles DE** (2004) Glutamate transporters bring competition to the synapse. *Current Opinion in Neurobiology*. 14:346-352.
5. Lin S-C and **Bergles DE** (2004) Synaptic signaling between neurons and glia. *Glia*. 47:290-298.
6. **Bergles DE** (2005) Shape-shifting at a cerebellar synapse allows submillisecond signaling. *Nature Neuroscience*. 8:1279-81.
7. Paukert M and **Bergles DE** (2006) Synaptic communication between neurons and NG2⁺ cells. *Current Opinion in Neurobiology*. 16:515-521.
8. Tritsch NX and **Bergles DE** (2007) The role of astrocytes in neuromodulation. *Neuron*. 54:497-499.
9. Kang SH and **Bergles DE** (2008) Glial progenitor cells in the adult brain reveal their alternate fate. *Nature Neuroscience*. 11:1365-1367.
10. **Bergles DE**, Jabs R, and Steinhauser C (2010) Neuron-glia synapses in the brain. *Brain Research Reviews*. 63:130-137.
11. De Biase LM and **Bergles DE** (2011) Same players, different game: AMPA receptor regulation in oligodendrocyte progenitors. *Nature Neuroscience*. 14:1358-1360.

Book Chapters:

1. **Bergles DE** (2002) Synaptic transmitter at the glial membrane. In, Glial In Synaptic Transmission, Voterra A, Magistretti P, and Haydon P, eds. Oxford University Press, Oxford, UK.
2. **Bergles DE** and Rothstein JD (2004) Glutamate uptake by astroglia. In, Glial/Neuronal Signaling, Hatton G, and Parpura V, eds. Oxford University Press, Oxford, UK. pp. 239-261.
3. **Bergles DE** and Edwards R (2008) The role of glutamate transporters in synaptic transmission. In Structural and Functional Organization of the Synapse, Hell J and Ehlers M, eds. Springer Verlag. Pp. 23-61.
4. DeBiase LM and **Bergles DE** (2012) Neuron-glia interactions: Neurotransmitter signaling to cells of the oligodendrocyte lineage. In Comprehensive Developmental Neuroscience, Alvarez-Buylla A and Rowitch D, eds. Elsevier. Online.
5. **Bergles DE** (2012) Physiology of NG2⁺ glial cells. Neuroglia: Third Edition. Oxford University Press. 2012.

Invited Talks (113 total) (* upcoming):

- *7/2014 Federation of European Neurosciences meeting workshop, *New approaches to understand astrocyte-neuron interactions in health and disease*, Milan, Italy
- *3/2014 Gordon Research Conference on Myelin, Ventura, CA
- *12/2013 Department of Neuroscience, University of Texas –Austin, Austin, TX
- *10/2013 Annual Meeting of the American Neurological Association, Symposium: *Biology of remyelination and repair in MS*, New Orleans, LA.
- *7/2013 European Meeting on Glial Cells in Health and Disease, Workshop: *In vivo analysis of glial cells: promises and pitfalls of genetic manipulation*, Berlin, Germany.
- *6/2013 Children's Hospital Boston Neurobiology Seminar Series, Harvard Medical School, Boston, MA
- *5/2013 Northeastern Ohio Medical University, Department of Anatomy and Neurobiology (*Graduate student invitation*)
- *4/2013 National Capital Area TBI Research Symposium, National Institutes of Health, Bethesda, MD
- 4/2013 Neuroscience Seminar Series, Department of Biology, Pennsylvania State University, University Park, PA
- 4/2013 *Simpson Symposium*, University of Illinois at Chicago, Chicago, IL (*Featured speaker*)
- 3/2013 Department of Psychiatry and Behavioral Sciences, Johns Hopkins University School of Medicine, Baltimore, MD
- 3/2013 Gordon Research Conference: Functional Interactions among Glia and Neurons, Ventura, CA
- 2/2013 Association for Research in Otolaryngology Midwinter Research Meeting, Session: *Intercellular signaling during sensory system development*, Baltimore, MD
- 2/2013 Keystone Symposia on Molecular and Cellular Biology: Neurogenesis, Santa Fe, NM
- 1/2013 The Miami Project to Cure Paralysis, University of Miami, FL
- 12/2012 Neuroscience Graduate Program Seminar Series, UCSF, San Francisco, CA
- 11/2012 Neurodegenerative Diseases meeting, Cold Spring Harbor Laboratory, Cold Spring Harbor, NY
- 11/2012 Salk Institute Seminar Series, La Jolla, CA
- 11/2012 Neuroscience Seminar Series, West Virginia School of Medicine, Morgantown, WV
- 10/2012 Department of Biology, City University of New York, New York, NY
- 10/2012 Vollum Institute, Oregon Health Sciences University, Portland, OR

