

Publications - Bourque, CW

PUBLICATIONS:

*Denotes a trainee.

Peer-reviewed articles:

- 1) **BOURQUE, C.W.**, GUILAK, F and LIEDTKE, W.B. (2012). A TRP that makes us feel hyper. *J. Physiol.* 590, 1779-80.
- 2) TRUDEL, E and **BOURQUE, C.W.** (2012). Circadian modulation of osmoregulated firing in rat supraoptic nucleus neurons. *J Neuroendocrinol.* 24, 577-586.
- 3) *CIURA, S. LIEDTKE, W and **BOURQUE, C.W.** (2011) Hypertonicity-sensing in organum vasculosum lamina terminalis neurons: a mechanical process involving trpv1 but not trpv4. *J. Neurosci.* 31, 14669-76.
- 4) *SADBURY JR, *CIURA S, *SHARIF-NAEINI R and **BOURQUE, CW** (2010) Osmotic and thermal control of magnocellular neurosecretory neurons--role of an N-terminal variant of trpv1. *Eur J Neurosci.* 32, 2022-2230.
- 5) ZHAN Y, MELIAN N, PANTOJA M, HAINES N, RUOHOLA-BAKER H, **BOURQUE, C.W.**, RAO, Y and CARBONETTO S. (2010) Dystroglycan and Mitochondrial Ribosomal Protein L34 Regulate Differentiation in the Drosophila Eye. *PLoS ONE* 5, e10488.
- 6) *TRUDEL. E. and **BOURQUE, C.W.** (2010) Central clock excites vasopressin neurons by waking osmosensory afferents during late sleep. *Nature Neurosci.* 13, 467-474.
- 7) *PRAGER-KHOUTORSKY, M and **BOURQUE, C.W.** (2010). Osmosensation in vasopressin neurons: changing actin density to optimize function. *Trends Neurosci.* 33, 76-83.
- 8) *ZHANG, Z. and **BOURQUE, C.W.** (2008) Amplification of Transducer Gain by Angiotensin II-Mediated Enhancement of Cortical Actin Density in Osmosensory Neurons. *J Neurosci.* 28, 9536-9544.
- 9) **BOURQUE, C.W.** (2008) Central mechanisms of osmosensation and systemic osmoregulation. *Nat Rev Neurosci.* 9, 519-531.
- 10) *SHARIF-NAEINI, R, *CIURA, S, *STACHNIAK, TJ, *TRUDEL E, **BOURQUE CW.** (2008) Neurophysiology of supraoptic neurons in C57/BL mice studied in three acute in vitro preparations. *Prog Brain Res.* 170, 229-242.
- 11) *SHARIF NAEINI, R., *CIURA, S. and **BOURQUE, C.W.** (2008). Trpv1 gene required for thermosensory transduction and anticipatory secretion from vasopressin neurons during hyperthermia. *Neuron* 58, 179-185.
- 12) *SHARIF NAEINI, R., *CIURA, S., *ZHANG, Z. and **BOURQUE, C.W.** (2008) Contribution of trpv channels to osmosensory transduction, thirst and vasopressin release. *Kidney Int.* 73, 811-815.
- 13) *TAHVILDARI, B, ALONSO, A., **BOURQUE, C.W.** (2008) Ionic basis of "On" and "Off" Persistent Activity in Layer III Lateral Entorhinal Cortical Principal Neurons. *J Neurophysiol.* 99, 2006-2011.
- 14) *BROWN, C.H., SCOTT, V., LUDWIG, M., LENG, G., **BOURQUE, C.W.** (2007) Somatodendritic dynorphin release: orchestrating activity patterns of vasopressin neurons. *Biochem. Soc. Trans.* 35, 1236-1242.
- 15) *KHAWAJA, F.A., ALONSO, A., **BOURQUE, C.W.** (2007) Ca(2+)-dependent K(+) currents and spike-frequency adaptation in medial entorhinal cortex layer II stellate cells. *Hippocampus* 17, 1143-1148.
- 16) *ELLIS, L.D., KRAHE, R., **BOURQUE, C.W.**, DUNN, R.J., CHACRON, M.J. (2007) Muscarinic receptors control frequency tuning through the downregulation of an a-type potassium current. *J. Neurophysiol.* 98, 1526-1537.
- 17) *ZHANG, Z., *KINDRAT, A.N., *SHARIF-NAEINI, R and **BOURQUE, C.W.** (2007). Actin filaments mediate mechanical gating during osmosensory transduction in rat supraoptic nucleus neurons. *J. Neurosci.* 27, 4008-4013.
- 18) **BOURQUE, C.W.**, *CIURA, S., *TRUDEL, E., *STACHNIAK, T.E.J. and *SHARIF NAEINI, R. (2007) Neurophysiological characterisation of osmosensitive neurons. *Exp. Physiol.* 92, 499-505.

