

Barry W. Connors

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EDUCATION:

University of Dayton	B.S.	Biology	1974
Duke University	Ph.D.	Physiology and Pharmacology	1979
Stanford University	Postdoctoral fellow	Neuroscience	1979-82

ACADEMIC APPOINTMENTS:

1982-87	Assistant Professor	Dept. of Neurology	Stanford University
1987-89	Assistant Professor	Section of Neurobiology	Brown University
1989-94	Associate Professor	Dept. of Neuroscience	Brown University
1994-present	Professor	Dept. of Neuroscience	Brown University
2000-present	L. Herbert Ballou University Professor		Brown University
2006-present	Chair	Dept. of Neuroscience	Brown University

FELLOWSHIPS AND HONORS:

1975-79	NIH predoctoral fellowship
1979-81	NIH postdoctoral fellowship
1981-82	Lennox Postdoctoral Fellowship, American Epilepsy Society
1985-88	Klingenstein Fellowship in the Neurosciences
1985-91	Research Career Development Award, NIH
1992	Grass Foundation Traveling Scientist
1997	Dozor Visiting Professor, Ben-Gurion University, Israel
1997-04	Javits Neuroscience Investigator Award, NIH, NINDS
2000-07	Associate, Neurosciences Research Program (NRP), La Jolla, CA
2004-08	Dean's Teaching Excellence Award, Alpert Medical School, Brown
2009	Certificate for Exemplary Teaching, Alpert Medical School, Brown

EDITORIAL AND REVIEW BOARDS (recent):

1998-2002	NIH study section (IFCN-8), regular member
1996-2006	<i>Journal of Neuroscience</i> , Assoc Ed (1996-99), Reviewing Ed (2000-02), Senior Ed, 2003-06)
1996-present	<i>Cerebral Cortex</i> , Associate Editor
1999-present	<i>Journal of Neurophysiology</i> , Editorial Board
2001-present	<i>Thalamus and Related Systems</i> , Editorial Board
2006-present	<i>Brain Structure and Function</i> , Editorial Board
2008-present	<i>Epilepsy Currents</i> , Contributing Editor
2008-present	<i>Frontiers in Cellular Neuroscience</i> , Associate Editor
2008-present	NIH study section (NST-2; K99/R00 Pathway to Independence Awards), member

SOCIETY MEMBERSHIPS:

Society for Neuroscience (since 1977)
 American Epilepsy Society (since 1983)
 American Physiological Society (since 1985)

PRIMARY JOURNAL ARTICLES:

