

## CURRICULUM VITAE

### **Vernon Daniel Madison (D.V. Madison), Ph.D.**

#### ***Academic History:***

##### ***Universities Attended:***

- Ph.D. in Neurosciences from the University of California, San Francisco, 1984.
- B.S. in Biological Sciences from the University of California, Irvine, 1979.

##### ***Honors and Awards:***

- National Merit Scholar Commendation, 1974.
- Highest Honors in Undergraduate Research, University of California, Irvine, 1978.
- Dean's Prize, for best graduate research, University of California, San Francisco, 1983.
- James E. Beall II Award, for best graduate neuroscience research; National Student Research Forum, 1983.
- Roche Award, First Prize, for best overall graduate research; National Student Research Forum, 1983.
- Giannini Foundation Fellow, 1983-84.
- NIH Fellowship (NINCDS), 1986-88.
- Lucille P. Markey Scholar in Biomedical Sciences, 1987-97
- Society for Neuroscience Young Investigator Award, 1994.
- Institute for Scientific Information (ISI); "Highly Cited Researcher" (among top 250 most highly cited Neuroscientists. 2004-present.

##### ***Postdoctoral Training:***

- Postdoctoral Fellow, Department of Physiology, Yale University School of Medicine, 1986-1988; PI: Richard W. Tsien D.Phil.
- Postdoctoral Fellow, Department of Pharmacology, University of California, San Francisco, 1984-1986; PI: Roger A. Nicoll, M.D.

##### ***Employment History:***

###### ***Present Position:***

- Associate Professor of Molecular and Cellular Physiology.

###### ***Previous Positions:***

- Assistant Professor of Molecular and Cellular Physiology, Stanford University School of Medicine; and, Lucille P. Markey Scholar in Biomedical Sciences, 1988-1994.

## ***Public and Professional Service:***

### ***University Service:***

- Associate Chair, Department of Molecular and Cellular Physiology, 2016-present.
- Director of Graduate Studies, Department of Molecular & Cellular Physiology, 1989-1997 (Founding Director), 2003-2013, 2016-present.
- Member, Committee on Graduate Admission and Policy (CGAP), 2003-2013, 2016-present (alternate member, 2013-2016).
- Chair, MCP Graduate Policy and Admissions Committee, 1989-1997, 2003-2013, 2016-present (member 2013-2016).
- CMNHD Search Committee, 2018-19.
- Resident Fellow, Yost House, 2006-2010.
- Faculty advisor, Departmental Seminarian Committee, 2011-present.
- Chair, Sammy Kuo Postdoctoral Award Committee, 2012-2015.
- Stanford Neurosciences Institute, Interdisciplinary Postdoctoral Scholars committee, 2014-2018.
- Faculty Advisor, Stanford Biosciences Grant Writing Academy, 2014-2016.
- Senator at large; Medical School Faculty Senate, 2003-2009
- Resident Fellow, Yost House, Stanford University, 2006-2010.
- Director of Admissions, Program in Neuroscience, 1997-2003.
- Executive Committee, Program in Neuroscience, 1995-2003.
- Medical Scientist Training Program Admissions Committee, 1995-1999.
- Committee of Five (School of Medicine Executive Committee), School of Medicine, 1994-1995
- Departmental Senator, Medical School Faculty Senate 1990-1995
- Chair, Departmental Safety Committee, 1990-91
- Numerous Qualifying Examination and Dissertation Reading Committees
- Freshman Advisor

