

CURRICULUM VITAE

Joseph J. McArdle
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Office Address: Department of Pharmacology, Physiology, and Neuroscience, New Jersey Medical School-Rutgers University, 185 South Orange Avenue, Newark NJ 07103-2714;
Telephone: 973-972-4428, email: mcardle @njms.rutgers.edu

1. Education

- a. Undergraduate 1963-1967, University of Delaware, BA, Biology & Chemistry
- b. Graduate Education: 1967-1972, State University of New York-Buffalo, PhD, Cellular Neuropharmacology

2. Post Doctoral Training:

- a. 1971-1972 – Dept Pharmacology, State University of New York-Buffalo

3. Military Service

- a. 1967, US Army Reserve, 1st Lieutenant, Corps of Engineers

4. Licensure: none

5. Certification: none

6. Narcotics Certification: none

7. University Appointments:

- a. 1971-1972, Dept Pharmacology, State University of New York-Buffalo, Assistant Professor
- b. 1972-1977, Dept Pharmacology, New Jersey Medical School-University of Medicine and Dentistry of New Jersey, Assistant Professor
- c. 1977-1982, Dept Pharmacology, New Jersey Medical School-University of Medicine and Dentistry of New Jersey, Associate Professor
- d. 1982-1997, Dept Pharmacology, New Jersey Medical School-University of Medicine and Dentistry of New Jersey, Professor
- e. 1997-2013, Dept Pharmacology & Physiology, New Jersey Medical School-University of Medicine and Dentistry of New Jersey, Professor
- f. 1991-2018, Dept Anesthesiology, New Jersey Medical School-Rutgers University, Professor
- g. 1992-1998, Dept Biomedical Engineering, New Jersey Institute of Technology Adjunct Associate Professor

- h. 2017, Emeritus Professor of Pharmacology, Physiology, and Neuroscience, New Jersey Medical School-Rutgers University

8. Hospital Appointments: none

9. Other Professional Positions:

- a. 1979-1980, Laboratory of Cellular and Molecular Neurobiology, Center for National Scientific Research (CNRS), Gif-sur-Yvette, France, Visiting Scientist
- b. 1987, Dept Physiology, John Curtin School of Medical Research, Australian National University, Canberra, Australia, Visiting Scientist
- c. 1987, Laboratory of Developmental Neurobiology, National Institute of Child Health and Human Development, Bethesda, MD, Visiting Scientist
- d. 1988, Anaquest Pharmaceuticals Pharmaceutical, Division of British Oxygen Corporation, Consultant
- e. 1991, Laboratoire Jean Maetz, Marine Biology Station, Villefranche-sur-Mer, France Visiting Scientist
- f. 2010, Dept Molecular Neurobiology, Max Planck Institute for Medical Research University of Heidelberg, Germany, Visiting Scientist

10. Honors and Awards:

- a. 1965-1967, Biology Honors Society, University of Delaware
- b. 1972, PhD With Distinction, "Some Physiological and Pharmacological Properties of Reinnervating Fast and Slow Muscles of the Rat", State University of New York-Buffalo
- c. 1979-1980, Fellowship from the Research Foundation of the French Pharmaceutical Industry
- d. 1987, Fellowship from the Australian National University
- e. 1991, Award from the Department of Cell & Molecular Biology of the Commissariat for Atomic Energy, Saclay, France

11. Membership on Boards of Directors or Trustees: None

12. Major Teaching Experience

- a. 1971-2018, Lectures in team taught courses at the State University of New York-Buffalo School of Medicine, University of Medicine and Dentistry of New Jersey, Graduate School of Biomedical Sciences of New Jersey Medical School, New Jersey Medical School-Rutgers
- b. 1977-2018, Graduate courses presented at the New Jersey Medical School: A Biophysical Approach to Cellular Neuropharmacology, Molecular Basis of Synaptic Disorders
- c. Postdoctoral Fellows
1989-1993, Simon Aiken, PhD
1990-1992 Elizabeth Shafiq, MD

1994-1996 Shen-Wei Liu, MD, PhD
1995-1997 Vanessa Routh, PhD
2007-2010 Baskaran Thyagarajan, PhD

d. Visiting Scholars

1986 Farghali Hassan, PhD, Pharmacology Institute, Czechoslovak Acad. Sci.
1990-1992, Jay J. Choi, MD, New Jersey Medical School
1991m Greg Nestler, MD. Anesthesiology Resident, New Jersey Medical School
1996, Xuo-Qin Guo, MD, Professor of Physiology, Shanghai Medical University
1993-1996, Jiang-Hong Ye, MD, Professor Physiology, Sun Yat-Sen Medical Univ,
2007-2008, Nataliya Krivitskaya, MD, Pediatrician in Private Practice

e. PhD Students

1974-1977, Lawrence C. Sellin, "Studies of Neurotrophic Effects on Mammalian Skeletal Muscle During Reinnervation"
1978-1981, Albert J. D'Alonzo, "Biophysical Basis for the Differential Toxicity of 20, 25-diazacholesterol Towards Fast and Slow Skeletal Muscles"
1980-1983, Thomas M. Argentieri, "Pre- and Post-synaptic Molecular Aspects of Synapse Formation"
1983-1986, Joseph P. Arena, "Characterization of the Action of Cibenzoline on the Electrical Properties of Guinea Pig Papillary Heart Muscle"
1989-1992, Guo-Jie Huang, MD, "Action of Acute and Chronic Ethanol on the Function of Neuronal Calcium Channels of Long-sleep and Short-sleep Mice"
1989-1994, Yong-Fu Xiao MD, 1989-1994: "Abnormalities of Ion Channels of the Myocardium of the Spontaneously Hypertensive Rat"
1990-1994, Xiang-Yang Li, MD, "Properties of Outward Voltage Dependent potassium Currents of Mature Murine Hippocampal Neurons"
1992-1995, Tracy Brightman, "Convulsant and Anticonvulsant Effects of Oximes on GABAA-gated Chloride Currents of Ventromedial Hypothalamic Neurons"
1993-1996, Dolores Schiller, PhD, " Pharmacologic Modification of Glycine-gated Ion Channels Within CNS Neurons"
1995-1998, Barbara Gladson, "Somatostatin Modulation of Glucagon Release from Hamster Glucagonoma Cells"
2006-2010, Carmen C. Garcia, MD, "Molecular basis of changes of the neuromuscular junction during diabetes"
2010-2014, Vishwendra Patel, MS, "Role of MuSK in retrograde signaling from muscle to nerve"

f. Masters Students

1995-1997, Dinora Hernandez, "Electrophysiological studies of hypothalamic Adenosine-S'-Triphosphate-Sensitive Potassium Channels"
1998-2000, Daniel E. Weiss, "Fluorescein Waglerin-1 as a Tool for Studying Development of the Neuromuscular Junction"
2003-2006, Kathleen M. Coakley, "Human Umbilical Cord Blood Cells Improve Motor Nerve Function of SOD1-93 Transgenic Mice"
2004, Keiko Noguchi, "Nitric Oxide Modulates Transmission Across the Neuromuscular Junction"