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- 19) *SHARIF NAEINI, R., *CIURA S and **BOURQUE, C.W.** (2006) TRPVs: ion channels that make you thirsty! *Med Sci (Paris)* 22, 1035-1037.
- 20) *CIURA, S. and **BOURQUE, C.W.** (2006). Transient receptor potential vanilloid 1 is required for intrinsic osmoreception in organum vasculosum lamina terminalis neurons and for normal thirst responses to systemic hyperosmolality. *J. Neurosci.* 26, 9069-9075.
- 21) PANATIER, A., *GENTLES, S.J, **BOURQUE, C.W.** and OLIET, S.H.R. (2006). Activity-dependent synaptic plasticity in the supraoptic nucleus of the hypothalamus. *J. Physiol.* 573, 711-721.
- 22) *CHAKFE, Y., *ZHANG, Z. and **BOURQUE, C.W.** (2006). Interleukin-1beta directly excites isolated rat supraoptic neurons via upregulation of the osmosensory cation current. *Am. J. Physiol.* 290, R1183-R1190.
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- 24) *BROWN, C.H., LENG, G, LUDWIG, M. and **BOURQUE, C.W.** (2006). Endogenous activation of supraoptic nucleus {kappa}-opioid receptors terminates spontaneous phasic bursts in rat magnocellular neurosecretory cells. *J Neurophysiol.* 95, 3232-3244.
- 25) *SHARIF NAEINI, R., WITTY, M.-F., SEGUELA, P. and **BOURQUE, C.W.** (2006). An N-terminal variant of Trpv1 channel is required for osmosensory transduction. *Nature Neurosci.* 9, 93-98.
- 26) *ZHANG, Z. and **BOURQUE C.W.** (2006). Calcium permeability and flux through osmosensory transduction channels of isolated rat supraoptic nucleus neurons. *Eur J. Neurosci.* 23, 1491-1500.
- 27) *BROWN, C.H. and **BOURQUE, C.W.** (2006). Mechanisms of rhythmogenesis: insights from hypothalamic vasopressin neurons. *Trends Neurosci.* 29, 108-115.
- 28) *GHAMARI-LANGROUDI, M. and **BOURQUE, C.W.** (2004). Muscarinic modulation of slow after-hyperpolarisation and burst firing in rat supraoptic neurones. *J. Neurosci.* 24, 7718-7726.
- 29) *BROWN, C.H., BULL, P.M. and **BOURQUE, C.W.** (2004). Phasic bursts in rat magnocellular neurosecretory cells are not intrinsically regenerative in vivo. *Eu. J. Neurosci.* 19, 2977-2983.
- 30) *BROWN, C.H. and **BOURQUE, C.W.** (2004). Autocrine feedback inhibition of plateau potentials terminates phasic bursts in magnocellular neurosecretory cells. *J. Physiol.* 557, 949-960.
- 31) *ZHANG, Z. and **BOURQUE, C.W.** (2003). Osmometry in osmosensory neurons. *Nature Neurosci.* 6, 1021-1022.
- 32) *TRUDEL, E. and **BOURQUE, C.W.** (2003). A rat brain slice preserving synaptic connections between neurons of the suprachiasmatic nucleus, organum vasculosum lamina terminalis and supraoptic nucleus. *J. Neurosci. Methods.* 128, 67-77.
- 33) BUSS, R.R., **BOURQUE, C.W.** and DRAPEAU, P. (2003). Membrane properties related to the firing behavior of zebrafish motoneurons. *J. Neurophysiol.* 89, 657-664.
- 34) **BOURQUE, C.W.** , *VOISIN, D.L. and *CHAKFE, Y. (2002). Stretch-inactivated cation channels: cellular targets for modulation of osmosensitivity in supraoptic neurons. *Prog Brain Res.* 139, 85-94.
- 35) *GHAMARI-LANGROUDI, M. and **BOURQUE, C.W.** (2002). Flufenamic acid blocks depolarising afterpotentials and phasic firing in rat supraoptic neurones. *J. Physiol.* 545, 537-542.
- 36) *VOISIN, D.L. and **BOURQUE, C.W.** (2002). Integration of CSF sodium and osmotic pressure in vasopressin neurons. *Trends in Neurosciences* 25, 199-205.
- 37) *CHAKFE, Y. and **BOURQUE, C. W.** (2001). Peptidergic excitation of supraoptic nucleus neurons: Involvement of stretch-inactivated cation channels. *Experimental Neurology* 171, 210-218.
- 38) *FISHER, T.E. and **BOURQUE, C.W.** (2001). Calcium channels and secretion in neurons and neuroendocrine cells. *Progress in Biophysics and Molecular Biology* 77, 269-303.
- 39) *GHAMARI-LANGROUDI, M. and **BOURQUE, C.W.** (2001). Ionic basis of the caesium-induced depolarisation in rat supraoptic nucleus neurones. *J. Physiol.* 536, 797-808.
- 40) **BOURQUE, C.W.** and *RICHARD, D. (2001). Axonal projections from the organum vasculosum lamina terminalis to the supraoptic nucleus: functional analysis and presynaptic modulation. *Clinical and Experimental Pharmacology and Physiology* 28, 570-574.

