

Jean C. Hardwick, Ph.D.

Education:

Ph.D., Physiology and Biophysics, The University of Vermont, Burlington, VT; 1988.
B.A., Biochemistry, Smith College, Northampton, MA; 1983.

Experience:

Associate Professor, Biology Department, Ithaca College, Ithaca, NY; 2003 – present.
Assistant Professor, Biology Department, Ithaca College, Ithaca, NY; 1997 – 2003.
Lecturer, Department of Biology, The University of Vermont, Burlington, VT; Spring semesters 1996 and 1997.
Lecturer, Department of Natural Sciences and Mathematics, Trinity College, Burlington, VT; Fall semester, 1995.
Research Associate, Department of Anatomy and Neurobiology, The University of Vermont, Burlington, VT; 1994-1997.
Postdoctoral Associate, Department of Anatomy and Neurobiology, The University of Vermont, Burlington, VT; 1988-1994. Advisor: Rodney L. Parsons, Ph.D.
Graduate Teaching Fellow, Department of Physiology and Biophysics, The University of Vermont, Burlington, VT; 1983-1988. Advisor: Edith D. Hendley, Ph.D.

Honors and Awards:

Excellence in Scholarship Award - 2005
Who's Who Among America's Teachers – 2002
Designated “Particularly Meritorius Faculty member” – 2001
Designated “Particularly Meritorius Faculty member” – 2000
Honorary Member, Gold Key National Honor Society, The University of Vermont; 1996.
College of Medicine Graduate Student Research Award, University of Vermont; 1987.
Departmental Teaching Fellow of the Year, Department of Physiology and Biophysics, University of Vermont; 1987.
High Honors in Biochemistry, Smith College; 1983.
Cum Laude, Smith College; 1983.
Sigma Xi Honor Society, Smith College; 1983.
Merck Research Fellowship, Smith College; 1982.

Teaching:

Ithaca College, Ithaca NY: 1997-present
Principles of Biology
Animal Physiology
Neurobiology
Literature in Biology
Biology of Aging
Biotechnology (Intermediate Honors Course)
The Human Organism
Cell Biology lab
University of Vermont, Burlington VT: 1996-1997
Comparative Animal Physiology
Anatomy and Physiology (selected lectures on Nerves, Muscles, Immune)
Trinity College, Colchester VT: 1995
Comparative Animal Physiology

Grants:

External

National Institutes of Health AREA; 2005-2008, entitled “*Nitric oxide modulation of the guinea pig cardiac plexus*”; \$209,722

National Institutes of Health Minority Undergraduate Research Supplement; 2002 (\$3600)

National Institutes of Health Academic Research Enhancement Award (AREA); 2001-2005, “*Regulation of Cardiac Neurons by Mast Cells and Peptides*” (\$120,241)

National Science Foundation Equipment grant; 2001-2004, “*Acquisition of Microscopy Core Facility for Biological Research*” (\$78,643)

National Institutes of Health Academic Research Enhancement Award (AREA); 1998-2001, “*Modulation of Intracardiac Neurons by Mast Cells*” (\$88,650)

National Research Service Award Postdoctoral Fellowship, National Institutes of Health; 1989-1991, “*Regulation of nicotinic acetylcholine receptor recovery*”.

Internal

Summer Research Grant, 2005, \$3350, *Regulation of Mammalian Cardiac Function*

Provost Release Time, 2000, Faculty Development (3hrs, Fall semester)

Academic Project Grant, 2000, \$725, *Stimulation of Mast Cells in the Guinea Pig Heart*

Academic Project Grant, 1998, \$750, *Neural Regulation of the Heart*

Summer Research Grant, 1998, \$3350, *Neural Regulation of the Mudpuppy Cardiac Ganglion*

Affiliations:

Past-President, Faculty for Undergraduate Neuroscience

Member, Society for Neuroscience.