2011-2013, Anne Oh, "Pharmacotherapy of autoimmune MuSK myasthenia gravis"
2012, Laura Sahyoun, served as advisor for course based MS degree
2014-2017, Michael Morano, served as advisor for course based MS degree

- g. 1972-2019, Guidance and counseling for students
- h. 2007-2011, Advisor, Science High School, Newark, NJ
- i. 2014-2017, Advisor, Manville High School, NJ

13. Principal Clinical and Hospital Service Responsibilities: none

14. Major Committee Assignments

- a. 1987-1988, Organizing Committee of the Fernstrom Symposium on the Neuromuscular Junction, Lund Sweden
- b. 1983-1990, Ad Hoc Review of NIH Grant Applications for the Physiology and Neurological Sciences Study Sections; Neurobiology Program, National Science Foundation
- c. 1985, Co-chairman, The Neuromuscular Junction ASPET Meeting, Boston
- d. 1986, Co-organizer and Chairman, New Approaches to Understanding and Controlling Cardiac Arrhythmias, Symposium, ASPET meeting, Baltimore
- e. 1986, Organizer and Chairman, Dynamics and Modeling of Ion Channels, Workshop, IEEE/Engineering in Medicine and Biology Society meeting, Fort Worth
- f. 1990-1991, Member, NSF Cellular Neuroscience Review Panel
- g. 1991-1994, Member, NIH Neurology B1 Study Section
- h. 2003, Organizer of Dept Defense supported conference on The Biology of Chemical Defense
- i. 2006, 2007, Ad hoc Reviewer, NINDS study section Neurological Sciences and Disorders C
- j. 2006, Ad hoc Reviewer, NINDS special emphasis panel Counter Measures Against Chemical Threats
- k. 2008, Ad hoc Reviewer, Defense Threat Reduction Agency Chemical and Biological Defense Program
- l. 2011, Ad hoc Reviewer, NIH Postdoctoral Fellowship Applications
- m. 2012, Ad Hoc Reviewer, NIH Neurological Sciences and Disorders C

15. Medical School Committees

- a. 1972, Institutional Funding Committee of the Health Sciences Faculty, SUNY-Buffalo
- b. 1972-2017, listing of service to New Jersey Medical School committees
Faculty Academic Appointments and Promotions Committee, Member and Chair
Search Committee, Chair of Anesthesiology, for three separate Chair searches
Faculty Council
Bylaws Committee

Executive council of the Graduate School, Chairman
Committee on Institutional Planning and Development Educational Development
Biomedical Research Support Grant Committee
Search Committee, Chair of Pharmacology & Physiology
Vice President, Faculty Organization
Faculty Committee on Space Sep
Interviewer of applicants to PhD and MS programs
Interviewer of MD applicants to the New Jersey Medical School
Review of research applications submitted to the UMDNJ Foundation

16. Hospital Committees: none

17. Department Committees since 1972 include: Organizer of Departmental seminar series, Director of graduate student program in pharmacology, Faculty search committees, Graduate student admissions committee

18. Ad hoc peer review of scientific manuscripts for

- a. The Journal of Biomedicine and Biotechnology
- b. Reviewer American Journal of Applied Physiology
- c. American Journal of Physiology
- d. Biological Psychiatry
- e. Botulinum Research
- f. Brain Research British
- g. Journal of Pharmacology
- h. Canadian Journal of Physiology and Pharmacology
- i. Cell and Tissue Research
- j. Clinical Pharmacology and Toxicology
- k. Experimental Neurology
- l. Hippocampus
- m. Journal of Neuroscience
- n. Journal of Pharmacology and Experimental Therapeutics
- o. Journal of Physiology (London)
- p. Life Sciences
- q. Molecular Brain Research
- r. Molecular Pharmacology
- s. Nature
- t. Neurobiology of Disease
- u. Neuroscience Letters
- v. Neuropharmacology
- w. Neurophysiology
- x. Neurotoxicology
- y. Pflugers Archiv
- z. European Journal of Physiology Pharmacology & Toxicology
Proceedings of the National Academy of Sciences
Progress in Neurobiology

Psychopharmacology
Science
Synapse
Toxicology & Applied Pharmacology

15. Memberships, Offices, and Committee Assignments in Professional Societies
American Society of Pharmacology and Experimental Therapeutics 1982-present, Society for Neuroscience 1984-1998, Biophysics Society 1988-2009 Society of General Physiologists

16. Major Research Interests:

The focus of my research is the neuromuscular junction (NMJ). Specifically, NMJ development and recovery from peripheral nerve damage. This research utilizes toxins, drugs, as well as genetically altered mice to explore the molecular processes involved in NMJ plasticity and trophic regulation of muscle. I have studied the NMJ with Edson X Albuquerque (State University of New York at Buffalo, 1967-1972), Alberto Mallart (CNRS, Gif-sur-Yvette, France, 1979-1980) and Peter W Gage (John Curtin School of Medical Research, Canberra, Australia, 1987). After learning neuronal tissue culture in the laboratory of Phillip Nelson (Developmental Neurobiology, NICHD, Bethesda, USA, 1987), I studied the action of drugs of abuse on voltage and ligand gated ion channels using patch clamp techniques. My laboratory applied these techniques to the study of myocardial calcium channels in a rat model of hypertension. From 2012 until my retirement at the end of 2017, my performed three projects related to the neuromuscular junction: 1) presynaptic disorders during myasthenia gravis due to autoantibodies to muscle specific tyrosine kinase; 2) neuronal-specific cargo-delivery platforms as post-exposure botulism therapies; 3) altered synaptic transmission during diabetes.

