

Dr. James Buchanan's Publications

- 2010** Mullins, O.J., Hackett, J.T., Buchanan, J.T., and Friesen, W.O. 2010. Neuronal control of swimming behavior: Comparison of vertebrate and invertebrate model systems. *Prog. Neurobiol.*, doi: 10.1016/j.pneurobio.2010.11.001.
- 2008** Buchanan, J.T. and J.F. Einum, J.F. 2008. The spinobulbar system in lamprey. *Brain Research Reviews*, 57:37-45.
- Quinlan K.A. and Buchanan J.T. 2008. Cellular and synaptic actions of acetylcholine in the lamprey spinal cord. *J. Neurophysiol.* 100:1020-31.
- 2006** Einum, J.F. and J.T. Buchanan. 2006. Spinobulbar neurons in lamprey: cellular properties and synaptic interactions. *J. Neurophysiol.* 96:2042-2055.
- 2005** Einum, J.F. and J.T. Buchanan. 2005. Membrane potential oscillations in reticulospinal and spinobulbar neurons during locomotor activity. *J. Neurophysiol.*, 94:273-281.
- 2004** Merrywest, S.D., D.L. McLean, J.T. Buchanan and K.T. Sillar. 2004. Evolutionary divergence in developmental strategies and neuromodulatory control systems of two amphibian locomotor networks. *Integrative and Comparative Biology*, 44(1):47-56.
- Quinlan, K.A., P.G. Placas, and J.T. Buchanan. 2004. Cholinergic modulation of the locomotor network in the lamprey spinal cord. *J. Neurophysiol.*, 92:1536-1548.
- Einum, J.F. and J.T. Buchanan. 2004. Reticulospinal neurons receive direct spinobulbar inputs during locomotor activity in lamprey. *J. Neurophysiol.*, 92:1384-1390.
- 2002** Batueva, I.V., J.T. Buchanan, J.T., N.P. Veselkin, E.I. Suderevskaya and E.A. Tsvetkov. The effects of serotonin on functionally diverse isolated lamprey spinal cord neurons. *Neurosci. Behav. Physiol.*, 32:89-101.
- Batueva, I.V., J.T. Buchanan, N.P. Veselkin, E.I. Suderevskaya and E.A. Tsvetkov. 2002. Serotonin modulates oscillations of the membrane potential in isolated spinal neurons from lampreys. *Neurosci. Behav. Physiol.*, 32:195-203.
- Martin, M.M. 2002. Changes in electrophysiological properties of lamprey spinal motoneurons during fictive swimming, *J. Neurophysiol.*, 88:2463-76. (Ph.D. work of graduate student in my laboratory).
- 2001** Buchanan, J.T. 2001. Contributions of identifiable neurons and neuron classes to lamprey vertebrate neurobiology. *Prog. Neurobiol.*, 63:441-466.
- 1999** Buchanan, J.T. and S. Kasicki. 1999. Segmental distribution of common synaptic inputs to spinal motoneurons during fictive swimming in the lamprey. *J. Neurophysiol.*, 82:1156-1163.
- Buchanan, J.T. 1999. Commissural interneurons in rhythm generation and intersegmental coupling in the lamprey spinal cord. *J. Neurophysiol.*, 81:2037-2045.
- Jung, R., J.T. Buchanan and D. Li. 1999. Brain-spinal feedforward-feedback interactions affect output pattern and intracellular properties of motor networks in the lamprey, *Neurocomputing*, 26-27:749-759.
- Batueva, I., E. Tsvetkov, A. Sagatelyan, J.T. Buchanan, N. Vesselkin, V. Adanina, E. Suderevskaya, J.P. Rio and Reperant. 1999. Physiological and morphological correlates

of presynaptic inhibition in primary afferents of the lamprey spinal cord. *Neuroscience*, 88:975-987.