Member, Sigma Xi

Member, Council for Undergraduate Research

Member, American Physiological Society

Invited Seminars:

Ithaca College Chemistry Department – 1998

Cornell University Department of Molecular Medicine – 1999

East Tennessee State University, Quillen Medical School, Department of Pharmacology – 2005

Manuscript Reviews:

American Journal of Physiology

Autonomic Neuroscience

Neuroscience Letters

Journal of Applied Physiology

Journal of Undergraduate Neuroscience Education

Autonomic & Autocoid Pharmacology

Journal of Neurophysiology

Grant Reviews

SOMAS (Support Of Mentors And their Students in the Neurosciences)

National Science Foundation Ad Hoc Reviewer

Publications: (undergraduate student authors underlined)

Hardwick, J.C., Kotarski, A.F., and Powers M.J. (2005) and Ionic mechanisms of histamine-induced

responses in guinea pig intracardiac neurons. *American Journal of Physiology*, in press.

Jelson, G.S., DiMasi, G., Sager, K.S., and **Hardwick J.C.** (2003). Modulation of guinea pig intrinsic cardiac neurons by prostaglandins. *American Journal of Physiology*, **285**: R682-R689.

Powers, M.J., Peterson, B.A., and **Hardwick, J.C.** (2001). Regulation of parasympathetic neurons by mast cells and histamine in the guinea pig heart. *Autonomic Neuroscience*, **87**: 37-45.

Schoenfeld, L.S., Souder, J.A., and **Hardwick, J.C.** (2000). Pituitary adenylate cyclase-activating polypeptide innervation of the mudpuppy cardiac ganglion. *Brain Research*, **882**: 180-190.

Parsons, R.L., Rossignol, T.M., Calupca, M.A., **Hardwick, J.C.**, and Braas, K.M. (2000). PACAP peptides modulate guinea pig cardiac neuron membrane excitability and neuropeptide expression. *Annals of the New York Academy of Science*, **921**: 202-210.

Calupca, M.A., Hendricks, G.M., **Hardwick, J.C.**, and Parsons, R.L. (1999). Role of mitochondrial dysfunction in the Ca^{2+} -induced decline of transmitter release at K^{+} -depolarized motor neuron terminals. *Journal of Neurophysiology*, **18**: 498-506.

Braas, K.M., May, V., Harakall, S.A., **Hardwick, J.C.** and Parsons, R.L. (1998). PACAP modulates parasympathetic neuron excitability in guinea pig cardiac ganglia. *Journal of Neuroscience*, **18**: 9766-9779.

May, V., Beaudet, M.M., Parsons, R.L., **Hardwick, J.C.**, Gauthier, E., Durda, J.P., and Braas, K.M. (1998). Mechanisms of pituitary adenylate cyclase activating polypeptide (PACAP)-induced depolarization of sympathetic superior cervical ganglion (SCG) neurons. *Annals of the New York Academy of Science* **865**: 164-175.

Kennedy, A.L., Harakall, S.A., Lynch, S.W., Braas, K.M, **Hardwick, J.C.**, Mawe, G.M, and Parsons, R.L. (1998). Expression and physiological actions of neuropeptide Y in guinea pig parasympathetic cardiac ganglia. *Journal of the Autonomic Nervous System*, **71**: 190-195.

Hardwick, J.C., Mawe, G.M., and Parsons, R.L. (1997). Tachykinin-induced activation of non-specific cation conductance via NK_3 neurokinin receptors in guinea-pig intracardiac neurons. *Journal of Physiology*, **504**: 65-74.

Connor, E.A., Dunaevsky, A., Giffiths, D.J.G., **Hardwick, J.C.**, and Parsons, R.L. (1997). Transmitter release differs at snake twitch and tonic endplates during potassium-induced nerve terminal depolarization. *Journal of Neurophysiology*, **77**: 749-760.

Hardwick, J.C. and Parsons, R.L. (1996). Activation of the protein phosphatase, calcineurin, during carbachol exposure decreases the extent of recovery from end-plate desensitization. *Journal of Neurophysiology*, **76**: 3609-3616.

Hardwick, J.C., Mawe, G.M., and Parsons, R.L. (1995). Evidence for sensory fiber innervation of parasympathetic neurons of the guinea pig cardiac ganglion. *Journal of the Autonomic Nervous System*, **53**: 166-174.