10/2012 Department of Neurobiology, University of Alabama, Birmingham, AL
(*Retreat Keynote Speaker*)

5/2012 Muscular Dystrophy Association Workshop on ALS, Tucson, AZ

5/2012 Lerner Research Institute, Cleveland Clinic Foundation, Cleveland, OH

5/2012 Gordon Research Conference on Myelin, Barga, Italy

4/2012 Carlson Lectureship Symposium, University of Chicago, Chicago, IL (*Featured Speaker*)

4/2012 Developmental Biology Center, Children's Hospital of Philadelphia (CHOP), Philadelphia, PA

3/2012 American Society for Neurochemistry Meeting, pre-meeting workshop: "Glial cells in (patho)physiology: Possible new targets for medical intervention," Baltimore, MD

2/2012 Center for Translational Neuroscience, Case Western Reserve University, Cleveland, OH

2/2012 National Institute of Drug Abuse, Baltimore, MD

1/2012 Brain Night lecture, Brain Science Institute, Johns Hopkins University

12/2011 Fourteenth International Symposium on Neural Regeneration, Pacific Grove, CA
(*Featured Speaker*)

10/2011 Department of Anatomy and Neurobiology, Virginia Commonwealth University, Richmond, VA

10/2011 Institut Pasteur, Paris, France

10/2011 Centre de Recherche de l'Institut du Cerveau et de la Moelle Epinière (CRICM), Paris, France

9/2011 European Meeting on Glial Cells in Health and Disease, Prague, Czech Republic

5/2011 New Frontiers in Neurodegeneration Symposium, UMass NTI/Biogen-Idec, Cambridge, MA

3/2011 Gordon Research Conference on Functional Interactions Among Glia and Neurons, Ventura, CA

2/2011 Sensory Systems and Deficits Symposium, SickKids Research Institute, University of Toronto, Toronto, Canada

2/2011 New York University Neuroscience Colloquia, New York City, New York

1/2011 Farber Institute for Neurosciences, Department of Neuroscience, Thomas Jefferson University, Philadelphia, PA

12/2010 Korean Society for Brain and Neural Science, Annual Meeting, Seoul, South Korea
(*Plenary Speaker*)

12/2010 "Glial Biology in Medicine," University of Alabama Birmingham, Birmingham, AL

7/2010 "Glial in Health and Disease," Cold Spring Harbor Laboratory, Cold Spring Harbor, NY
(*Session Co-chair*)

6/2010 Gordon Research Conference: Auditory System, New London, NH

6/2010 Brain Science Institute Mini-Symposium, "Synapses, Behavior and Cognitive Diseases," Johns Hopkins University, Baltimore, MD

5/2010 Janelia Farm Research Campus, HHMI, Leesburg, VA

4/2010 Keystone Symposia on Molecular and Cellular Biology: Synapses: Formation, Function and Misfunction, Snowbird, Utah

12/2009 Département de Physiologie, Université de Montréal, Canada

11/2009 Max-Planck-Institute für Experimentelle Medizin, Göttingen, Germany

11/2009 2nd European Synapse Meeting, Göttingen, Germany

11/2009 NIH Neuroscience Seminar Series, Bethesda, MD (*Newcomb Lecturer*)

4/2009 Program in Neuroscience, University of Massachusetts Medical School, Worcester, MA

3/2009 Gordon Research Conference: Functional Interactions Among Glia and Neurons

Ventura, CA

2/2009 Department of Neurology, Clinical Neuroscience Seminar Series, JHU

1/2009 Program in Neuroscience, University of Utah, Salt Lake City, UT

10/2008 UCLA Joint Seminars in Neuroscience, UCLA, Los Angeles, CA

10/2008 Board of Governors Meeting, The Robert Packard Center for ALS Research at Johns Hopkins, Baltimore, MD

9/2008 Annual Retreat, Neuroscience Graduate Program, Johns Hopkins University, St. Michaels, MD

9/2008 Center for Structural and Functional Neuroscience, University of Montana Missoula, MT

7/2008 Department of Neuroscience, Erasmus University, Rotterdam, The Netherlands

5/2008 Center for Neural Development and Disease, University of Rochester Medical Center, Rochester, NY

4/2008 Department of Pharmacology, Physiology and Therapeutics, University of North Dakota, Grand Forks, ND

4/2008 North Dakota Academy of Sciences Annual Meeting, Grand Forks, ND (*Plenary talk*)

2/2008 Association for Research in Otolaryngology Midwinter Research Meeting, Phoenix, AZ

12/2007 Ear Institute, Department of Physiology, University College London, London, UK

12/2007 Department of Pharmacology, University College London, London, UK

12/2007 Ecole Polytechnique Federale de Lausanne (EPFL), Lausanne, Switzerland

10/2007 Department of Physiology, University of Maryland, Baltimore, MD

9/2007 VIIIth European Glial Cells Meeting, London, UK (*Plenary talk*)