### ***Outside Service:***

- Member, Special emphasis panel ZRG1 BDCN-Q, 2015-2019
- Reviewer for: Nature, Nature Neuroscience, Neuron, ELife, Journal of Neuroscience, ENeuro, Journal of Physiology, PLOS One, Journal of Neurophysiology, and others.
- Ad Hoc reviewer, SYN IRG, NIH, 2017
- Ad Hoc reviewer, MDCN IRG, NIH 2014 – 2015
- Ad Hoc reviewer, F30-32 Review, NIH, 2012
- Faculty of 1000, member and contributor. 2010-Present
- Member, Board of Scientific Counselors, National Institute of Neurological Disorders and Stroke (NINDS), 1998-2003.
- Member, Education Committee, Marine Biological Laboratory, Woods Hole, MA, 2000-2003.
- Course Co-Director; Marine Biological Laboratory (MBL), Woods Hole, MA, *The Neurobiology Course*, 1995-1999.
- *Ad Hoc* Member, IRG, National Institutes on Drug Abuse, 1995, 96.

- *Ad Hoc* Member, Physiology IRG, National Institutes of Health, 1994.
- Program Committee, Neural Plasticity Gordon Conference, 1993-1997.
- Scientific Review Board, Robert S. Flinn Foundation, 1992-1999.
- Editorial Board, Learning and Memory, Cold Spring Harbor Press, 1993-present.
- New York Academy of Sciences, 1993-94.
- Society for Neuroscience, 1982-Present.

***Teaching:***

- Course Co-director (With Merritt Maduke) NEPR (MCP) 300, Neuroscience Journal Club and Professional Development Series. 2014-Present (3 quarters / year).
- Course Director MCP 208, MCP Journal Club and Professional Development Series, 2018-present
- Course Director and Principal Lecturer, MCP 126 Neurons and Disease. 2012-2016. Most recently taught, spring 2016.
- Course Director, MCP 207. MCP Bootcamp. 2011-2015.
- Instructor (sole), BIOS 202, Hippocampal Field Potentials mini-course. 2013-
- Instructor (sole), MCP 100Q: Neurons and Disease, 2000-2010
- Lecturer; Human Biology Core, Spring quarter 2006
- Guest Lecturer, Biology of Memory, Cold Spring Harbor Labs, 2005
- Instructor (and Director), The Neurobiology Course, Marine Biological Laboratory, Woods Hole, MA. 1995-1999.
- Course Co-director and Instructor, MCP 210: Principles of Molecular and Cellular Physiology
- Course Co-director and Instructor MCP 215: Synaptic Transmission
- Instructor, Cardiovascular Physiology
- Instructor, Neurobiology 200: The Nervous System
- Instructor, Pharmacology 211: Molecular Basis of Learning and Memory
- Instructor, Neurobiology 219: Developmental Neurobiology
- Guest Lecturer, Molecular Biology of Learning and Memory, Cold Spring Harbor Labs
- Guest Lecturer, Principles of Neurobiology, University of Alberta
- Guest Lecturer, Neurobiology Course, MBL, 2003, 2004.
- Numerous invited talks and seminars.

***Current Funding:***

Current Funded Direct Costs: \$751,658/year

R01MH111768 (Madison) *12/23/2016-11/30/2021*  
 National Institutes of Health (NIMH)  
 Single Synapse analysis of synaptic plasticity by combining electrophysiology and array tomography. \$377,187 direct costs/year

R01 NS094499 (Madison) *07/15/2016-04/30/2021*  
 National Institutes of Health (NINDS)  
 Axonal myelination of interneurons in cortex: functional significance and plasticity

This grant supports a project to study the myelination of cortical interneurons and the plasticity of that myelination. Direct Costs: \$218,715 direct costs/year

R01 NS092474 (Smith, Co-I Madison) 07/01/2016-6/30/2019  
Allen Institute for Brain Science  
National Institutes of Health (NINDS)  
Synaptomes of Mouse and Man. Direct Costs: \$88,946 direct costs/year

R01 MH109475 (Zuo, Co-PI: Madison) 09/08/2017-5/31/2020  
University of California, Santa Cruz  
National Institutes of Health  
Contribution of astrocytes to the Fragile X Syndrome  
A study of astrocytic processes and their interactions with Neurons in a mouse model of Fragile X Syndrome. \$42,610 direct costs/year