- Kinnes CG, Connors BW, Somjen GG. The effects of convulsant doses of penicillin on primary afferents, dorsal root ganglion cells and on "presynaptic" inhibition in the spinal cord. *Brain Res*, 192:495-512, 1980.
- Connors B, Dray A, Fox P, Hilmy M, Somjen G. LSD's effect on neuron population in visual cortex gauged by transient responses of extracellular potassium evoked by optical stimuli. *Neurosci Lett*, 13:147-150, 1979.
- Connors BW. A comparison of the effects of pentobarbital and diphenylhydantoin on the GABA sensitivity and excitability of adult sensory ganglion cells. *Brain Res*, 207:357-369, 1981.
- Gutnick MJ, Connors BW, Ransom BR. Dye-coupling between glial cells in the guinea pig neocortical slice. *Brain Res*, 213:486-492, 1981.
- Kocsis JD, Malenka RC, Connors BW, Waxman SG, Cummins KL. Population response characteristics of fiber tracts in central white matter. *Prog Clin Biol Res*. 52: 17-32, 1981.
- Foster RE, Connors BW, Waxman SG. Rat optic nerve: Electrophysiological, pharmacological and anatomical studies during development. *Develop Brain Res*, 3:371-386, 1982.
- Connors BW, Prince DA. Effects of the local anesthetic QX-314 on the membrane properties of hippocampal pyramidal neurons. *J Pharmacol Exp Therap*, 220:476-481, 1982.
- Connors BW, Ransom BR, Kunis D, Gutnick MJ. Activity-dependent K⁺ accumulation in the developing rat optic nerve. *Science*, 216:1341-1343, 1982.
- Connors BW, Gutnick MJ, Prince DA. Electrophysiological properties of neocortical neurons *in vitro*. *J Neurophysiol*, 48:1302-1320, 1982.
- Gutnick MJ, Connors BW, Prince DA. Mechanisms of neocortical epileptogenesis *in vitro*. *J Neurophysiol*, 48:1321-1335, 1982.
- Connors BW, Benardo LS, Prince DA. Coupling between neurons of the developing rat neocortex. *J Neurosci*, 3:773-782, 1983.
- Connors BW, Benardo LS, Prince DA. Carbon dioxide sensitivity of dye-coupling among glia and neurons of the neocortex. *J Neurosci*, 4:1324-1330, 1984.
- Connors BW. Initiation of synchronized neuronal bursting in neocortex. *Nature*, 310:685-687, 1984.
- Connors BW, Ransom BR. Chloride conductance and extracellular potassium concentration interact to modify the excitability of rat optic nerve fibres. *J Physiol (Lond)*, 355:619-633, 1984.
- Ransom BR, Yamate CL, Connors BW. Activity-dependent shrinkage of extracellular space: A developmental study. *J Neurosci*, 5:532-535, 1985.
- McCormick DA, Connors BW, Lighthall JW, Prince DA. Comparative electrophysiology of pyramidal and sparsely spiny neurons of the neocortex. *J Neurophysiol*, 54:782-806, 1985.
- Connors BW, Kriegstein AR. Cellular physiology of the turtle visual cortex: Distinctive properties of pyramidal and stellate neurons. *J Neurosci*, 6:164-177, 1986.
- Kriegstein AR, Connors BW. Cellular physiology of the turtle visual cortex: Synaptic properties and intrinsic circuitry. *J Neurosci*, 6:178-191, 1986.
- Connors BW, Ransom BR. Electrophysiological properties of ependymal cells (radial glia) in dorsal cortex of the turtle, *Pseudmys scripta*. *J Physiol (Lond)* 385:287-306, 1987.
- Chervin RD, Pierce PA, Connors BW. Periodicity and directionality in the propagation of epileptiform discharges across neocortex. *J Neurophysiol*, 60: 1695-1713, 1988.
- Connors BW, Malenka RC, Silva LR. Two inhibitory postsynaptic potentials, and GABA_A and GABA_B receptor-mediated responses in neocortex of rat and cat. *J Physiol (Lond)*, 406: 443-468, 1988.
- Chagnac-Amitai Y, Connors BW. Horizontal spread of synchronized activity in neocortex, and its control by GABA-mediated inhibition. *J Neurophysiol*, 61: 747-757, 1989.
- Agmon, A., Connors BW. Repetitive burst-firing neurons in the deep layers of mouse somatosensory cortex. *Neurosci Lett*, 99: 137-141, 1989.
- Chagnac-Amitai Y, Connors BW. Synchronized excitation and inhibition driven by intrinsically bursting neurons in neocortex. *J Neurophysiol*, 62: 1149-1162, 1989.