17. Grant History:

a. Principal Investigator

1973-1982, National Institutes of Health, R01 NS 11055

1989-1992, National Institutes of Health, R01 AA 08025

1992-1995, National Institutes of Health, R01 NS 31040

2003-2007, National Institutes of Health, R01 NS 045979

1989-1997, American Heart Association

1984-1986, New Jersey Commission on Cancer Research

1973-2017, General Research Support from the New Jersey Medical School

1988, National Science Foundation, support for 1988, Fernstrom Symposium in Lund

1986-1999, drug companies: Anaquest, Hoffman La Roche, Burlex, Smith Kline Beecham

2003, US Army, support for conference: Biology of Chemical and Biological Defense

2007-2010, US Army, "Therapeutic efficacy of botulinum metalloendoprotease inhibitors"

2007, The Toohey Neuroscience Fund

b. Co-principle investigator

1996-1998, Individual National Research Service Aware to Dr. Vanessa H Routh

2002-2013, The Kirby Foundation awards to NJ Med School Neuroscience Group
2012-2017, NIH R21+R23, Co-investigator with Brenda Wilson, PhD (University of Illinois) as PI

18. Major Administrative Responsibilities:

- a. 1981-1984, Director of the Graduate Program Department in Pharmacology
- b. 1999-2001, Chair, Faculty Committee on Appointments and Promotions
- c. 2005-2006, Vice President, Faculty Organization

19. Private Practice: none

20. Articles

1. McArdle, J.J. and E.X. Albuquerque. 1973 .A study of the reinnervation of fast and slow mammalian muscles. *J. Gen. Physiol.* 61:1-23. doi:10.1085/jgp.61.1.1
2. McArdle, J.J. and E.X. Albuquerque. 1975. Effects of ouabain on denervated and dystrophic muscles of the mouse. *Exp. Neurol.* 47:353-356. doi:10.1016/00144886(75)90263-0
3. McArdle, J.J. 1975. Complex end-plate potentials at the regenerating neuromuscular junction of the rat. *Exp. Neurol.* 49:629-638. doi:10.1016/0014-4886(75)90048-5
4. McArdle, J.J. and F.M. Sansone. 1977. Reinnervation of fast and slow mammalian muscle following nerve crush at birth. *J. Physiol. (London)* 271:567-586.
5. Sellin, L.C. and J.J. McArdle. 1977. Colchicine blocks neurotrophic regulation of the resting membrane potential in reinnervating skeletal muscle. *Exp. Neurol.* 55:483-492. doi:10.1016/0014-4886(77)90016-4
6. McArdle, J.J., R. Garnes, and L.C. Sellin. 1977. Membrane electrical properties of fast- and slow-twitch muscles from rats with experimental hyperthyroidism. *Exp. Neurol.* 56:168-178. doi:10.1016/0014-4886(77)90147-9
7. Sellin, L.C. and J.J. McArdle. 1977. Effect of ouabain on reinnervating mammalian skeletal muscle. *Europ. J. Pharmacol.* 41:337-340. doi:10.1016/0014-2999(77)90328-4
8. McArdle, J.J., L. Michelson, and A.J. D'Alonzo. 1980. Action potentials in fast- and slow-twitch mammalian muscles during reinnervation and development. *J. Gen. Physiol.* 75:655-672.
9. McArdle, J.J., C. Guarino, and A.J. D'Alonzo. 1980. Neuronal influences on the sensitivity of skeletal muscle to experimental myotonia. *Exp. Neurol.* 69:365-372. doi:10.1016/0014-4886(80)90219-8
10. McArdle, J.J. and A.J. D'Alonzo. 1980. Effects of terbutaline upon the membrane potentials of innervated and denervated muscles. *Exp. Neurol.* 71:134-143. doi:10.1016/0014-4886(81)90076-5

11. McArdle, J.J., D. Angaut-Petit, A. Mallart, R. Bournaud, L. Faille, and J.L. Brigant. 1981. Advantages of the triangularis sterni muscle of the mouse for investigation of synaptic phenomena. *J. Neurosci. Meth.* 4:109-115. doi:10.1016/0165-0270(81)900443
12. Angaut-Petit, J.J. McArdle, A. Mallart, R. Bournaud, M. Pincon-Raymond, and F. Rieger. 1982. Electrophysiological and morphological studies of a motor nerve in motor end-plate disease of the mouse. *Proc. Roy. Soc. B* 215:117-125.
13. D'Alonzo, A.J., J.J. McArdle, and T.M. Argentieri. 1982. Sensitivity of skeletal muscle to 20,25-diazacholesterol induced myotonia requires normal innervation. *Exp. Neurol.* 75:446-455. doi:10.1016/0014-4886(82)90174-1
14. D'Alonzo, A.J., T.M. Argentieri, and J.J. McArdle. 1982. Ouabain and tetrodotoxin block the myotonia of skeletal muscle induced with 20,25- diazacholesterol. *J. Pharmacol. Exp. Therap.* 222:401-404.
15. D'Alonzo, A.J. and J.J. McArdle. 1982. An evaluation of fast- and slow- twitch muscle from rats treated with 20,25-diazacholesterol. *Exp. Neurol.* 78:46-66.
16. D'Alonzo, A.J. and J.J. McArdle. 1982. Effects of 20,25-diazacholesterol treatment upon the decay of end-plate currents. *Exp. Neurol.* 76:681-683. doi:10.1016/00144886(82)90136-4
17. Argentieri, T.M. and J.J. McArdle. 1983. Interaction of the opiate antagonist, naltrexone methyl bromide, with the acetylcholine receptor system of the motor end-plate. *Brain Res.* 277:377-379. doi:10.1016/0006-8993(83)90950-2
18. McArdle, J.J. and I. Hanin. 1986. Acute in vivo exposure to the cholinergic neurotoxin AF64A depresses the secretion of quanta from motor nerve terminals. *Europ. J. Pharmacol.* 121:119-121. doi:10.1016/0014-2999(86)90524-8
19. Arena, J.P., J.J. McArdle, and S. Laxminarayan. 1986. Characterization of the class I antiarrhythmic activity of cibenzoline succinate in guinea pig papillary muscle. *J. Pharmacol. Exp. Therap.* 240:441-450.
20. Arena, J.P., J.J. McArdle, and T.M. Argentieri. 1987. Antiarrhythmic-like actions of the smooth muscle spasmolytic agent, cinnamedrine, on action potentials of mammalian ventricular tissue. *Pharmacol.* 34:286-295.
21. Gage, P.W., J.J. McArdle, and D.A. Saint. 1990. Effects of butanedione monoxime on neuromuscular transmission. *Br. J. Pharmacol.* 100:467-470.
22. Aiken, S.P., J.L. Gleitsman, and J.J. McArdle. 1991. Tolerance to ethanol at the neuromuscular junction of long-sleep and short-sleep mice. *Alcohol* 8:207-209. doi:10.1016/0741-8329(91)90838-N