S001-P0646184 (Raskatov, Co-PI: Madison) 9/1/2017-8/31/2019  
University of California, Santa Cruz  
National Institutes of Health (NIMH)  
Chiral Inactivation of Amyloid Beta Toxicity. \$24,200 direct costs/year

### **Pending Support:**

SPO 131111 (Raskatov, Co-PI: Madison) 9/01/2019-8/31/2021  
University of California, Santa Cruz  
National Institutes of Health (NINDS)  
Amyloid Beta Actions in Cytotoxicity, Synaptic Transmission and Plasticity, Studied with the Chiral Editing Approach. \$14,849 direct costs/year

### ***Publications:***

#### ***Peer-reviewed Articles:***

1. Dunwiddie, T., Madison, D. and Lynch, G. (1978). Synaptic Transmission is Necessary for the Induction of Long Term Potentiation. **Brain Research** **150**, 413-417.
2. Nicoll, R.A. and Madison, D.V. (1982). General Anesthetics Hyperpolarize Neurons in the Vertebrate Central Nervous System. **Science** **217**, 1055-1057.
3. Madison, D.V. and Nicoll, R.A. (1982). Noradrenaline Blocks Accommodation of Pyramidal Cell Discharge in the Hippocampus. **Nature** **299**, 636-638.
4. Madison, D.V. and Nicoll, R.A. (1984). Control of the Repetitive Discharge Rat CA1 Pyramidal Neurons, in vitro. **Journal of Physiology** **354**, 319-331.
5. Otis, L.C., Madison, D.V. and Nicoll, R.A. (1985). Folic Acid Has a Disinhibitory Action in the Rat Hippocampal Slice Preparation. **Brain Research** **346**, 281-286.
6. Madison, D.V. and Nicoll, R.A. (1986). Actions of Noradrenaline Recorded

Intracellularly in Rat Hippocampal CA1 Pyramidal Neurones, in vitro. **Journal of Physiology** **372**, 221-244.

7. Madison, D.V. and Nicoll, R.A. (1986). Cyclic Adenosine 3',5'-monophosphate Mediates  $\beta$ -receptor Actions of Noradrenaline in Rat Hippocampal Pyramidal Cells. **Journal of Physiology** **372**, 245-259.
8. Malenka, R.C., Madison, D.V., Andrade, R. and Nicoll, R.A. (1986). Phorbol Esters Mimic Some Cholinergic Actions in Hippocampal Pyramidal Neurons. **Journal of Neuroscience** **6**, 475-480.
9. Malenka, R.C., Madison, D.V. and Nicoll, R.A. (1986). Potentiation of Synaptic Transmission in the Hippocampus by Phorbol Esters. **Nature** **321**, 175-177.
10. Madison, D.V., Malenka, R.C. and Nicoll, R.A. (1986). Phorbol Esters Block a Voltage-sensitive Chloride Current in Hippocampal Pyramidal Cells. **Nature** **321**, 695-697.
11. Madison, D.V., Lancaster, B. and Nicoll, R.A. (1987). Voltage Clamp Analysis of Cholinergic Action in the Hippocampus. **Journal of Neuroscience** **7**, 733-741.
12. Madison, D.V. and Nicoll, R.A. (1987). Enkephalin Hyperpolarizes Interneurons in the Hippocampus. **Journal of Physiology** **398**, 123-130.
13. Madison, D.V. and Nicoll, R.A. (1988). Norepinephrine Decreases Synaptic Inhibition in the Rat Hippocampus. **Brain Research** **442**, 131-138.
14. Lipscombe, D., Madison, D.V., Poenie, M., Reuter, H., Tsien, R.Y. and Tsien, R.W. (1988). Spatial Distribution of Calcium Channels and Cytosolic Calcium Transients in Growth Cones and Cell Bodies of Sympathetic Neurons. **Proceedings of the National Academy of Sciences, USA** **85**, 2398-2402.
15. Lipscombe, D., Madison, D.V., Poenie, M., Reuter, H., Tsien, R.W. and Tsien, R.Y. (1988). Imaging of Cytosolic  $Ca^{2+}$  Transients Arising from  $Ca^{2+}$  Stores and  $Ca^{2+}$  Channels in Sympathetic Neurons. **Neuron** **1**, 355-365.
16. Malinow, R., Madison, D.V. and Tsien, R.W. (1988). Persistent Protein Kinase Activity Underlies Long-term Potentiation. **Nature** **335**, 820-824.
17. Doze, V.A., Cohen, G.A., and Madison, D.V. (1991). Synaptic Localization of Adrenergic Disinhibition in the Rat Hippocampus. **Neuron** **6**, 889-900
18. Schuman, E.M. and Madison, D.V. (1991). A Requirement for the Intercellular Messenger Nitric Oxide in Long-term Potentiation. **Science** **254**, 1503-1506.
19. Parfitt, K.D., Doze, V.A., Madison, D.V. and Browning, M.D. (1992). Isoproterenol Increases the Phosphorylation of the Synapsins and Increases Synaptic Transmission in Dentate Gyrus, but not in Area CA1, of the Hippocampus. **Hippocampus** **2**, 59-64.
20. Cohen, G.A., Doze, V.A. and Madison, D.V. (1992). Opioid Inhibition of GABA Release from Presynaptic Terminals of Rat Hippocampal Interneurons. **Neuron** **9**, 325-335.