- Silva LR, Amitai Y, Connors BW. Intrinsic oscillations of neocortex generated by layer 5 pyramidal neurons. *Science*, 251: 432-435, 1991.
- Agmon A, Connors BW. Thalamocortical responses of mouse somatosensory (barrel) cortex *in vitro*. *Neuroscience*, 41: 365-380, 1991.
- Silva LR, Gutnick MJ, Connors BW. Laminar distribution of neuronal membrane properties in neocortex of normal and reeler mouse. *J Neurophysiol*, 66: 2034-2040, 1991.
- Agmon A, Connors BW. Correlation between intrinsic firing patterns and thalamocortical responses of mouse barrel cortex neurons. *J Neurosci*, 12: 319-330, 1992.
- Bear MF, Press WA, Connors BW. Long-term potentiation in slices of kitten visual cortex and the effects of NMDA receptor blockade. *J Neurophysiol*, 67: 841-851, 1992.
- Amitai Y, Friedman A, Connors BW, Gutnick MJ. Regenerative activity in the apical dendrites of pyramidal cells in neocortex. *Cerebral Cortex*, 3: 26-38, 1993.
- Kim HG, Connors BW. Apical dendrites of the neocortex: correlation between sodium- and calcium-dependent spiking and pyramidal cell morphology. *J Neurosci*, 13: 5301-5311, 1993.
- Cauler LJ, Connors BW. Synaptic physiology of horizontal afferents to layer I of primary somatosensory cortex in rats. *J Neurosci*, 14: 751-762, 1994.
- Kim HG, Fox K, Connors BW. Properties of excitatory synaptic events in neurons of the primary somatosensory cortex of neonatal rats. *Cerebral Cortex*, 2:148-157, 1995.
- Castro-Alamancos MA, Donoghue JP, Connors BW. Different forms of synaptic plasticity in somatosensory and motor areas of the neocortex. *J Neurosci*, 15: 5324-5333, 1995.
- Kim HG, Beierlein M, Connors BW. Inhibitory control of excitable dendrites in neocortex, *J Neurophysiol*, 74: 1810-1814, 1995.
- Castro-Alamancos MA, Connors BW. Short-term synaptic enhancement and long-term potentiation in neocortex. *Proc Natl Acad Sci USA*, 93: 1335-1339, 1996a.
- Castro-Alamancos MA, Connors BW. Short-term plasticity of a thalamocortical pathway dynamically modulated by behavioral state. *Science*, 272: 274-277, 1996b.
- Flint AC, Connors BW. Two types of network oscillations in neocortex mediated by distinct glutamate receptor subtypes and neuronal populations. *J Neurophysiol*, 75: 951-956, 1996.
- Castro-Alamancos MA, Connors BW. Spatiotemporal properties of short-term plasticity in sensorimotor thalamocortical pathways of the rat. *J Neurosci*, 16: 2767-2779, 1996c.
- Nicoll A, Kim HG, Connors BW. Laminar origins of inhibitory synaptic inputs of pyramidal neurons in rat neocortex. *J Physiol (Lond)*, 497: 109-117, 1996.
- Castro-Alamancos MA, Connors BW. Cellular mechanisms of the augmenting response: short-term plasticity in a thalamocortical pathway. *J Neurosci*, 16: 7742-7756, 1996d.
- Castro-Alamancos MA, Connors BW. Distinct forms of synaptic plasticity in pathways of hippocampus and neocortex. *Proc Natl Acad Sci USA*, 94: 4161-4166, 1997.
- Gil Z, Connors BW, Amitai Y. Differential regulation of neocortical synapses by activity and neuromodulators. *Neuron*, 19: 679-686, 1997.
- Cauler LJ, Clancy B, Connors BW. Backward cortical projections to primary somatosensory cortex in rats extend long horizontal axons in layer I. *J Comp Neurol*, 390: 297-310, 1998.
- Telfeian AE, Connors BW. Layer-specific pathways for the horizontal propagation of epileptiform discharges in neocortex. *Epilepsia*, 39: 700-708, 1998.
- Zhu JJ, Connors BW. Intrinsic firing patterns and whisker-evoked synaptic responses of neurons in the rat barrel cortex. *J Neurophysiol*, 81: 1171-1183, 1999.
- Gil Z, Connors BW, Amitai Y. Efficacy of thalamocortical and intracortical synaptic connections: quanta, innervation, and reliability. *Neuron*, 23: 385-397, 1999.
- Finnerty GT, Roberts LS, Connors BW. Sensory experience modifies short-term dynamics of neocortical synapses. *Nature*, 400: 367-371, 1999.