23. Patel, R., J.J. McArdle, and T.J. Regan. 1991. Increased ventricular vulnerability in a chronic ethanol model despite reduced electrophysiologic responses to catecholamines. *Alcoholism: Clinical and Experimental Research*, 15:785-789.
24. Shafik, E.N., S.P. Aiken, and J.J. McArdle. 1991. Regional catecholamine levels in brains of long- and short-sleep mice before and after chronic ethanol ingestion. *Brain Research*, 63:44-48. doi:10.1016/0006-8993(91)91513-Z
25. Aiken, S.P. and J.J. McArdle. 1991. Seasonal changes in the response of fast and slow mammalian skeletal muscle fibers to zero potassium. *Life Sciences* 50:109-116. doi:10.1016/0024-3205(92)90292-W
26. Huang, G.-J. and J.J. McArdle. 1992. Novel suppression of a neuronal L-type calcium channel in neurons of murine dorsal root ganglia by the chemical phosphatase 2,3-butanedione monoxime. *J. Physiol. (London)*, 447:257-274.
27. Argentieri, T., S.P. Aiken, S. Laxminarayan, and J.J. McArdle. 1992. Physiology of regenerating neuromuscular junctions in the rat, and the effect of 2,3-butanedione monoxime. *Pflügers Archiv. European Journal of Physiology*, 421:256-261. doi:10.1007/BF00374835
28. Aiken, S.P., L.C. Sellin, J.J. Schmidt, S.A. Weinstein, and J.J. McArdle. 1992. Effects of a peptide toxin from *Trimeresurus Wagleri* on functioning of the rat neuromuscular junction. *Pharmacology and Toxicology* 70:459-462.
29. McArdle, J.J., J.J. Choi, and G.-J. Huang. 1992. Effects of Imipramine and Ethanol on the Activity of a Neuronal L-Type Calcium Channel. *NY Acad Sci* 654: 477-479. doi:10.1111/j.1749-6632.1992.tb26005.x
30. Choi, J., G.-J. Huang, E.N. Shafik, W.-H. Wu, and J.J. McArdle. 1992. Imipramine selective suppression of an L-type calcium channel in neurons of murine dorsal root ganglia involves G proteins. *J. Pharmacol. Exp. Therap.* 263:49-53.
31. Huang, G.-J. and J.J. McArdle. 1993. Chronic ingestion of ethanol increases the number of Ca²⁺ channels of hippocampal neurons of long-sleep but not short-sleep mice. *Brain Research* 615:328-330. doi:10.1016/0006-8993(93)90044-N
32. Huang, G.-J. and J.J. McArdle. 1994. Role of the GTP-binding protein Go in the suppressant effect of ethanol on voltage-activated calcium channels of murine sensory neurons. *Alcoholism Clin. Exp. Res.* 18:608:615.
33. Xiao, Y.-F. and J.J. McArdle. 1994. Elevated density and altered pharmacologic properties of myocardial calcium current of the spontaneously hypertensive rat. *J. Hypertension* 12:783-790.
34. Brightman, T. J.-H Ye, E. Ortiz-Jimenez, E.J. Flynn, W.-H. Wu and J.J. McArdle. 1995. 2,3-butanedione monoxime protects mice against the convulsant effect of picrotoxin by facilitating GABA-activated currents. *Brain Research* 678:110-116. doi:10.1016/00068993(95)00175-P

35. Xiao, Y.-F and J.J. McArdle. 1995. Activation of protein kinase A antagonizes the effects of 2,3-butanedione monoxime on cardiac transient outward K⁺ currents. *Life Sciences* 57:335-343. doi:10.1016/0024-3205(95)00292-E
36. Ye, J.-H. and J.J. McArdle. 1995. Excitatory amino acid induced currents of isolated murine hypothalamic neurons and their suppression by 2,3-butanedione monoxime. *Neuropharmacology* 34:1259-1272. doi:10.1016/0028-3908(95)00100-K
37. Xiao, Y.-F. and J.J. McArdle. 1995. Effects of 2,3-butanedione monoxime on blood pressure, myocardial Ca²⁺ currents and action potentials of rats. *American J. Hypertension* 8: 1232-1240. doi:10.1016/0895-7061(95)00251-0
38. Sellin, L.C., K. Mattila, A. Annala, M. Hyvonen, J.J. Schmidt, T.T. Rantala, T. Kivisto and J. J. McArdle. 1996. Conformational analysis of a toxic peptide from *Trimeresurus Wagleri*. *Biophysical J.*, 70: 3-13.
39. Ye, J.-H. and J.J. McArdle. 1996. 2,3-Butanedione monoxime modifies the glycine-gated chloride current of acutely isolated murine hypothalamic neurons. *Brain Research* 735:2029. doi:10.1016/0006-8993(96)00546-X
40. Dunn-Meynell, A.A., V.H. Routh, J.J. McArdle, and B.E. Levin. 1997. Low affinity sulfonylurea binding sites reside on neuronal cell bodies in the brain. *Brain Research* 745:1-9. doi:10.1016/S0006-8993(96)01006-2
41. Li, X.-Y. and J.J. McArdle. 1997. Novel transient outward K⁺ current of mature murine hippocampal neurons. *Pflügers Archiv European Journal of Physiology* 434:195-202. doi:10.1007/S004240050383
42. Ye, J.-H. and J.J. McArdle. 1997. Waglerin-1 modulates GABA activated current of murine hypothalamic neurons. *J Pharmacol. Exp. Therap.* 282:74-80.
43. Ye, J.-H., W.-H. Wu, P. Liu, and J.J. McArdle. 1997. Cocaine depresses GABA_A current of hippocampal neurons. *Brain Research* 770:169-175. doi:10.1016/S00068993(97)00782-8
44. Routh, V.H., J.J. McArdle, and B.E. Levin. 1997. Phosphorylation modulates the activity of the ATP-sensitive K⁺ channel in the ventromedial hypothalamic nucleus. *Brain Research* 778:107-119. doi:10.1016/S0006-8993(97)01043-3
45. Ye, J.-H., T. Hunt, W.-H. Wu, and J.J. McArdle. 1997. Ondansetron modulates GABA_A current of rat central nervous system neurons. *Europ. J. Pharmacol.* 337:87-94. doi:10.1016/S0014-2999(97)01279-X
46. Ye, J.-H., J. Ren, P.L. Liu, and J.J. McArdle. 1998. Glycine-activated currents of neurons freshly isolated from the ventral tegmental area of rats. *Brain Research* 796: 5362. doi:10.1016/S0006-8993(98)00317-5