21. Madison, D.V. (1992). Long-term Potentiation: Knocking Out Memory's Door. **Nature** **358**, 626-627.
22. Mooney, R, Madison, D.V. and Shatz, C.J. (1993). Enhancement of Transmission at the Developing Retinogeniculate Synapse. **Neuron** **10**, 815-825.
23. Madison, D.V. (1993). Pass the Nitric Oxide. **Proceedings of the National Academy of Sciences, USA** **90**, 4329-4331.
24. Parfitt, K.D. and Madison, D.V. (1993). Phorbol Esters Enhance Synaptic Transmission by a Presynaptic, Calcium-dependent Mechanism in Rat Hippocampus. **Journal of Physiology** **471**, 245-268.
25. Schuman, E.M. and Madison, D.V. (1994). Locally Distributed Synaptic Potentiation in the Hippocampus. **Science** **263**, 532-536.
26. Schuman, E.M., Meffert, M.K., Schulman, H. and Madison, D.V. (1994). An ADP-ribosyltransferase as a target for nitric oxide action in long-term potentiation. **Proceedings of the National Academy of Sciences USA**. **91**, 11958-11962.
27. Meffert, M.K., Haley, J.E., Schuman, E.M., Schulman, H. and Madison, D.V. (1994). Inhibition of hippocampal heme oxygenase, nitric oxide synthase and long-term potentiation by metalloporphyrins. **Neuron** **13**, 1225-1233.
28. Doze, V.A., Cohen, G.A. and Madison, D.V. (1995). Calcium Channel Involvement in GABA<sub>B</sub> Receptor-Mediated Inhibition of GABA release in Area CA1 of the Rat Hippocampus. **Journal of Neurophysiology** **74**, 43-53.
29. Bergles, D.E., Doze, V.A., Madison, D.V. and Smith, S.J. (1995). Excitatory Actions of Norepinephrine on Multiple Classes of Hippocampal CA1 Interneurons. **Journal of Neuroscience** **16**, 572-585.
30. Haley, J.E., Schiabe, E., Pavlidis, P., Murdock, A. and Madison, D.V. (1996). Basal and Apical Synapses of CA1 Pyramidal Cells Employ Different LTP Induction Mechanisms. **Learning and Memory** **3**, 289-295.
31. McQuiston, A.R. and Madison, D.V. (1999). Nicotinic Receptor Activation Excites Distinct Subtypes of Interneurons in the Rat Hippocampus. **Journal of Neuroscience** **19**, 2887-2896.
32. Usdin, M., Shelbourne, P., Myers, R.M. and Madison D.V. (1999). Impaired Synaptic Plasticity in Mice Carrying the Huntington's Disease Mutation. **Human Molecular Genetics** **8**, 839-846.
33. McQuiston, A.R. and Madison, D.V. (1999). Muscarinic Receptor Activity has Multiple Effects on the Resting Membrane Potentials of CA1 Hippocampal Interneurons. **Journal of Neuroscience** **19**, 5693-5702.
34. McQuiston, A.R. and Madison, D.V. (1999). Muscarinic Receptor Activity Induces and