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- 41) **BOURQUE, C.W.** and *CHAKFE, Y. (2000). Does a stretch-inactivated cation channel integrate osmotic and peptidergic signals? *Nature Neuroscience* 3, 847-848.
- 42) *GHAMARI-LANGROUDI, M. and **BOURQUE, C.W.** (2000). Excitatory role of the hyperpolarization-activated inward current in phasic and tonic firing of rat supraoptic neurons. *J. Neurosci.* 20, 4855-4863.
- 43) *CHAKFE, Y. and **BOURQUE, C.W.** (2000). Excitatory peptides and osmotic pressure modulate mechanosensitive cation channels in concert. *Nature Neuroscience* 3, 572-579.
- 44) *BROWN, C.H., *GHAMARI-LANGROUDI, M., LENG, G. and **BOURQUE, C.W.** (1999). κ -Opioid receptor activation inhibits post-spike depolarizing after-potentials in rat supraoptic nucleus neurones in vitro. *J. Neuroendocrinol.* 11: 825-828.
- 45) *VOISIN, D.L., CHAKFE, Y. and **BOURQUE, C.W.** (1999). Coincident detection of CSF Na⁺ and osmotic pressure in osmoregulatory neurons of the supraoptic nucleus. *Neuron* 24: 453-460.
- 46) **BOURQUE, C.W.** (1998). Osmoregulation of vasopressin neurons: A synergy of intrinsic and synaptic processes. *Prog. Brain Res.* 119: 59-76.
- 47) *FISHER, T.E., *VOISIN, D.L. and **BOURQUE, C.W.** (1998). Different A-type K⁺ current density influences excitability of vasopressin and oxytocin neurons of the rat hypothalamus. *J. Physiol.* 511: 423-432.
- 48) *GHAMARI-LANGROUDI, M. and **BOURQUE, C.W.** (1998). Cesium blocks depolarizing afterpotentials and phasic firing in rat magnocellular neurosecretory cells. *J. Physiol.* 510: 165-175.
- 49) **BOURQUE, C.W.**, *KIRKPATRICK, K and *JARVIS, C.R. (1998). Extrinsic modulation of spike afterpotentials in rat hypothalamoneurohypophysial neurons. *Cell. Mol. Neurobiol.* 18: 3-12.
- 50) *PAPAS, S. and **BOURQUE, C.W.** (1997). Galanin inhibits continuous and phasic firing in rat hypothalamic magnocellular neurosecretory cells. *J. Neurosci.* 15: 6048-6056.
- 51) **BOURQUE, C.W.** and *OLIET, S.H.R. (1997). Osmoreceptors in the central nervous system. *Ann. Rev. Physiol.* 59: 601-619.
- 52) NIELSEN, S., NAGELHUS, E.A., AMIRY-MOGHADDAM, M., **BOURQUE, C.W.**, AGRE, P. and OTTERSEN, O.P. (1997). Specialized membrane domains for water transport in glial cells: High resolution immunogold cytochemistry of Aquaporin-4 in rat brain. *J. Neurosci.* 17: 171-180.
- 53) *RICHARD, D. and **BOURQUE, C.W.** (1996). Atrial natriuretic peptide modulates synaptic transmission from osmoreceptor afferents to the supraoptic nucleus. *J. Neurosci.* 16: 7526-7532.
- 54) *FISHER, T.E. and **BOURQUE, C.W.** (1996). Calcium channel subtypes in the somata and axon terminals of the magnocellular neurosecretory cells of the rat supraoptic nucleus. *Trends Neurosci.* 19: 440-444.
- 55) *KIRKPATRICK, K. and **BOURQUE, C.W.** (1996). Activity-dependence and functional role of the apamin-sensitive K⁺ current in rat supraoptic neurones in vitro. *J. Physiol.* 494: 389-398.
- 56) *OLIET, S.H.R. and **BOURQUE, C.W.** (1996). Gadolinium uncouples mechanical detection and osmoreceptor potential in supraoptic neurons. *Neuron* 16: 175-181.
- 57) *HIRUMA, H. and **BOURQUE, C.W.** (1995). P₂ purinoceptor-mediated depolarization of rat supraoptic neurosecretory cells in vitro. *J. Physiol.* 489: 805-811.
- 58) *OLIET, S.H.R., PLOTSKY, P.M. and **BOURQUE, C.W.** (1995). Effects of activin-A on neurons acutely isolated from the rat supraoptic nucleus. *Neuroendocrinology* 7: 661-663.
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- 61) *RICHARD, D. and **BOURQUE, C.W.** (1995). Synaptic regulation of rat supraoptic nucleus neurones during osmotic stimulation of the organum vasculosum lamina terminalis in vitro. *J. Physiol.* 489: 567-577.