- Telfeian AE, Connors BW. Epileptiform propagation patterns mediated by NMDA and nonNMDA receptors in neocortex. *Epilepsia*, 40: 1580-1586, 1999.
- Gibson JR, Beierlein M, Connors BW. Two networks of electrically coupled inhibitory neurons in neocortex. *Nature*, 402: 75-79, 1999.
- Beierlein M, Gibson JR, Connors BW. An electrically coupled network of interneurons drives synchronized inhibition in neocortex. *Nature Neurosci*, 3: 904-910, 2000.
- Finnerty GT, Connors BW. Modest alterations of short-term synaptic dynamics follow sensory deprivation without competition. *Proc Natl Acad Sci USA*, 97: 12864-12868, 2000.
- Deans MR, Gibson JR, Sellitto C, Connors BW, Paul DL. Synchronous activity of inhibitory networks in neocortex requires electrical synapses containing connexin36. *Neuron*, 31: 477-485, 2001.
- Landisman CE, Long MA, Beierlein M, Deans MR, Paul DL, Connors BW. Electrical synapses in the thalamic reticular nucleus. *J Neurosci*, 22: 1002-1009, 2002.
- Amitai Y, Gibson JR, Beierlein M, Patrick SL, Ho AM, Connors BW, Golomb D. The spatial dimensions of electrically coupled networks of interneurons in neocortex. *J Neurosci*, 22: 4142-4152, 2002.
- Beierlein M, Connors BW. Efficacy and dynamics of excitatory synapses to layer 6 neurons in neocortex depend on input source. *J Neurophysiol*, 88: 1924-1932, 2002.
- Long MA, Deans MR, Paul DL, Connors BW. Rhythmicity without synchrony in the electrically uncoupled inferior olive. *J Neurosci*, 22: 10898-10905, 2002.
- Telfeian AE, Connors BW. Widely integrative properties of layer 5 pyramidal cells support a role for processing of extralaminar synaptic inputs in rat neocortex. *Neurosci Lett*, 343: 121-124, 2003.
- Beierlein M, Gibson JR, Connors BW. Two dynamically distinct inhibitory networks in layer 4 of the neocortex. *J Neurophysiol*, 90: 2987-3000, 2003.
- Long MA, Landisman CE, Connors BW. Small clusters of electrically coupled neurons generate synchronous rhythms in the thalamic reticular nucleus. *J Neurosci*, 24: 341-349, 2004.
- Cruikshank SJ, Hopperstad M, Younger M, Connors BW, Spray DC, Srinivas M. Potent block of Cx36 and Cx50 gap junction channels by mefloquine. *Proc Natl Acad Sci, USA*, 101: 12364-12369, 2004.
- Patterson WR, Song Y-K, Bull CW, Ozden I, Deangelis A, McKay JL, Nurmikko AV, Donoghue JD, Connors BW. A microelectrode/microelectronic hybrid device for brain implantable neuroprosthesis applications. *IEEE Trans Biomed Engin*, 10: 1845-1853, 2004.
- Ozden I, Venkataramani S, Long MA, Connors BW, Nurmikko AV. Strong coupling of nonlinear electronic and biological oscillators: Reaching the "amplitude death" regime. *Physical Rev Lett*, 93: 158102-1-4, 2004.
- Gibson JR, Beierlein M, Connors BW. Functional properties of electrical synapses between inhibitory interneurons of neocortical layer 4. *J Neurophysiol*, 93: 467-480, 2005.
- Long MA, Jutras MJ, Connors BW, Burwell RD. Electrical synapses coordinate activity in the suprachiasmatic nucleus. *Nature Neurosci*, 8: 61-66, 2005.
- Song YK, Patterson WR, Bull CW, Beals J, Hwang NJ, Deangelis AP, Lay C, McKay JL, Nurmikko AV, Fellows MR, Simeral J, Donoghue JP, Connors BW. Development of a chipscale integrated microelectrode / microelectronic device for brain implantable neuroengineering applications. *IEEE Trans Neural Systems Rehab Engin*, 13: 220-226, 2005.
- Long MA, Cruikshank SJ, Jutras MJ, Connors BW. Abrupt maturation of a spike-synchronizing mechanism in neocortex. *J Neurosci*, 25: 7309-7316, 2005.
- Pinto DJ, Patrick SL, Huang WC, Connors BW. Initiation, propagation, and termination of epileptiform activity in neocortex in vitro involve distinct mechanisms. *J Neuroscience*, 25: 8131-8140, 2005.
- Venkataramani S, Davitt KM, Zhang J, Xu H, Song YK, Connors BW, Nurmikko AV. Compact semiconductor light-emitting diodes for dynamical imaging of neuronal circuitry. *IEEE J Select Topics Quantum Electron*, 11: 785-790, 2005.
- Landisman CE, Connors BW. Modulation of electrical synapses in the mammalian thalamus. *Science*, 310:1809-1813, 2005.