Afterdepolarization in a Subpopulation of Hippocampal CA1 interneurons. **Journal of Neuroscience** **19**, 5703-5710.

35. Pavlidis, P. and Madison, D.V. (1999). Synaptic Transmission in Pair Recordings from CA3 Pyramidal Cells in Organotypic Culture. **Journal of Neurophysiology** **81**, 2787-2797.
36. Pavlidis, P., Montgomery, J. and Madison, D.V. (2000). Presynaptic Protein Kinase Activity Supports Long-Term Potentiation at Synapses Between Individual Hippocampal Neurons. **Journal of Neuroscience** **20**, 4497-4505.
37. Braun, J.E.A. and Madison, D.V. (2000). A Novel SNAP25-Caveolin Complex Correlates with the Onset of Persistent Synaptic Potentiation. **Journal of Neuroscience** **20**, 5997-6006.
38. Montgomery, J.M., Pavlidis, P, and Madison, D.V. (2001). Pair Recordings reveal all-Silent Synaptic Connections and the Postsynaptic Expression of Long-Term Potentiation. **Neuron** **29**, 691-701.
39. Finley, M.F.A, Patel, S., Madison, D.V. and Scheller, R.H. (2002). The Core Membrane Fusion Complex Governs the Probability of Synaptic Vesicle Fusion but not Transmitter Release Kinetics. **Journal of Neuroscience** **15**, 1266-1272
40. Montgomery, J.M. and Madison, D.V. (2002). State-dependent heterogeneity in synaptic depression between pyramidal cell pairs. **Neuron** **28**, 765-77.
41. Finley MF. Scheller, RH and Madison, DV (2003). SNAP25 Ser187 does not mediate phorbol ester enhancement of hippocampal synaptic transmission. **Neuropharmacology** **45**, 857-862.
42. Montgomery, J.M. and Madison D.V. (2004). Discrete synaptic states define a major mechanism of synapse plasticity. **Trends in Neuroscience** **27**, 744-50.
43. Montgomery, J.M, Selcher, J., Hanson, J. and Madison, D.V. (2005). Dynamin-dependent NMDAR endocytosis during LTD and its dependence on synaptic state. **BMC Neuroscience** **6**.
44. Hanson, J.E., Emond, M.R. and Madison D.V. (2005). Blocking polysynaptic inhibition via opioid receptor activation isolates excitatory synaptic currents without triggering epileptiform activity in organotypic hippocampal slices. **Journal of Neuroscience Methods** **115**. 8-15
45. Hanson, J.E., Blank, M., Valenzuela, R.A., Garner, C.C. and Madison, D.V. (2007). The Functional Nature of Synaptic Circuitry is Altered in Area CA3 of the Hippocampus in a Mouse Model of Down's Syndrome. **Journal of Physiology** **579**, 53-67.
46. Hanson, J.E. and Madison, D.V. (2007). Presynaptic *Fmr1* Genotype Influences the Degree of Synaptic Connectivity in a Mosaic Mouse Model of Fragile X Syndrome. **Journal of Neuroscience** **27**, 4014-4018