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- 62) *KIRKPATRICK, K. and **BOURQUE, C.W.** (1995). Effects of neurotensin on rat supraoptic nucleus neurones in vitro. *J. Physiol.* 482: 373-381.
- 63) **BOURQUE, C.W.**, *OLIET, S.H.R. and *RICHARD, D. (1994). Osmoreceptors, osmoreception and osmoregulation. *Front. Neuroendocrinol.* 15: 231-274.
- 64) *OLIET, S.H.R. and **BOURQUE, C.W.** (1994). Osmoreception in magnocellular neurosecretory cells: From single channels to secretion. *Trends Neurosci* 17: 340-344.
- 65) *OLIET, S.H.R. and **BOURQUE, C.W.** (1993). Steady-state osmotic modulation of cationic conductance in neurons of the rat supraoptic nucleus. *Am. J. Physiol.* 265: R1475-R1479.
- 66) *OLIET, S.H.R. and **BOURQUE, C.W.** (1993). Mechanosensitive channels transduce osmosensitivity in supraoptic neurones. *Nature* 364: 341-343.
- 67) NISSEN, R., **BOURQUE, C.W.** and RENAUD, L.P. (1993). Membrane properties of organum vasculosum lamina terminalis neurons recorded in vitro. *Am. J. Physiol.* 33: R811-R815.
- 68) *MacMILLAN, S. and **BOURQUE, C.W.** (1993). Intracellular recordings from arcuate nucleus neurons in superfused explants of rat hypothalamus. *Neuroendocrinology* 57: 159-166.
- 69) *HU, B. and **BOURQUE, C.W.** (1992). NMDA receptor-mediated rhythmic bursting activity in supraoptic nucleus neurones in vitro. *J. Physiol.* 458: 667- 687.
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- 74) *KIRKPATRICK, K. and **BOURQUE, C.W.** (1991). Dual role for calcium in the control of spike repolarization in rat supraoptic neuroendocrine cells. *Neurosci. Lett.* 133; 271-274.
- 75) YANG, C.R., **BOURQUE, C.W.** and RENAUD, L.P. (1991). Dopamine D₂ receptor activation depolarizes rat supraoptic neurones in hypothalamic explants. *J. Physiol.* 443; 405-419.
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- 80) **BOURQUE, C.W.** and RENAUD, L.P. (1990). Electrophysiology of mammalian magnocellular vasopressin and oxytocin neurosecretory neurons. *Front. Neuroendocrinol.*, 11; 183-212.
- 81) **BOURQUE, C.W.** (1990). Intraterminal recordings from the rat neurohypophysis in vitro. *J. Physiol.* 421; 247-262.
- 82) **BOURQUE, C.W.** (1989). Ionic basis for the hyperosmotic activation of rat supraoptic neurones. *J. Physiol.* 417; 262-277.