- Patrick SL, Connors BW, Landisman CE. Developmental changes in somatostatin-positive interneurons in a freeze-lesion model of epilepsy. *Epilepsy Res*, 70: 161-171, 2006.
- Venkataramani S, Davitt KM, Zhang J, Xu H, Song YK, Connors BW, Nurmikko AV. Semiconductor ultra-violet light emitting diodes for flash photolysis. *J Neurosci Meth*, 160:5-9, 2007.
- Mancilla JG, Lewis TJ, Pinto DJ, Rinzel J, Connors BW. Synchronization of electrically coupled pairs of inhibitory interneurons in neocortex. *J Neurosci*, 27:2058-2073, 2007.
- Cruikshank SJ, Lewis TJ, Connors BW. Synaptic basis for intense thalamocortical activation of feedforward inhibitory cells in neocortex. *Nature Neurosci*, 10: 462-468, 2007.
- Landisman CE, Connors BW. VPM and PoM nuclei of the rat somatosensory thalamus: intrinsic neuronal properties and corticothalamic feedback. *Cerebral Cortex*, 17:2853-2865, 2007.
- Fanselow EE, Richardson KA, Connors BW. Selective, state-dependent activation of somatostatin-expressing inhibitory interneurons in mouse neocortex. *J Neurophysiol*, 100: 2640-2652, 2008.
- Parker PRL, Cruikshank SJ, and Connors BW. Stability of electrical coupling despite massive developmental changes of intrinsic neuronal physiology. *J Neurosci*, 29: 9761-9770, 2009.
- Zhang J, Laiwalla F, Kim JA, Urabe H, Wagenen Van R, Song Y-K, Connors BW, Nurmikko AV. Integrated device for optical stimulation and spatiotemporal electrical recording of neural activity in light sensitized brain tissue. *J Neural Engin*, in press.

TEXTBOOKS:

- Bear MF, Connors BW, Paradiso MA. *Neuroscience: Exploring the Brain*, Williams and Wilkins, Baltimore, 1996.
- Bear MF, Connors BW, Paradiso MA. *Neuroscience: Exploring the Brain*, 2nd Ed., Lippincott Williams & Wilkins, Baltimore, 2001.
- Bear MF, Connors BW, Paradiso MA. *Neuroscience: Exploring the Brain*, 3rd Ed., Lippincott Williams & Wilkins, Baltimore, 2007. (translations: Chinese, French, German, Italian, Japanese, Portuguese, Spanish)
- Connors BW. Chapters 11 (Physiology of neurons), 12 (Synaptic transmission in the nervous system), 13 (Sensory transduction), 14 (Circuits of the central nervous system), In: *Medical Physiology: A Cellular and Molecular Approach*, W.F. Boron, E.L. Boulpaep (eds.), W.B. Saunders, Philadelphia, pp. 280-377, 2003; updated edition 2005.
- Connors BW. Chapters 12 (Physiology of neurons), 13 (Synaptic transmission in the nervous system), 15 (Sensory transduction), 16 (Circuits of the central nervous system), In: *Medical Physiology: A Cellular and Molecular Approach*, 2nd Ed., W.F. Boron, E.L. Boulpaep (eds.), Saunders-Elsevier, Philadelphia, pp. 310-350, 371-426, 2009.

REVIEWS, ESSAYS, AND BOOK CHAPTERS:

- Somjen G, Dingledine R, Connors B, Allen B. Extracellular potassium and calcium activities in the mammalian spinal cord and the effect of changing ion levels on mammalian neural tissues. In: *Ion Selective Microelectrodes and Their Use in Excitable Tissues*. E Sykova et al. (eds.), Plenum Press, pp. 159-180, 1981.
- Somjen G, Connors B, Kinnes C. Calcium activity and seizure mechanisms in the spinal cord of cats. In: *Physiology and Pharmacology of Epileptogenic Phenomena*. M Klee et al. (eds.), Raven Press, New York, pp. 309-318, 1982.
- Prince DA, Connors BW, Benardo LS. Mechanisms underlying interictal-ictal transitions. *Advances in Neurology*, Vol. 34: *Status Epilepticus*. AV Delgado-Escueta et al. (eds.), Raven Press, New York, pp. 179-189, 1982.
- Connors BW, Gutnick MJ. Neocortex: Cellular properties and intrinsic circuits. In: *Brain Slices*. R Dingledine (ed.), Plenum Press, New York, pp. 313-339, 1984.
- Prince DA, Connors BW. Mechanisms of epileptogenesis in cortical structures. *Ann. Neurol.* 16:S59-S64, 1984.

