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Current positions:

2005 – Present Associate Professor, The Solomon H. Snyder Department of Neuroscience,
The Johns Hopkins University

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

Prior positions:

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

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

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 Committees

Ad hoc member for review of Conte Centers for Neuroscience (2001)
Ad hoc member of MDCN-4 study section (NINDS) (2001-4)
Ad hoc member of NTRC study section (2005-6)
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 (2007-8)
Ad hoc member of ZRG1 MDCN-F(03) study section (2008)
Reviewer for the Singapore Biomedical Research Council (2008)

Professional Societies

Society for Neuroscience

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** and Jahr CE (2002) Kinetic analysis of 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*. 5708:361-362.
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*. 46:694-6.
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*. 49:831-42.
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*. 136:649-60.
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. *J. 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*. 203:205-12.
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* 10:267-9
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. *J. 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. *J. Neuroscience*. 27:6607-6619.
* see highlight in "This Week in the Journal," *J. 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.

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.

Book Chapters:

1. **Bergles DE** (2002) Synaptic transmitter at the glial membrane. In, *Glia 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, *Glia/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.

Invited Talks:

- 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 31st 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 COBRA 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.