Hardwick, J.C. and Parsons, R.L. (1995). Necessity of protein kinase C activity for maintenance of acetylcholine receptor function at snake twitch fibre endplates. *British Journal of Pharmacology*, **114**: 433-

Hardwick, J.C. and Parsons, R.L. (1995). Requirement of a colchicine-sensitive component of the cytoskeleton for acetylcholine receptor recovery. *British Journal of Pharmacology*, **114**: 442-446.

Hardwick, J.C. and Parsons, R.L. (1993). Necessity of divalent cations for recovery from carbachol-induced nicotinic acetylcholine receptor inactivation at snake twitch fibre endplates. *British Journal of Pharmacology*, **110**: 889-895.

Coniglio, L.M., **Hardwick, J.C.**, and Parsons, R.L. (1993). Quantal transmitter release at snake twitch and tonic muscle fibers during prolonged nerve terminal depolarization. *Journal of Physiology*, **466**: 383-403.

Hardwick, J.C. and Parsons, R.L. (1993). Mechanism of staurosporine-induced decrease in acetylcholine receptor recovery from desensitization. *British Journal of Pharmacology*, **108**: 741-748.

Hardwick, J.C. and Parsons, R.L. (1992). Galanin stimulates phosphatidylinositol turnover in cardiac tissue of the mudpuppy. *Journal of the Autonomic Nervous System*, **40**: 87-90.

Konopka, L.M., Merriam, L.A., **Hardwick, J.C.**, and Parsons, R.L. (1992). Aminergic and peptidergic elements and actions in a cardiac parasympathetic ganglion. *Canadian Journal of Physiology and Pharmacology*, **70**: S32-S43.

Hardwick, J.C., Coniglio, L.M. and Parsons R.L. (1991). Staurosporine inhibits the extent of acetylcholine receptor recovery from carbachol-induced desensitization in snake twitch fibres. *British Journal of Pharmacology*, **104**: 879-886.

Konopka, L.M., McKeon, T.W., Merriam, L.A., **Hardwick, J.C.**, and Parsons, R.L. (1991). Galanin in a parasympathetic ganglion, In: Galanin: A New Multifunctional Peptide in the Neuroendocrine System, ed. T. Hokfelt and J. Bartfai, Macmillan Press, New York, pp. 261-274.

Hardwick, J.C., Ehrlich, Y.H., and Hendley, E.D. (1989). Extracellular ATP increases norepinephrine uptake in PC12 cells. *Journal of Neurochemistry*, **53**: 1512-1518.

Hendley, E.D., Whittemore, S.R., ***Chaffee, J.E.** and Ehrlich, Y.H. (1988). Regulation of norepinephrine uptake by adenine nucleotides and divalent cations: Role for extracellular protein phosphorylation. *Journal of Neurochemistry*, **50**: 263-273.

Ehrlich, Y.H., Garfield, M.G., Davis, T.B., Kornecki, E., ***Chaffee, J.E.**, and Lenox, R.H. (1986). Extracellular protein phosphorylation systems in the regulation of neuronal function. In, Progress in Brain Research, **69**, ed. W.H. Gispen and A. Routtenburg, Elsevier Sci Pub., pp. 197-208.

Briggs, R.T., ***Chaffee, J.E.**, and Anderson, M. (1985). Calcium-containing granules in myoepithelial cells of the polychaete *Syllis spongiphila*: Possible ionic modulators. *Tissue and Cell*, **17**: 923-928.

* publications under maiden name: J.E. Chaffee

Abstracts: (undergraduate students underlined)

Hardwick, J.C. and Kotarski, A.F. (2005). Histamine-induced increase in intracardiac neuronal excitability is dependent on extracellular calcium. *Society for Neuroscience Abstracts*, **30**.

Hardwick, J.C., Tompkins, J., Locknar, S., Merriam, L., Young, B. and Parsons, R.L. (2005). Ca^{2+} -influx through channels other than voltage-dependent Ca^{2+} channels is critical to the PACAP-induced increase in excitability in guinea pig cardiac neurons. *Annals of the NY Academy of Science*.

Hardwick, J.C. and Sellers, J. (2004). Modulation of synaptic transmission by histamine and neuropeptides in the guinea pig cardiac plexus. *Society for Neuroscience Abstracts*, **29**.