- Connors BW, Gutnick MJ. Cellular mechanisms of neocortical epileptogenesis in an acute experimental model. In: *Electrophysiology of Epilepsy* P Schwartzkroin, H Wheal (eds.), Academic Press, pp. 79-105, 1984.
- Ransom BR, Yamate CL, Connors BW. Developmental studies on brain extracellular space: Activity-dependent K^+ accumulation and shrinkage. In: *Ion Measurements in Physiology and Medicine* M Kessler et al. (eds.), Springer-Verlag, Berlin, pp. 206-213, 1985.
- Prince DA, Connors BW. Mechanisms of interictal epileptogenesis. In: *Basic Mechanisms of the Epilepsies (Advances in Neurology, Vol. 44)* AV Delgado-Escueta et al. (eds.), Raven Press, New York, pp. 275-300, 1986.
- Ransom BR, Carlini WG, Connors BW. Brain extracellular space: Developmental studies in rat optic nerve. *Ann. New York Acad. Sci.*, 481: 87-105, 1986.
- Ransom BR, Connors BW. Electrophysiology of ependymal cells in the turtle cortex. In: *Functions of Neuroglia*, A Roitbak (ed.), Metsniereba, Tbilisi, pp. 81-90, 1987.
- Connors BW, Gutnick MJ. Intrinsic firing patterns of diverse neocortical neurons. *Trends in Neurosciences*, 13: 99-104, 1990. (also reply to a letter to the editor; Connors, Gutnick, *Trends Neurosci.* 13: 365-366, 1990)
- Connors BW, Chagnac-Amitai Y. Synaptic inhibition, intrinsically bursting neurons, and synchronization in neocortex. *Exp. Brain Res. Ser. 20*, 11-15, 1991.
- Connors BW. GABA_A- and GABA_B-mediated processes in visual cortex. In: *Mechanisms of GABA in the Visual System*, RR Mize, R Marc, A Sillito (eds.), *Progress in Brain Res.*, pp. 335-348, 1992.
- Cauler LJ, Connors BW. Functions of very distal dendrites: Experimental and Computational studies of layer I inputs to layer V pyramidal neurons in neocortex. In: *Single Neuron Computation*, T McKenna, J Davis, SF Zornetzer (eds.), Academic Press, pp. 199-230, 1992.
- Silva LR, Connors BW. Synchronized oscillations intrinsic to the neocortex. In: *Epilepsy and Inhibition*, EJ Speckmann, MJ Gutnick (eds.), Urban & Schwarzenberg, Munich, pp. 215-227, 1992.
- Connors BW, Amitai Y. Generation of epileptiform discharge by local circuits of neocortex. In: *Epilepsy: Models, Mechanisms and Concepts*, PA Schwartzkroin (ed.), Cambridge University Press, pp. 388-423, 1993.
- Connors BW, Cauler LJ, Kim HG, Bühlhoff, I. Layer I and the excitable apical dendrite: Substrates for intracortical communication. In: *Structural and Functional Organization of the Neocortex*, B Albowitz et al. (eds.), Springer-Verlag, Berlin, pp. 173-180, 1994.
- Connors BW. Intrinsic neuronal physiology and the functions, dysfunctions and development of neocortex. *Progress Brain Res.*, 102: 195-203, 1994
- Amitai Y, Connors BW. Intrinsic physiology and morphology of single neurons in neocortex. In: *Cerebral Cortex, Vol. 11, The Barrel Cortex of Rodents*, E.G. Jones, I Diamond (eds.), Plenum Press, pp.299-331, 1995
- Connors BW, Amitai Y. Functions of local circuits in neocortex: synchrony and laminae. In: *The Cortical Neuron*, I Mody, MJ Gutnick (eds.), Cambridge Press, pp. 123-141, 1995.
- Connors BW, Castro-Alamancos MA, Beierlein M. Diverse neuronal functions of the cerebral cortex. In: *Excitatory Amino Acids and the Cerebral Cortex*, F Conti, TP Hicks (eds.), MIT Press, pp. 21-32, 1996.
- Connors BW, Regehr WG. Neuronal firing: Does function follow form? *Current Biology*, 6: 1560-1562, 1996.
- Connors BW, Amitai Y. Making waves in the neocortex. *Neuron*, 18: 347-349, 1997.
- Castro-Alamancos MA, Connors BW. Thalamocortical synapses. *Prog Neurobiol.* 51: 581-606, 1997.
- Connors BW. Anatomy and physiology of neocortex. In: *Epilepsy: A Comprehensive Textbook*, J Engel, TA Pedley (eds.), Lippincott-Raven Press, pp. 307-322, 1997.
- Connors BW, Landisman CE, Reid RC. Book review of *Thalamus. Volume I and II.* (M Steriade, EG Jones, DA McCormick; Elsevier, 1997), *Trends Neurosci.*, 21: 539-540, 1998.
- Connors BW. Dendritic and synaptic variety in the neocortex. *Develop Neuropsychol*, 16: 311-313, 1999.
- Connors BW, Gil Z, Landisman CE, Gibson JR, Amitai Y. Pathway-specific regulation of synapses in the thalamocortical system. In: *Advances in Synaptic Plasticity*, Baudry M, Davis JL, Thompson RF (eds), MIT Press, pp. 198-219, 2000.