- 1999** Batueva, I.V., J.T. Buchanan, E.A. Tsvetkov, A.K. Sagatelyan and N.P. Vesselkin. 1999. Calcium currents and GABAB receptors in the dorsal sensory cells of the lamprey spinal cord. *Neurosci. Behav. Physiol.*, 29:67-77.
- Batueva, I.V., J.T. Buchanan, E.A. Tsvetkov, A.K. Sagatelyan and N.P. Vesselkin. 1999. The effects of baclofen on calcium channel currents in dorsal sensory cells of the spinal cord in the lamprey, *Neurosci. Behav. Physiol.*, 29:79-89.
- 1997** Kemnitz, C.P. 1997. Dopaminergic modulation of spinal neurons and synaptic potentials in the lamprey spinal cord. *J. Neurophysiol.*, 77:289-298. (Ph.D. work of graduate student in my laboratory)
- 1996** Batueva, I.V., E.A. Tsvetkov, J.T. Buchanan, and N.P. Vesselkin. 1996. Investigation of voltage-gated currents in the isolated neurons of river lamprey *Lampetra fluviatilis* spinal cord. *J. of Evolu. Biochem. and Physiol.*, 32, 3:217-231.
- 1995** Kemnitz, C.P., T.R. Strauss, D.M. Hosford and J.T. Buchanan. 1995. Modulation of swimming in the lamprey, *Petromyzon marinus*, by serotonergic and dopaminergic drugs, *Neurosci. Lett.*, 201:115-118.
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- Moore, L.E., J.T. Buchanan and C.R. Murphey. 1995. Localization and interaction of N-methyl-D-aspartate and non-N-methyl-D-aspartate receptors of lamprey spinal neurons. *Biophys. J.*, 68:96-103.
- Buchanan, J.T. and S. Kasicki. 1995. Activities of spinal neurons during brainstem-dependent fictive swimming in lamprey. *J. Neurophysiol.*, 73:80-87.
- 1994** McPherson, D.R., J.T. Buchanan and K. Kasicki. 1994. Effects of strychnine on fictive swimming in the lamprey: evidence for glycinergic inhibition, discrepancies with model predictions, and novel modulatory rhythms. *J. Comp. Physiol., A* 175:311-321.
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- 1993** Buchanan, J.T. 1993. Electrophysiological properties of identified classes of lamprey spinal neurons. *J. Neurophysiol.*, 70:2313-2325.
- Moore, L.E. and J.T. Buchanan. 1993. The effects of neurotransmitters on the integrative properties of spinal neurons in the lamprey. *J. Exp. Biol.*, 175:89-114.
- 1992** Meer, D.P. and J.T. Buchanan. 1992. Apamin reduces the late afterhyperpolarization of lamprey spinal neurons, with little effect on fictive swimming. *Neurosci. Lett.*, 143:1-4.
- Buchanan, J.T., L.E. Moore, R. Hill, P. Wallén and S. Grillner. 1992. Synaptic potentials and transfer functions of lamprey spinal neurons. *Biol. Cybern.*, 67:123-131.

Buchanan, J.T. 1992. Neural network simulations of coupled locomotor oscillators in the lamprey spinal cord. *Biol. Cybern.*, 66:367-374.

1991 Buchanan, J.T. and S. Grillner. 1991. 5-hydroxytryptamine depresses reticulospinal excitatory postsynaptic potentials in motoneurons of the lamprey. *Neurosci. Lett.*, 112:71-74.

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1989 Buchanan, J.T., S. Grillner, S. Cullheim and M. Risling. 1989. Identification of excitatory interneurons contributing to the generation of locomotion in the lamprey: structure, pharmacology, and function. *J. Neurophysiol.*, 62:59-69.

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Brodin, L., J.T. Buchanan, T. Hökfelt, S. Grillner, J. Rehfeld, P. Frey, A. Verhofstad, G. Dockray and J. Walsh. 1988. Immunohistochemical studies of cholecystokinin-like peptides and their relation to 5-HT, CGRP, and bombesin immunoreactivities in the brainstem and spinal cord of lampreys. *J. Comp. Neurol.*, 271:1-19.

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1987 Buchanan, J.T., L. Brodin, N. Dale and S. Grillner. 1987. Reticulospinal neurons activate excitatory amino acid receptors, *Brain Res.*, 408:321-325.

Buchanan, J.T., L. Brodin, T. Hökfelt, P.A.M. Van Dongen and S. Grillner. 1987. Survey of neuropeptide-like immunoreactivity in the lamprey spinal cord, *Brain Res.*, 408:299-302.

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Buchanan, J.T. 1982. Identification of interneurons with contralateral, caudal axons in the lamprey spinal cord: synaptic interactions and morphology, *J. Neurophysiol.*, 47:961-975.

Buchanan, J.T. and A.H. Cohen. 1982. Activities of identified interneurons, motoneurons, and muscle fibers during fictive swimming in the lamprey and effects of reticulospinal and dorsal cell stimulation, *J. Neurophysiol.*, 47:948-960.