Hardwick, J.C., Corbett, B.M., Dobson, J.S., and Powers, M.J. (2003). Ionic mechanisms of histamine and prostaglandin modulation of guinea pig intracardiac neurons. *Society for Neuroscience Abstracts*, **28**.

Hardwick, J.C., Jelson, G.S., DiMasi, G.M., and Sager, K.L. (2002). Modulation of guinea pig intracardiac neurons by eicosanoids. *Society for Neuroscience Abstracts*, **27**.

Powers, M.J., Peterson, B.A., and **Hardwick, J.C.** (2000). Regulation of parasympathetic neurons by mast cells and histamine in the guinea pig heart. *Society for Neuroscience Abstracts*, **26**.

Schoenfeld, L.K., Kumar, R.R., and **Hardwick, J.C.** (1998). Characterization of pituitary adenylate cyclase-activating polypeptide (PACAP) innervation of the mudpuppy cardiac ganglion. *Society for Neuroscience Abstracts*, **24**.

Hardwick, J.C., Braas, K.M., Harakall, S.A., May, V., and Parsons, R.L. (1997) Endogenous Pituitary adenylate cyclase activating polypeptide (PACAP) regulates guinea pig cardiac neuron excitability through PACAP₁-selective receptors. *Society for Neuroscience Abstracts*, **23**.

Beudet, M.M, **Hardwick, J.C.**, Parsons, R.L., and May, V. (1997). Pituitary adenylate cyclase activating polypeptides (PACAP) depolarize superior cervical ganglion (SCG) neurons and increase sympathetic neuron excitability. *Society for Neuroscience Abstracts*, **23**.

Kennedy, A.L., **Hardwick, J.C.**, Talmage, E.K., Braas, K.M., Mawe, G.M., and Parsons, R.L. (1997). Sources and actions of neuropeptide Y (NPY) in the guinea pig cardiac ganglia. *Society for Neuroscience Abstracts*, **23**.

May, V., Beudet, M.M., **Hardwick, J.C.**, Parsons, R.L., Harakall, S.A., Gauthier, E., Durda, J.P. and Brass, K.M. (1997). Pituitary adenylate cyclase activating polypeptides depolarize and increase the excitability of sympathetic neurons through activation of type I PACAP-selective receptors. *3rd International Symposium on VIP, PACAP, and related peptides*.

Hardwick, J.C., Mawe, G.M, and Parsons, R.L. (1996). Characterization of an NK3-receptor mediated nonspecific cation conductance in guinea pig cardiac neurons. *Society for Neuroscience Abstracts*, **22**: 1550.

Merriam, L.M., **Hardwick, J.C.**, and Parsons, R.L. (1996). Evidence that SMOCs result from the activation of K_{Ca} channels by calcium released from ryanodine sensitive calcium stores. *Society for Neuroscience Abstracts*, **22**: 348.

Hardwick, J.C., Backman, S.B., and Parsons, R.L. (1995). Neostigmine appears to activate muscarinic receptors on mudpuppy parasympathetic postganglionic neurons. *Society for Neuroscience Abstracts*, **21**: 2040.

Parsons, R.L. and **Hardwick, J.C.** (1995). Substance P-induced hyperpolarization of parasympathetic neurons in mudpuppy cardiac ganglia. *Society for Neuroscience Abstracts*, **21**: 88.

Hardwick, J.C., Mawe, G.M., and Parsons, R.L. (1994). Substance P and CGRP depolarize parasympathetic postganglionic neurons in the guinea pig cardiac ganglion. *Society for Neuroscience Abstracts*, **20**: 1368.

Hardwick, J.C., and Parsons, R.L. (1994). Calcineurin and PKC regulate AChR function at snake twitch fiber endplates. *Society for Neuroscience Abstracts*, **20**: 1137.

Hardwick, J.C. and Parsons, R.L. (1993). Cytoskeletal elements may be involved in the resensitization of the motor endplate following prolonged carbachol exposure. *Society for Neuroscience Abstracts*, **19**: 1340.