47. Taylor, P., H. Osaka, B.E. Molles, N. Sugiyama, P. Marchot, S. Malany, J.J. McArdle, S.M. Sine, and I. Tsigelny. 1998. Toxins selective for subunit interfaces as probes of nicotinic acetylcholine receptor structure. *J. Physiology (Paris)* 92:79-83. doi:10.1016/S09284257(98)80142-3
48. Ren, J., J.-H. Ye, and J.J. McArdle. 1998. c-AMP-Dependent protein kinase modulation of glycine-activated chloride current in neurons freshly isolated from rat ventral tegmental area. *Brain Research* 811:71-78. doi:10.1016/S00068993(98)00959-7
49. Ye, J.-H., J. Ren, and J.J. McArdle. 1999. Waglerin-1 inhibits GABA_A current of neurons in the nucleus accumbens of neonatal rats. *Brain Research* 837:29-37. doi:10.1016/S00068993(99)01668-6
50. McArdle, J.J., T.L. Lentz, V. Witzemann, H. Schwarz, S.A. Weinstein, and J.J. Schmidt. 1999. Waglerin-1 selectively blocks the epsilon form of the muscle nicotinic acetylcholine receptor. *J. Pharmacol. Exp. Therap.* 289:543-550.
51. Ye, J.-H., J. Ren, K. Krnjevic, P.L. Liu, and J.J. McArdle. 1999. Cocaine and lidocaine have additive inhibitory effects on the GABA_A current of acutely dissociated hippocampal neurons. *Brain Research* 821:26-32. doi:10.1016/S00068993(98)01372-9
52. Ren, J., J.-H. Ye, K. Krnjevic, P.L. Liu, and J.J. McArdle. 1999. Cocaine decreases the glycine-induced current in acutely dissociated neurons from rat hippocampus. *Europ. J. Pharmacol.* 367:125-130. doi:10.1016/S0014-2999(98)00954-6
53. Ye, J.-H., R. Schaefer, W.-H. Wu, P.L. Liu, V. K. Zbuzek and J. J. McArdle. 1999. Inhibitory effect of ondansetron on the glycine response of dissociated rat hippocampal neurons. *J. Pharmacol. Exp. Therap.* 290:104-111.
54. Ye, J.-H., L. Tao, J. Ren, R. Schaefer, K. Krnjevic, P.L. Liu, D.A. Schiller, and J.J. McArdle. 2001. Ethanol potentiation of glycine responses in dissociated neurons of rat ventral tegmental area. *J. Pharmacol. Exp. Therap.* 296:77-83. doi:10.1124/jpet.102.033894
55. Song, Z., B.E. Levin, J.J. McArdle, N. Bakhos, and V.H. Routh. 2001. Convergence of pre- and postsynaptic influences on glucosensing neurons in the ventromedial hypothalamic nucleus (VMN). *Diabetes* 50:2673-2681. doi:10.2337/diabetes.50.12.2673
56. Ye, J.-H., L. Tao, L. Zhu, K. Krnjevic, and J.J. McArdle. 2001. Ethanol inhibition of glycine-activated responses in neurons of ventral tegmental area of neonatal rats. *J. Neurophysiology* 86:2426-2434. PMID: 11698532
57. Molles, B.E., P. Rezai, E.F. Fine, J.J. McArdle, S.M. Sine, and P. Taylor. 2002. Identification of the α and ϵ subunit interfaces mediating species selectivity of Waglerin-1 for nicotinic acetylcholine receptors. *J. Biological Chemistry* 277:5433-5440. doi:10.1074/jbc.M109232200

58. Zhu, L., K. Krnjevic, J.J. McArdle, and J.-H. Ye. 2002. Ethanol suppresses fast potentiation of glycine currents by glutamate. *J. Pharmacol. Experimental Therapeutics* 302:1-8. doi:10.1124/jpet.102.033894
59. Ye, J.-H. L. Tao, Zhu L., K. Krnjevic, and J.J. McArdle. 2002. Decay of ethanol-induced suppression of glycine-activated current of ventral tegmental area neurons. *Neuropharmacology* 43:788-798. doi:10.1016/S0028-3908(02)00179-X
60. Cho, K.J, K. A. Trzaska, S.J. Greco, J.J. McArdle, F.S. Wang, J.-H. Ye, and P. Rameshwar. 2005. Neurons derived from human mesenchymal stem cells show synaptic transmission and can be induced to produce the neurotransmitter substance P by interleukin-1. *Stem Cells* 23: 383-391. doi:10.1634/stemcells.2004-0251
61. McArdle, J.J. L.C. Sellin, K.M. Coakley, J.G. Potian, M.C. Quinones-Lopez, C.A. Rosenfeld, L.G. Sultatos, and K. Hognason. 2005. Mefloquine inhibits cholinesterases at the mouse neuromuscular junction. *Neuropharmacology* 49:1132-1139. doi:10.1016/j.neuropharm.2005.09.011
62. McArdle, J.J., L.C. Sellin, K.M. Coakley, J.G. Potian, and K. Hognason. 2006. Mefloquine selectively increases asynchronous acetylcholine release from motor nerve terminals. *Neuropharmacology* 50:345-353. doi:10.1016/j.neuropharm.2005.06.011
63. Zhou, C., Xiao, C., McArdle, J.J., and Ye, J.H. 2006. Mefloquine enhances nigral γ -aminobutyric acid release via inhibition of cholinesterase. *Journal Pharmacology Experimental Therapeutics* 317:1-6. doi:10.1124/jpet.106.101923
64. Souayah, N., H. Karim, S. Kamin, J. McArdle, and S. Marcus. 2006. Severe botulism after focal injection of botulinum toxin. *Neurology* 67:1855-1856.
65. Canabal, D.D., Z. Song, J. Potian, A. Beuve, J.J. McArdle, and V.H. Routh. 2007. Glucose, insulin and leptin signaling pathways modulate nitric oxide (NO) synthesis in glucose-inhibited (GI) neurons in the ventromedial hypothalamus (VMH). *Am J Physiol Regul Integr Comp Physiol* 292: R1418-R1428. doi:10.1152/ajregu.00216.2006
66. Canabal, D.D. J.G. Potian, R.G. Duran, J.J. McArdle, and V.H. Routh. 2007. Hyperglycemia impairs glucose and insulin regulation of nitric oxide (NO) production in glucose inhibited (GI) neurons in the ventromedial hypothalamus (VMH). *AM J Physiol Regul Integr Comp Physiol* 293(2):R592-600. doi:10.1152/ajpregu.002007.2007
67. Yampolsky, P., S. Gensler, J. McArdle, and V. Witzemann 2008. AChR channel conversion and AchR-adjusted neuronal survival during embryonic development. *Molecular Cellular Neuroscience* 37: 634-645. doi:10.1016/j.mcn.2007.12.014
68. Teichert, R.W., C.C.Garcia, J.G. Potian, J.J. Schmidt, V. Witzemann, B.M. Olivera, and J.J. McArdle. 2008 Peptide-toxin tools for probing the expression and function of fetal and adult subtypes of the nicotinic acetylcholine receptor. *Annals New York Academy of Science* 1132: 61-70. doi:10.1016/j.mcn.2007.12.014