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- 85) **BOURQUE, C.W.** (1986). Calcium-dependent spike aftercurrent induces burst firing in magnocellular neurosecretory cells. *Neurosci. Lett.* 70; 204-209.
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- 88) RANDLE, J.C.R., **BOURQUE, C.W.** and RENAUD, L.P. (1986). α -1 adrenergic receptor activation depolarizes rat supraoptic nucleus neurosecretory neurons. *Am. J. Physiol.* 251; R569-574.
- 89) **BOURQUE, C.W.** and RENAUD, L.P. (1986). Non-synaptic depolarizing potentials in rat supraoptic neurones recorded in vitro. *J. Physiol.* 376; 493-506.
- 90) **BOURQUE, C.W.**, BROWN, D.A. and RENAUD, L.P. (1986). Ba^{2+} ions induce prolonged plateau depolarizations in neurosecretory neurones of the adult rat supraoptic nucleus. *J. Physiol.* 375; 573-586.
- 91) RANDLE, J.C.R., **BOURQUE, C.W.** and RENAUD, L.P. (1986). Serial reconstruction of lucifer yellow labeled supraoptic nucleus neurons in perfused hypothalamic explants. *Neuroscience* 17; 453-467.
- 92) VAN HOUTEN, M., KHAN, M.N., WALSH, R.J., BAQUIRAN, G.B., RENAUD, L.P., **BOURQUE, C.W.**, SGRO, S., GAUTHIER, S., CHRETIEN, M. and POSNER, B.I. (1985). NH-terminal specificity and axonal localization of adrenocorticotropin binding sites in rat median eminence. *Proc. Nat. Acad. Sci. USA.* 82; 1271-1275.
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- 96) **BOURQUE, C.W.** and RENAUD, L.P. (1985). Activity-dependence of action potential duration in rat supraoptic neurosecretory neurones recorded in vitro. *J. Physiol.* 363; 429-439.
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- 98) RANDLE, J.C.R., **BOURQUE, C.W.** and RENAUD, L.P. (1984). α -adrenergic activation of rat hypothalamic supraoptic neurons maintained in vitro. *Brain Res.* 307; 374-378.
- 99) **BOURQUE, C.W.** and RENAUD, L.P. (1984). Activity patterns and osmosensitivity of rat supraoptic nucleus neurosecretory neurones in perfused hypothalamic explants. *J. Physiol.* 349; 631-642.
- 100) **BOURQUE, C.W.** and RENAUD, L.P. (1983). A perfused preparation of hypothalamus for electrophysiological studies on neurosecretory neurons. *J. Neurosci. Methods* 7; 203-214.
- 101) **BOURQUE, C.W.** and RENAUD, L.P. (1983). In-vitro neurophysiology of identified rat hypothalamic neuroendocrine neurons. *Neuroendocrinology* 36; 161-163.