47. Emond MR, Montgomery JM, Huggins ML, Hanson JE, Mao L, Haganir RL, Madison DV. (2010). AMPA Receptor Subunits Define Properties of State-Dependent Synaptic Plasticity. **Journal of Physiology** **588**, 1929-1946.
48. Hanson JE, Orr AL, Madison DV. (2010). Altered Hippocampal Synaptic Physiology in Aged Parkin-Deficient Mice. **Neuromolecular Medicine** **12(3)**, 270-6
49. Hanson, J.E. and Madison D.V. (2010). Imbalanced Pattern Completion vs. Separation in Cognitive Disease: Network Simulations of Synaptic Pathologies Predict a Personalized Therapeutics Strategy. **BMC Neuroscience** **11**, 96.
50. Mitra, A., Blank, M. and Madison, D.V. (2012). Developmentally Altered Inhibition in Ts65Dn, a mouse model of Down syndrome. **Brain Research** **1440**, 1-8.
51. Selcher, J.C., Hanson, J.E., Weifeng X., R.C. Malenka and Madison, D.V. (2012). Glutamate Receptor Subunit GluA1 is Necessary for Long-term Potentiation and Synapse Unsilencing, but not Long-term Depression in Mouse Hippocampus. **Brain Research** **1435**, 8-14.
52. Salih, D.A.M., Rashid, A.J., Colas, D., de la Torre-Ubieta, L., Zhu, R.P., Morgan, A.A., Santo, E.E., Ucar, D., Devaranjan, K., Cole, C.J., Madison, D.V., Shamloo, M., Butte, A.J. Bonni, A., Josselyn, S.A. and Brunet, A. (2012). FoxO6 Regulates Memory Consolidation and Synaptic Function. **Genes and Development** **26**, 2780-2801.
53. Stephan, A., Madison D.V., Mateos, J.M., Fraser, D.A., Coutellier, L., Lovelett, E.A., Tsai, H-H., Huang, E.J., Rowitch, D.H. Kim, L., Berns, D.S., Tenner, A.J., Shamloo, M. and Barres, B.A. (2013). A Dramatic Increase in Synaptic C1q Protein in Normal Brain Ageing Contributes to Cognitive Decline. **Journal of Neuroscience** **33**, 13460-13474.
54. Orr, A.L., Hanson, J.E., Klotz, A., Wright, S., Schenk, D., Seubert, P. and Madison, D.V. (2014) Amyloid-*beta* inhibits E-S Plasticity and LTP through inhibition of Cannabinoid Receptor 1-dependent synaptic disinhibition. **Neuron** **82**, 1334-1345.  
Doi:10.1016/j.neuron.2014.04.039, PMID 24945775.
55. Fourie, C. Kiraly, M., Madison, D.V. and Montgomery, J.M. (2014). Paired Whole Cell Recordings in Organotypic Hippocampal Slices. **Journal of Visualized Experiments (JoVE)** **91**, 51958 doi: 10.3791/51958, PMID 25285945.
56. Chang, A.J., Ortega, F.E., Riegler, J., Madison, D.V. and Krasnow, M.A. (2015). Oxygen Control of Breathing by an Olfactory Receptor. **Nature** **527**, 240-244, doi: 10.1038/nature15721, PMCID: PMC4765808
57. Valenzuela, R.A., Micheva, K.D., Kiraly, M. and Madison, D.V. (2016). Array Tomography of Physiologically-Characterized CNS Synapses. **Journal of Neuroscience Methods** **268**, 43-52, DOI: 10.1016/j.jneumeth.2016.04.017
58. Sun, Y., Pasca, S.P., Pasca, S.P., Portmann, T., Goold, C., Worringer, K.A., Guan, W., Chan, K.C., Gai, H., Vogt, D., Chen, Y-J J., Mao, R., Chan, K, Rubenstien, J.L.R., Madison, D.V., Hallmayer, J., Froehlich-Santiano, W.M., Bernstein, J.A. and Dolmetsch, R.E. (2016). A deleterious NaV1.1 mutation selectively impairs telecephalic inhibitory neurons derived from Dravet Syndrome patients. **E Life** **5**, 10.7554/eLife.13073.