69. Liu, Y., D. Padgett, M. Takahashi, H. Li, A. Sayeed, R.W. Teichert, B.M. Olivera, J.J. McArdle, W.N. Green, and W. Lin. 2008. Essential roles of acetylcholine receptor gamma subunit in neuromuscular junction patterning. *Development* 135: 1957-1967. doi:10.1242/dev.018119
70. Oppenheim, R.W., J. Calderó, D. Cuitat, J. Esquerda, J.J. McArdle, B.M. Olivera, D. Prevet, and R.W. Teichert. 2008. The rescue of developing avian motoneurons from programmed cell death by a selective inhibitor of the fetal muscle-specific nicotinic acetylcholine receptor. *Developmental Neurobiology* 68: 972-980. doi:10.1002/dneu.20636
72. Souayah, N, JG Potian, CC Garcia, N Krivitskaya, C Boone, VH Routh, JJ McArdle. 2009. Motor Unit Number estimate (MUNE) as a predictor of motor dysfunction in an animal model of type I diabetes: Importance of MUNE in diabetes. *Am J Physiol Endocrinol Metab.* 297(3): E602-608.
73. Thyagarajan, B, N Krivitskaya, JG Potian, K Hognason, CC Garcia and JJ McArdle. 2009. Capsaicin protects mouse neuromuscular junctions from the neuroparalytic effects of botulinum neurotoxin A. *J Pharmacol Exp Therap* 331: 361-371.
74. Thyagarajan, B, CC Garcia, JJ Potian, K Hognason, K Čapková, ST Moe, AR Jacobson, KD Janda, and JJ McArdle. 2010. Small molecule hydroxamate metalloendoprotease inhibitors antagonize the acute paralytic action of botulinum neurotoxin A. *Neuropharmacology* 58: 1189-1198. doi:10.1016/j.neuropharm.2010.02.014
75. Pacifici, PG, P Christoph, P Yampolsky, M Koenen, JJ McArdle, and V Witzemann. 2011. Novel mouse model reveals distinct activity-dependent and -independent contributions to synapse development. *PLOS One* 6: 1-13.
76. Potian, JG, V Patel, JJ McArdle, B Thyagarajan. 2010 The inveterate botulinum neurotoxin A ushers in exo-endocytic crypts. *The Botulinum J.*, Vol. 1, No. 4: 418-430.
77. Potian, J.G., Thyagarajan, B., Hognason, K., Lebeda, F.J., Schmidt, J.J., Adler, M. and McArdle, JJ. 2010. Investigation of 'CRATKML' derived peptides as antidotes for the in vivo and in vitro paralytic effect of botulinum neurotoxin A. *The Botulinum J.*, Vol 1, No. 4: 407-417.
78. Ho, MF, M Pires-Alves, L Chang, B Thyagarajan, JE Bloom, Z Gu, KK Aberle, JJ McArdle, and BA Wilson. 2010. Recombinant Botulinum Neurotoxin A Heavy Chain based Delivery Vehicles for Neuronal Cell Targeting. *Protein Engineering, Design and Selection*, doi: 10.1093/protein/gzq093
79. Souayah, N, KM Coakley, R Chen, N Ende, and JJ McArdle. 2012. Defective neuromuscular transmission in the SOD1G93A transgenic mouse improves after administration of human umbilical cord blood cells. *Stem Cell Reviews and Reports* 8: 224-228. DOI: 10.1007/s12015-011-9281-3

80. Chevessier, F, C Peter, U Mersdorf, E Girard, E Krejci, JJ McArdle, and V Witzemann. 2012. A new mouse model for the slow-channel congenital myasthenic syndrome induced by the AChR eL221F mutation. *Neurobiol Disease* 45: 851-861. doi: 10.1016/j.nbd.2011.10.02476.
81. Garcia, CC, JG Potian, K Högnason, B Thyagarajan, L. G. Sultatos, N Souayah, VH Routh, and JJ McArdle. 2012. Acetylcholinesterase deficiency contributes to neuromuscular junction dysfunction in experimental type I diabetic neuropathy. *American J Physiology Endocrin Metab* 303: doi:10.1152/ajpendo.00622.2011.
82. Patel V, Oh A, Voit A, Sultatos LG, Babu GJ, Wilson BA, Ho M, McArdle JJ. 2014. Altered active zones, vesicle pools, nerve terminal conductivity, and morphology during experimental MuSK myasthenia gravis. *PLoS One*. 2014 Dec 1;9(12):e110571. doi: 10.1371/journal.pone.0110571. eCollection 2014. PMID:25438154
83. Patel V, Patel AM, and JJ McArdle. Synaptic abnormalities of mice lacking toll-like receptor (TLR)-9. 2016. *Neuroscience*. 2016 Jun 2;324:1-10. doi: 10.1016/j.neuroscience.2016.03.001. Epub 2016 Mar 5. PMID:2695578
84. Voit A, Patel V, Pachon R, Shah V, Bakhutma M, Kohlbrenner E, McArdle JJ, Dell'Italia LJ, Mendell JR, Xie LH, Hajjar RJ, Duan D, Fraidenraich D, Babu GJ. 2017. Reducing sarcolipin expression mitigates Duchenne muscular dystrophy and associated cardiomyopathy in mice. *Nat Commun*. 2017 Oct 20;8(1):1068. doi: 10.1038/s41467017-01146-7. PMID:29051551
85. Dissanayake, KN1,2, Chou RC-C 1, Thompson, A2, Margetiny, F1, Whitmore, C3, Roes, CI1, Davie, C1, McKinnon, S1, Patel, V4, Webster, R5, Sultatos, L4, McArdle, JJ4, Beeson, D5, Tattersall3, J, Clutton, RE6, Eddleston, M2 and Ribchester, RR1 Neuromuscular paralysis in Intermediate Syndrome is caused by conjoint actions of organophosphorus insecticide and solvent metabolites: potential benefits of cooling. *Nat Medicine*, Submitted

21. Invited Reviews and Book Chapters

1. Bournaud, R., D., Angaut-Petit, McArdle, J.J., and Mallart, A. 1980. Abnormal nerve function in hereditary motor end-plate disease (med) of the mouse. In: Bauman, N., ed. *Neurological Mutations Affecting Myelination*. INSERM Symposium No. 14 Elsevier/North Holland Biomedical Press.
2. Laxminarayan, S., L. Michelson, P. Goldstein, T. Argentieri, and J.J. McArdle. 1982. Real-time processing of electrophysiological events at the neuromuscular junction. *Biomed. Eng. 1: Recent Develop. Proc. First Southern Biomed. Eng. Conf.* p,51-55.
3. Laxminarayan, R.L., Rajaram, S. Laxminarayan, L. Michelson, and J.J. McArdle. 1982. On-line digital filtering application using window technique. *Biomed. Eng. 1: Recent Develop Proc. First Southern Biomed. Eng. Conf.* p. 60-63.
4. Michelson, L., S. Laxminarayan, J.J. McArdle, P. Goldstein, J. Blackwood, and H. Alexander. 1982. Application of a distributed network system in a biomedical research environment. In:

Schwartz, M. Application of Computers in Medicine. The Institute of Electrical and Electronic Engineers, Inc. pp 215-223.