- Connors BW, Telfeian AE. Dynamic properties of cells, synapses, circuits and seizures in neocortex. In: *Neocortical Epilepsies*, Williamson PD et al. (eds), *Advances in Neurology*, 84:141-152, 2000.
- Connors BW, Pinto DJ, Telfeian AE. Local pathways of seizure propagation in neocortex. *Intl Rev Neurobiol*, 45: 527-546, 2001.
- Connors BW. Single neuron mnemonics. *Nature*, 420: 133-134, 2002.
- Gibson JR, Connors BW. Chemical and electrical synapses in neocortex. In: *Handbook of Brain Theory and Neural Networks*, 2nd ed., Arbib MA (ed.), MIT Press, pp. 725-729, 2003.
- Connors BW, Long MA. Electrical synapses in the mammalian brain. *Ann Rev Neurosci*, 27: 393-418, 2004.
- Fanselow EE, Connors BW. Navigating a sensorimotor loop. *Neuron*, 45:329-330, 2005.
- Cruikshank SJ, Landisman CE, Mancilla JG, Connors BW. Connexon connexions in the thalamocortical system. *Progress Brain Research*, 149: 41-57, 2005.
- Connors BW, Cruikshank SJ. Bypassing interneurons: inhibition in neocortex. *Nature Neurosci*. 10:808-810, 2007.
- Richardson KA, Fanselow EE, Connors BW. Neocortical anatomy and physiology. In: *Epilepsy: A Comprehensive Textbook*, 2nd Ed., Engel J, Pedley TA (eds), Lippincott-Williams & Wilkins, pp. 323-336, 2008.
- Cruikshank SJ, Connors BW. Neuroscience: State-sanctioned synchrony. *Nature*. 454:839-840, 2008.
- Connors BW. Electrical signaling with neuronal gap junctions. In: *Connexins: A Guide*, Harris A, Locke D (eds), Humana Press, pp. 143-164, 2009.

CURRENT RESEARCH SUPPORT:

- RO1 NS-050434-03, NIH (NINDS), 1/05-12/09, PI: Connors, "Electrical synapses in the mammalian brain".
- RO1 NS-25983-18, NIH (NINDS), 4/06-4/11, PI: Connors, "Cellular physiology of neuronal circuits in neocortex"
- T32 MH019118-19, NIMH, 7/09-6/14, PI: Connors, "Postdoctoral Training Program in Systems and Behavioral Neuroscience"
- P50 MH086400-01, NIH (NIMH), 9/09-8/14, PI: Haber (Connors, co-PI), "Neurocircuitry Underlying DBS Effects in OCD: A Window into Mechanisms of Action"

INVITED LECTURES (recent):

- 2000: Columbia University, seminar, Center for Neurobiology and Behavior
Hippocampus Club, Brandeis University
Baylor College of Medicine, seminar, Dept. of Neuroscience
MIT, "Plastic Lunch" seminar, Center for Learning and Memory
"Nonlinear Synchronization in Neuroscience", conference, Krasnow Institute, VA
"The Dynamic Brain", conference at Brown University
Gordon Research Conference on Synaptic Transmission, speaker, New London, CT
Montreal Neurological Institute, seminar, McGill University
Symposium organizer and speaker, "Inhibitory Neurons of the Cortex: Channels, Coupling, Circuits, and Synchrony", Society for Neuroscience, New Orleans
- 2001: Cold Spring Harbor Laboratories, seminar
University of California, San Francisco, seminar, Neuroscience Graduate Program
University of Alabama, Birmingham, seminar, Dept. of Neurobiology
NIH, seminar, Neuroscience Lecture Series
Neuroscience Research Program, La Jolla, CA, Associate's inaugural lecture