6/2007 Institute for Neuroscience, Faculté des Saints-Pères, Paris, France

6/2007 Guest Lecturer, Neurobiology Course, MBL, Woods Hole, MA

5/2007 IVth Conference on Epileptogenesis, Pisa, Italy

4/2007 Synapses: From molecules to circuits and behavior, Cold Spring Harbor Laboratory, Cold Spring Harbor, NY (*Session Co-chair*)

3/2007 Department of Neuroscience, UCSF, San Francisco, CA

3/2007 Gordon Research Conference, Glial Biology: Functional Interactions among Glia and Neurons, Ventura, CA

12/2006 Hotchkiss Brain Institute, University of Calgary, Calgary, Canada

11/2006 Vollum Institute, OHSU, Portland, OR

11/2006 Department of Neurobiology and Behavior, Stony Brook, NY

7/2006 Gordon Conference on Synaptic Transmission, Colby-Sawyer College, NH

3/2006 Departments of Neurology and Neurosurgery, University of Rochester, Rochester, NY

2/2006 International Neuroscience Symposium, "Cellular dynamics of the normal and epileptic brain," Bonn, Germany

1/2006 Neuroscience Center, University of North Carolina, Chapel Hill, NC

12/2005 Department of Neuroscience, University of Minnesota, Minneapolis, MN

11/2005 Society for Neuroscience Symposium: Astroglial Regulation of Synaptic Transmission and Epilepsy, Washington, D.C.

11/2005 Neuropharmacology Conference, New Perspectives in Neurotransmitter Transporter Biology, Washington, D.C.

10/2005 Department of Neuroscience, Brown University, Providence, RI

9/2005 5th International Meeting on Metabotropic Glutamate Receptors Taormina, Sicily (*Session Chair*)

4/2005 NICHD sponsored meeting, Cell-cell Signaling in Synaptic Plasticity, Queenstown, MD

4/2005 Neurochemistry Winter Conference, Soelden, Austria (*Keynote lecture*)

3/2005 Gordon Research Conference, Glial Biology: Functional Interactions Among Glia and Neurons, Ventura, CA

12/2004 American College of Neuropsychopharmacology Annual Meeting, San Juan, Puerto Rico

11/2004 Department of Physiology and Neurobiology, University of Connecticut, Storrs, CT

9/2004 Departments of Neurology and Neurobiology, Harvard University, Children's Hospital Boston, Boston, MA

8/2004 Mayo Clinic, Neurological Disease Seminar Series, Jacksonville, FL

5/2004 COBRE Seminar Series, Department of Pharmacology, Physiology and Therapeutics, University of North Dakota, Grand Forks, ND

4/2004 Center for Hearing and Balance, Johns Hopkins University, Baltimore, MD

3/2004 Spring Brain Conference, Sedona, AZ

7/2003 IBRO Conference, Prague, Czech Republic

7/2003 Gordon Research Conference on Excitatory Amino Acids, Mt. Holyoke, MA.

5/2003 Department of Neurobiology, University of Alabama, Birmingham, AL.

5/2003 International Congress on Schizophrenia Research Annual Meeting, Colorado Springs, CO.

9/2002 NIH sponsored meeting, Astrocyte Function in Health and Disease, Rockville, MD

4/2002 Marine Biological Laboratory, Woods Hole, MA.

2/2002 Winter Conference on Brain Research, Snowmass, CO.

1/2002 Department of Neurosciences, The Cleveland Clinic, Cleveland, OH.

11/2001 Society for Neuroscience Symposium: Glutamate Transporter Function and Contributions to Excitatory Synaptic Signaling, San Diego, CA

11/2001 Society for Neuroscience Satellite Symposium: Recent Advances in Glutamate Transporters 2001, San Diego, CA

6/2001 NIH, NICHD meeting: Neuron-Glial Communication In Neural Plasticity, Warrenton, VA

4/2001 Spring Epilepsy Meeting, Grand Cayman, BWI

4/2001 Department of Neuroscience, Albert Einstein College of Medicine, Bronx, NY.

10/2000 ALSA Young Investigator Workshop, Philadelphia, PA

8/1999 European Society for Neurochemistry/International Society for Neurochemistry Young Investigator Colloquium, Berlin, Germany

7/1999 Wyeth-Ayerst Research, Neurodegeneration and CNS Disorders Division, Princeton, NJ.

4/1999 Neuroscience Training Program Seminar Series, University of Wisconsin, Madison, WI.

8/1998 Gordon Conference on Synaptic Transmission, Plymouth, NH.

10/1995 Human Frontier Science Program Workshop on the Neurobiology of Interneurons, San Diego, CA.