Books Edited:

- 1 ZINGG, H.H., **BOURQUE, C.W.** and BICHET, D.G. *Vasopressin and Oxytocin: Molecular, Cellular and Clinical Advances.* Plenum Publishing Corp., New York, 483 pages (1998).

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Book Chapters:

- 1) *STACHNIAK, T.J. *SUDBURY, J.R., *TRUDEL, E., *CHOE, K.Y., *CIURA, S. and **BOURQUE, C.W.** (2012). Osmoregulatory Circuits in Slices and En-Bloc Preparations of Rodent Hypothalamus. In: Isolated brain circuits. Ballanyi K.(Ed.). Humana-Springer. (In press).
- 2) ROPER, P., *BROWN, C.H., **BOURQUE, C.W.**, ARMSTRONG, W.E. (2005). Autoregulation of bursting of AVP neurons of the rat hypothalamus. In: Bursting, the genesis of rhythm in the nervous system. Eds: S. Coombes & P.C. Bressloff, World Scientific Publishing Co. Pte. Ltd., London, UK., p49-88.
- 3) **BOURQUE, C.W.** (2000). Ionotropic mechanoreceptors: The mechanosensitive channels. In: Cellular and Molecular Neurobiology, ed. C. Hammond. Academic Press, London, U.K. (updated 2nd ed.).
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- 5) **BOURQUE, C.W.** (1996). Ionotropic mechanoreceptors: The mechanosensitive channels. In: Cellular and Molecular Neurobiology, ed. C. Hammond. Academic Press, London, U.K. p290-303.
- 6) **BOURQUE, C.W.** and *OLIET, S.H.R. (1995). Mechanosensitive ion channels and osmoreception in magnocellular neurosecretory neurons. In: Neurohypophysis: Recent Progress of Vasopressin and Oxytocin Research. T. Saito, K. Kurokawa and S. Yoshida, eds. Elsevier Science, B.V., Amsterdam, 1995. p205-213.
- 7) **BOURQUE, C.W.**, *HU, B., *RICHARD, D. and *KIRKPATRICK, K. (1995). Excitatory amino acid regulation of rat hypothalamic magnocellular neurosecretory cells (MNCs) *in vitro*. J. Physiol. 483: 9s-10s.
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- 9) **BOURQUE, C.W.** (1990). The isolated and perfused mammalian hypothalamus. In: Preparations of vertebrate Central Nervous system in-vitro. Ed. H. Jahnsen; IBRO Handbook Series: Methods in the Neurosciences vol. 13. John Wiley and Sons. Ltd. Chichester, U.K. p. 203-232.
- 10) RENAUD, L.P., **BOURQUE, C.W.**, DAY, T.A., JHAMANDAS, J.H., RABY, W.N. and RANDLE, J.C.R. (1988). Noradrenaline and noradrenergic neurons: influence on the excitability of hypothalamic vasopressin-secreting magnocellular neurons. In: Progress in catecholamine Research. Part B: Central Aspects. Ed. A. Dahlstrom. A.R. Liss. New York. pp. 305-309.
- 11) **BOURQUE, C.W.** and RENAUD, L.P. (1988). Activity-dependence of action potential duration in neuro-secretory cells. In: Pulsatility in neuroendocrine systems. Ed. G. Leng, C.R.C. Press, Florida. pp207-214.
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- 13) **BOURQUE, C.W.** (1987). Current and voltage-clamp studies of transient and pacemaker currents in neurosecretory neurons of the supraoptic nucleus. In: Inactivation of hypersensitive neurons. Eds. N. Chalazonitis and M. Gola. A.R. Liss Inc. New York. pp. 415-422.
- 14) RENAUD, L.P., DAY, T.A., RANDLE, J.C.R. and **BOURQUE, C.W.** (1985). In vivo and in vitro evidence that central noradrenergic neurons enhance the activity of hypothalamic vasopressinergic neurosecretory neurons. In: Vasopressin. Ed. R. Shrier, Raven Press, New York. pp385-393.
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