59. Kim, K-M., Zamaleeva, A.I., Lee, Y.W., Kim, E., Lee, H-R., Ahmed, M.R., Pothineni, V.R., Tao, J., Rhee, S., Jayakumar, M., Inayathullah, M., Sivanesan, S., Red-Horse, K., Palmer, T.D., Park, J., Madison, D.V., Lee, H-Y., Rajadas, J. (2018). Characterization of brain dysfunction induced by bacterial lipopeptides that alter neuronal activity and network in rodent brains. **Journal of Neuroscience** **12**,10672-10691. doi: 10.1523/JNEUROSCI.0825-17.201860.
60. Micheva, K.D., Chang, E.F., Nana, A.L., Seeley, W.W., Ting, J.T., Cobbs, C., Lein, E., Smith, S.J., Weinberg, R.J., Madison, D.V. (2018). Distinct Structural and Molecular Features of Myelinated Inhibitory Axons in Human Neocortex. **ENeuro** **5**, doi: 10.1523/ENEURO.0297-18.201862.
61. Orr, A.L., Clark, J.K., Madison, D.V. (2019). Differential Inhibition of E-S Potentiation and Long-term Potentiation by Cell-derived and Arctic Amyloid Beta. *BioRxiv* 2019/601492, doi 10.1101/601492.
62. DeCarolis, N.A., Asokan, A., Haditsch, U., Lee, H-R., Siddiqui, M.R., Purger, D., Schrenk-Siemens, K., Chung, W-S., Ding, J.B., Madison, D.V., Barres, B.A., Palmer, T.D. (2018). Defects in microglial phagocytosis impair synaptic plasticity, learning, and memory. *Nature Communications*, (submitted).

## Review Articles:

63. Tsien, R.W., Lipscombe, D. Madison, D.V., Bley, K. and Fox, A. (1988). Multiple Types of Calcium Channels and Their Selective Modulation. **Trends in Neurosciences** **11**, 431-438.
64. Madison, D.V. and Schuman, E.M. (1991). LTP, Post or Pre? A Look at the Mechanisms Underlying Long-term Potentiation. *The New Biologist* **3**, 549-557.
65. Schuman, E.M. and Madison, D.V. (1993). Nitric Oxide as an Intercellular Signal in Long-term Potentiation. *Seminars in the Neurosciences* **5**, 207-215.
66. Madison, D.V., Malenka, R.C. and Nicoll, R.A. (1991). Mechanisms Underlying Long-term Potentiation of Synaptic Transmission. *Annual Review of Neuroscience* **14**, 379-97.
67. Schuman, E.M. and Madison, D.V. (1994). Nitric Oxide and Synaptic Function. *Annual Review of Neuroscience* **17**, 153-184.
68. Schuman E.M. and Madison D.V. (1994). Communication of synaptic potentiation between synapses of the hippocampus. *Advances in Second Messenger and Phosphoprotein Research* **29**, 507-20.
69. Tsien, R.W., Lipscombe, D., Madison, D., Bley, K. and Fox, A. (1995). Reflections on Ca<sup>2+</sup> diversity, 1988-1994. *Trends in Neurosciences* **18**, 52-54.
70. Madison, D.V. and Schuman, E.M. (1995). Diffusible messengers and intercellular signaling: locally distributed synaptic potentiation in the hippocampus. *Current Topics in Microbiology and Immunology* **196**, 5-6.

71. Montgomery, J.M. and Madison, D.V. (2001). The Grass Roots of Synapse Suppression. *Neuron* 29, 567-570.
72. Montgomery, J.M, and Madison, D.V. (2004). Discrete Synaptic States Define a Major Mechanism of Synapse Plasticity. *Trends in Neuroscience*, 27, 744-750.
73. Madison, D.V. and McQuiston, A.R (2006). Toward a unified hypothesis of interneuronal modulation. *Journal of Physiology* 570, 435.