Hardwick, J.C. and Parsons, R.L. (1992). A small conductance ACh channel is present following recovery from desensitization at staurosporine-treated snake endplates. *Society for Neuroscience Abstracts*, **18**: 438.

Hardwick, J.C. and Parsons, R.L. (1991). Staurosporine inhibition of recovery from desensitization is reversed by calcium at snake twitch fiber endplates. *Society for Neuroscience Abstracts*, **17**: 1529.

Parsons, R.L., Konopka, L.M, and **Hardwick, J.C.** (1991). Excitability is decreased during the serotonin-induced slow depolarization of mudpuppy cardiac neurons. *Society for Neuroscience Abstracts*, **17**: 1177.

Hardwick, J.C. and Parsons, R.L. (1990). Staurosporine decreases the extent of recovery from desensitization at snake twitch fiber nicotinic receptor-channel complexes. *Society for Neuroscience Abstracts*, **16**: 205.

Hardwick, J.C., McKeon, T.W., Carraway, R.E., Konopka, L.M., and Parsons, R.L. (1989). Galanin stimulates phosphatidylinositol turnover in cardiac tissue of *Necturus*. *Society for Neuroscience Abstracts*, **15**: 219.

***Chaffee, J.E.**, Ehrlich, Y.H., and Hendley, E.D. (1988). Stimulation of norepinephrine uptake by ATP γ S in PC12 cells. *Society for Neuroscience Abstracts*, **14**: 681.

***Chaffee, J.E.**, Ehrlich, Y.H., and Hendley, E.D. (1987). Regulation of norepinephrine uptake by divalent cations and ATP in PC12 cells. *Society for Neuroscience Abstracts*, **13**: 670.

***Chaffee, J.E.**, Ehrlich, Y.H., and Hendley, E.D. (1986). The regulation of norepinephrine uptake by ectokinase-mediated protein phosphorylation in PC12 cells. *Society for Neuroscience Abstracts*, **12**: 526.

***Chaffee, J.E.** and Anderson, M. (1983). Liquid scintillation studies of calcium movements in myoepithelial cells. *Society for Neuroscience Abstracts*, **9**: 73.

Undergraduate Student Presentations:

Linda Schoenfeld ('99)

April 1998 ECSC, Niagara Falls, NY

Award for Outstanding Presentation in Biology

October 1998 Annual Society for Neuroscience Meeting, Los Angeles, CA

Faculty for Undergraduate Neuroscience Travel Award

March 1999, James J. Whalen Symposium, Ithaca College

April 1999 NCUR, Rochester, NY

Seth DePuy ('00)

April 1999 ECSC, Fairfield, CT

Award for Outstanding Presentation in Physiology

Melanie Powers ('01)

November 1999, SUNY Binghamton Science Symposium, Binghamton, NY

April 2000, NCUR, Missoula, MT

November 2000, Society for Neuroscience, New Orleans, LA

Faculty for Undergraduate Neuroscience Travel Award

Kristen Sager ('02)

April 2000, ECSC, Staten Island, NY

Award for Outstanding Poster Presentation in Physiology

October 2000, Conference of Undergraduate Honors Programs, Washington DC

November 2000, Rochester Academy of Science

March 2002, NCUR, Wadsworth, WI

Kimberly Stallone ('02)

March 2002, James J. Whalen Symposium, Ithaca College

April 2002, ECSC, Niagara Falls, NY

Jeremy Dobson ('03)

April 2002, ECSC, Niagara Falls, NY

Award for Outstanding Presentation in Physiology

Martha Morin ('03)

March 2002, New England Science Symposium, Harvard University

Brenna Corbett ('03)

April 2003, ECSC, Ithaca NY

Award for Outstanding Presentation in Physiology

Danielle Federico ('05)

November 2003, Society for Neuroscience, New Orleans, LA

April 2005, Northeast Undergraduate Regional Conference on Neuroscience, New York, NY

Jessica Peacock ('05)

November 2003, Society for Neuroscience, New Orleans, LA

April 2005, Northeast Undergraduate Regional Conference on Neuroscience, New York, NY

Abigail Wilkes ('06)

April 2005, Northeast Undergraduate Regional Conference on Neuroscience, New York, NY