5. McArdle, J.J. 1983. Molecular aspects of the trophic influence of nerve on muscle. *Prog. Neurobiol.* 21:135-198. doi:10.1016/0301-0082(83)90001-1

6. McArdle, J.J. 1984. Overview of the physiology of the neuromuscular junction. In: Brumback, R.A. and J.W. Gerst. eds. *The Neuromuscular Junction*. Mount Kisco, New York: Futura Publishing Co. pp 65-119.

7. McArdle, J.J. 1987. Molecular basis of signal transmission in the nervous system. In: Lowndes, H.E., ed. *Electrophysiology in Neurotoxicology*. Florida: CRC Press. pp 1-21.

8. McArdle, J.J. 1985. Review of The Squid Axon. In: Baker, P.F., ed. *Current Topics in Membranes and Transport*, Vol. 22 Academic Press. *For Bioscience* 35:194-195.

9. McArdle, J.J. 1986. Dynamics and modeling of ion chemicals: an overview. *Proc of the 8th Annual Conf of the IEEE Engineering in Biol and Med Soc.* 2:947.

10. McArdle, J.J., L.C. Sellin, A.J. D'Alonzo, and T.M. Argentieri. 1987. Reinnervating muscle as a model for the study of neurotrophic mechanisms. In Benzi, G., ed. *Advances in Myochemistry*:1. John Libbey Eurotext. pp 107-114.

11*. Iffy, L., J.L. Lindenthal, J.J. McArdle, R.E. McNamara, Z. Szodi, and V. Ganesh. 1989. Ergotism: A possible etiology for puerperal psychosis. *Obs. Gynec.* 73:474-477.

12*. Iffy L. and J.J. McArdle. 1990. Bromocriptine for ab lactation: a cure without disease. *J. Pharm. Practice* 5, vii-x.

13. McArdle, J.J., M. Watson, G.-J. Huang, L. Tsiokas, E. Shafik, S. Vincent., S.P. Aiken, and J.J. Choi. 1992. Insights into the molecular action of ethanol on brain calcium channels and muscarinic acetylcholine receptors derived from long- and short-sleep mice. In: R.W. Watson, ed., *Alcohol and Neurobiology: Receptors, Membranes and Channels*, CRC Press Inc., Boca Raton Florida, 127-139.

14*. Jakobovits, Ak., L. Iffy, J. Lindenthal, J.J. Apuzzio, J.J. McArdle, and An. Jakobovits. 1991. Ergot derivatives and puerperal psychosis. *Israeli J. Obstet. Gynecol.* 2:177-180.

15*. Iffy, L., J.J. McArdle, and A. Jakobovits. 1993. Untoward effects of bromocriptine prescribed for ab lactation. *Budapest Postgraduate Medical School Edition*, vol. VIII, 3-13.

17*. Iffy, L. and J.J. McArdle. 1994. Postpartum cerebral vascular accidents in normotensive women using bromocriptine for milk suppression. *Journal of Pharmacy Practice* VII, No. 6: pp viii-x.

- 18*. Iffy, L., J. Lindenthal, J. , McArdle, J.J., and Ganesh, V. 1996. Severe cerebral accidents postpartum in patients taking bromocriptine for milk suppression. *Israeli J. Med.Sci.* 32:309-312.
- 19*. Iffy, I., McArdle, J.J., and Hopp, L. 1996. The pharmacologic background of hypertensive complications in the puerperium. In: *Maternal-Fetal Risk in Gestosis:Preeclampsia and pregnancy induced hypertension*. Edited by I. Munteanu, E.T. Rippmann, N. Hrubaru, CIC Edizioni Internazionali. Pathophysiology of Pregnancy, 28th International Congress. Timisoara, Romania.
- 20*. Iffy, L., J.J. McArdle, Ganesh, V., and Hopp, L. 1996. Bromocriptine related atypical vascular accidents postpartum identified through medicolegal review. *Medical Law* 15: 127-134.
- 21*. Iffy, L., J.J. McArdle, and A. Jakobovits. 1993. Untowards effects of bromocriptine prescribed for ablactation. *Budapest Postgraduate Medical School Edition, Vol VIII*, 3-13.
22. Sellin, L.C. & J.J. McArdle. 1994. Multiple effects of 2,3-butanedione monoxime (BDM). *Pharmacology & Toxicology* 74:305-313.
- 23*. Iffy, L. & J.J. McArdle. 1994. Postpartum cerebral vascular accidents in normotensive women using bromocriptine for milk suppression. *Journal of Pharmacy Practice*, VII, No. 6: pp viii-x.
24. McArdle, J.J. 1996. Contributor (Anesthetics, CNS Excitants), *Lippincott's Illustrated Review of Pharmacology*.
- 25*. Iffy, L., J. Lindenthal, J.J. McArdle, and Ganesh, V. 1996. Severe cerebral accidents postpartum in patients taking bromocriptine for milk suppression. *Israeli Journal of Medical Science* 32:309-312
- 26*. Iffy, L., J.J. McArdle, and L. Hopp. 1996. The pharmacologic background of hypertensive complications in the puerperium. In: *Maternal-Fetal Risk in Gestosis: Preeclampsia and pregnancy induced hypertension*. Edited by I. Munteanu, E.T. Rippmann, N. Hrubaru, CIC Edizioni Internazionali, pp 296-301. Pathophysiology of Pregnancy, 28th International Congress. Timisoara, Romania.
- 27*. Iffy, L., J.J. McArdle, V. Ganesh, and L. Hopp. 1996. Bromocriptine related atypical vascular accidents postpartum identified through medicolegal reviews. *Medical Law* 15: 127-134.
- 28*. Iffy, L., J.J. McArdle, and V. Ganesh. 1996. Intracerebral hemorrhage in normotensive mothers using bromocriptine postpartum. *Zentralblatt für Gynäkologie* 118: 392-396.
- 29*. Iffy, L., G.E. Zito, A.A. Jakobovits, V. Ganesh and J.J. McArdle. 1998. Postpartum intracranial haemorrhage in normotensive users of bromocriptine for ablactation. *Pharm. Drug Safety*. 7: 167-171. doi:10.1002/(SICI)1099-1557(199805/06)7:3,167::AIDPDS342>3.0.CO;2-0

30*. Kirsch, C., L. Iffy, G.E. Zito, and J.J. McArdle. 2001. The role of hypertension in bromocriptin-related puerperal intracranial hemorrhage. *Diagnostic Radiology* 43:302-304. doi:10.1007/S002340000492

31. Naguib, M., P. Flood, J.J. McArdle, and H.R. Brenner. 2002. Advances in neurobiology of the neuromuscular junction: Implications for the anesthesiologist. *Anesthesiology* 96:202-231.