### ***Book Chapters:***

74. Nicoll, R.A., Cole, A.E., Madison, D.V. and Newberry, N.R. (1984). Norepinephrine and Acetylcholine Block a Calcium-activated Potassium Hyperpolarization in Hippocampal Pyramidal Cells. **Experimental Brain Research, Suppl. 9**, 305-314.
75. Nicoll, R.A. and Madison, D.V. (1987). Noradrenergic Modulation of Neuronal Excitability in Mammalian Hippocampus. In: *Psychopharmacology: The Third Generation of Progress*, 105-112; H.Y. Meltzer, Ed. Raven Press, NY.
76. Madison, D.V. and Nicoll, R.A. (1988). Increases in Potassium Conductance: Common Mechanisms of Opiate Action in Neurons of the Central Nervous System. In: *Neurotransmitters and Cortical Function: From Molecules to Mind*. M. Avoli, et. al., Eds.
77. Madison, D.V. (1991). Whole-cell Voltage-clamp Techniques Applied to the Study of Synaptic Function in Hippocampal Slices. In: *Cellular Neurobiology: A practical approach*, Eds. H. Wheal and J. Chad, Oxford University Press, pp 137-149.
78. Meffert, M.K., Parfitt, K.D., Doze, V.A., Cohen, G.A. and Madison, D.V. (1991) Protein Kinases and Long-term Potentiation. *Annals of the New York Academy of Sciences* 627, 2-9.
79. Schuman, E.M. and Madison, D.V. (1994). Communication of Synaptic Potentiation Between Synapses of the Hippocampus. in: *Molecular and Cellular Mechanisms of Neurotransmitter Release*, Eds. Lennart Stjärne, Paul Greengard, Sten Grillner, Tomas Hökfelt and David Ottoson, Raven Press Ltd., New York. pp 507-520.

### **Current positions of trainee's from the Madison Lab:**

#### **Postdoctoral Fellows:**

Janice E.A. Braun, Ph.D.  
Associate Professor

Dept. Physiology and Biophysics  
University of Calgary

Michael Finley, Ph.D.  
Senior Scientist  
Merck, Sharp and Dohme

Jane E. Haley, Ph.D.  
Research Coordinator  
Division of Neuroscience  
University of Edinburgh

Jesse Hanson, Ph.D.  
Scientist  
Genentech

A. Rory McQuiston, Ph.D.  
Associate Professor  
Department of Anatomy and Neurobiology  
Virginia Commonwealth University

Ananya Mitra, Ph.D.  
Senior Scientist, Adamas Pharamaceuticals

Johanna M. Montgomery, Ph.D.  
Associate Professor  
University of Auckland

Richard M. Mooney, Ph.D.  
George Barth Geller Professor of Neurobiology  
Department of Neurobiology  
Duke University Medical School  
Durham, NC

Karen D. Parfitt, Ph.D.  
Professor  
Department of Biology  
Pomona College  
The Claremont Colleges  
Pomona, CA

Paul Pavlidis  
Professor  
Department of Psychiatry  
University of British Columbia  
Vancouver, BC

Erin M. Schuman, Ph.D.  
Managing Director  
Max Planck Institute for Brain Research

Gesellschaft  
Former:  
Professor and Howard Hughes Investigator  
Division of Biology  
California Institute of Technology  
Pasadena, CA.  
Adjunct Professor – UCLA

Joel C. Selcher, Ph.D.  
Senior Director, Regulatory Affairs at Jazz Pharmaceuticals  
Former: Director, Regulatory Affairs, Genentech

**Graduate Students:**

Dwight Bergles, Ph.D.  
Professor  
Dept of Neuroscience  
Johns Hopkins University

Gal A. Cohen, Ph.D.  
Associate Director  
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