* Publications with Dr. Leslie Iffy (Department of Obstetrics and Gynecology, New Jersey Medical School) reflect J.J. McArdle's input on issues related to basic pharmacologic principles.

33. Routh, V.H., J.J. McArdle, N.M. Sanders, Z. Song, and R. Wang. 2006. Glucose sensing neurons. *Handbook of Neurochemistry and Molecular Neuroscience, Volume 20 Sensory Systems*

34. Garcia, CC, V Patel, JC Zambrano, and JJ McArdle. Neuromuscular junction dysfunction in type 1 diabetic neuropathy. Is the immune system involved? Submitted.

22. Abstracts -158

23. Invited Seminars:

Properties of reinnervating muscle and the regenerating neuromuscular junctions

- 12/22/71 Department of Pharmacology, New Jersey Medical School
- 4/17/72 Department of Pharmacology, Mayo Medical School
- 4/20/72 Department of Pharmacology, Bowman Grey Medical School
- 12/17/75 Department of Pharmacology, Rutgers Medical School
- 6/2/78 Laboratory of Cell Neurobiology, CNRS, Gif-sur-Yvette, France
- 10/78 Department of Physiology, New Jersey Medical School
- 5/29/80 Pharmacology Institute, Lund, Sweden
- 12/2/82 Department of Anatomy, Mount Sinai Medical School
- 10/6/82 Institute of Electrical and Electronic Engineers, Rockefeller University
- 9/13/83 Polish Academy of Sciences, Warsaw
- 9/26/83 Physiology Institute, Czechoslovak Academy of Sciences
- 10/21/83 Department of Cytopharmacology, Fidia Research Labs, Italy
- 10/26/83 Department of Comparative Physiology, University of Nice
- 6/7/85 Anaquest, Murray Hill, New Jersey
- 4/15/86 Pathology Institute, Jena, East Germany
- 4/30/86 Laboratory of Neurobiology, CNRS, Marseille
- 8/14/87 Department of Physiology, The John Curtin School of Medical Research
- 9/4/87 Department of Physiology, Suzhou Medical College, China
- 9/19/87 Department of Pharmacology, Sun-Yat-Sen University, Guangzhou, China
- 10/7/87 International Myochemistry Society Meeting, Rome

Experimental myotonia

4/78 Department of Physiology, New Jersey Medical School
2/8/80 Laboratory of Cell Neurobiology, CNRS, Gif-sur-Yvette, France
3/7/80 Laboratory of Neuromuscular Biol. and Pathol., INSERM, Paris
6/5/80 Center for Nutrition Research, CNRS, Meudon, France
12/2/82 Department of Chemistry, Rutgers University
9/16/83 Polish Academy of Sciences, Warsaw
9/83 Department of Physiology, University of Ulm, West Germany

Antiarrhythmic drugs

9/5/87 Department of Physiology, Suzhou Medical College, China
9/26/87 Department of Pharmacology, Sun-Yat-Sen University, Guangzhou, China
9/24/87 Guangzhou College of Traditional Chinese Medicine, China
9/29/87 Department of Pharmacology, Sun-Yat-Sen University, Guangzhou, China

Modulation of voltage-gated calcium channels

12/5/91 Departments of Physiology and Biochemistry, University Nice
9/9/91 Lab Jean Maetz, A.E.C., Villefranche-sur-Mer, France
4/23/92 Department Pharmacology, University of Montreal
10/13/94 Zoology Institute, University of Salzburg, Austria

Effects of the Waglerins on synaptic transmission

4/23/93 Department of Pharmacology, University of Montreal
7/19/96 Department of Pharmacology, University of California, San Diego
1/8/08 Department of Neuroscience, University of Texas, Southwestern Medical Sch

Mefloquine (Lariam)

4/18/05 Department of Pharmacology & Physiology, New Jersey Med School
4/26/05 Department of Pharmacology, University of Houston
7/8/05 BioCurrent Research Center, MBL, Woods Hole
7/13/05 Department of Anesthesiology, New Jersey Medical School
8/16/05 Max Planck Institute for Medical Research, Heidelberg
9/16/05 Department of Surgery, New Jersey Medical School

Botulinum toxin

6/7/06 Bioscience Review '06, US Army Med Res Institute for Chemical Defense
9/11/06 US Army Medical Research Institute of Infectious Diseases
11/17/06 43 rd Interagency Botulism Research Coordinating Committee (IBRCC) Meeting
3/6/07 CBER-FDA/NIAID-NIH Partnership to Facilitate Product Development
5/5/08 4th Botulism Small Molecule Drug Development Coordination Meeting, Tufts Univ
5/15/08 Department of Emergency Medicine, Drexel University College of Medicine
17/9/08 Interagency Botulism Research Coordinating Committee (IBRCC)

11/11/08 Dept Cellular & Integrative Phys, Indiana Univ School of Medicine, Indianapolis
1/4/09 Department of Neuroscience, University of Edinburgh, Scotland
3/4/09 International Centre for Neurotherapeutics, Dublin City University, Ireland
6/4/09 Department of Neuroscience, Max Planck Institute, Heidelberg, Germany
27/5/09 Department of Neurology & Neurosciences, NJ Medical School
4/12/09 Botulinum Research Center, University of Massachussetts
2/12/10 Hot Topics discussion, Max Planck Institute for Medical Resarch
4/19/10 Merz Pharmaceuticals, Frankfurt
2/6/12 Department Neurosciences, New Jersey Medical School
5/28/06 Department of Pharmacology & Physiology, New Jersey Medical School
9/27/06 Department of Biomedical Engineering, Stevens Institute of Technology
5/7/07 Centre for Neuroscience Research, University of Edinburgh, Scotland
5/11/07 Department of Neuroscience, CNRS, University of Paris, France

24. Non-Academic Activities

1967-1975, Lieutenant, US Army Reserve, Corps of Engineers

1970, Summer Volunteer English teacher, Inner City Community of Buffalo, NY

1985-Present: Student of guitar with Steven Murtha (1984-2003), Alice Artzt (2005-2009), Mike Dowling, Beppe Gambetta

1990-1999: Student of navigation and small boat handling with the Maryland School of Sailing and Seamanship as well as the United States Power Squadrons (USPS)

1996-1999: Instructor of Celestial Navigation, USPS 1997-Present: Builder & Captain of the "HighlandSpray", 38 foot steel Centennial Spray designed by Bruce Roberts

2018-2019: Matheny Medical and Educational Center: Volunteer

2019-Present: New Jersey Science Academy, Medical Careers Program, North Hunterdon High School: Volunteer

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