- Montana State University, Center for Computational Biology, seminar
 “Cellular Interactions in Neuronal Networks”, conference, RIKEN Brain Science Institute, Tokyo
 Albert Einstein Medical College, Dept. of Neuroscience, seminar
 Society of Neurological Surgeons, annual meeting, Neural Networks Symposium, Cleveland
 University of Dusseldorf, seminar, Institute of Neurophysiology
 “Synaptic Transmission Within a Cortical Column”, symposium, 28th Göttingen Neurobiology
 Conference, Germany
 Workshop “Dynamics of Neural Networks”, Institute of Theoretical Physics, UC Santa Barbara
 Brown University, Neuroscience Graduate Program Seminar Series
 Keynote speaker, “Neuroscience at Storrs” annual meeting, University of Connecticut
 University of Tennessee, seminar, Dept. of Anatomy and Neurobiology
- 2002: Stanford Brain Research Seminar Series, Stanford University
 Winter Conference on Brain Research, symposium speaker, Snowmass, CO
 Duke University, seminar, Dept. of Neurobiology
 From Microscopic to Macroscopic Brain Dynamics, workshop speaker, Rancho Santa Fe, CA
 University of Maryland, seminar, Dept. of Anatomy and Neurobiology
 “Nonlinear Time Series Analysis and Dynamical Modeling in Neuroscience”, speaker, NIMH
 Forum of European Neuroscience, symposium speaker, Paris
 “Neural Dynamics” workshop, Mathematical Biosciences Inst., Ohio State Univ, Columbus OH
 University of Chicago, seminar, Committee on Neurobiology
 University of Pennsylvania, seminar, Dept. of Neuroscience
- 2003: University of California, San Diego, Neuroscience graduate student seminar series
 Salk Institute, seminar, Sloan-Swartz Center for Theoretical Neurobiology, La Jolla, CA
 “Dynamical Systems and Neuroscience”, conference, Boston University
 Karolinska Institute, Stockholm, Sweden, research seminar, lectures in graduate course
 “Physiology and Pathophysiology of Cortical Neurons”, conference, Hebrew University, Israel
 Methods in Computational Neurobiology, course lecture, Marine Biological Lab, Woods Hole
 University of Connecticut, seminar, Dept. of Neuroscience
 University of Texas at Houston, Medical School, seminar, Dept. of Ophthalmology
- 2004: University of California, Irvine, seminar, Center for Neurobiology of Learning and Memory
 Inaugural Symposium, International Institute for Neuroscience in Natal, Brazil
 California Institute of Technology, “General Biology” seminar series
 Gordon Research Conference on Synaptic Transmission, session organizer and chair
 “Cortical Function: A View from the Thalamus”, conference, University of Wisconsin
 University of Virginia, Neuroscience Graduate Program
 Special Lecture, Society for Neuroscience annual meeting
 University of Rochester, seminar, Dept. of Neurobiology and Anatomy
 University of North Carolina, Neuroscience Center Seminar Series
- 2005: Boston University, seminar, Center for Memory and Brain
 Lecturer, Neurobiology summer course, Marine Biological Laboratory, Woods Hole, MA
 Pasteur Institute, Paris, research seminar
 Banbury Conference on GABAergic Systems, Cold Spring Harbor, NY
 Investigator’s Workshop, “Gap Junctions and Electrotonic Coupling”, American Epilepsy Soc.
- 2006: Rutgers University, Center for Molecular and Behavioral Neuroscience Seminar Series
 Neuroscience Research Program, Stated Meeting, La Jolla, CA
 Princeton University, Neuroscience Seminar
 New York University, NYU/CNS Neuroscience colloquium
 University of Maryland, Program in Neuroscience, seminar

- Lecturer, Neurobiology summer course, Marine Biological Laboratory, Woods Hole, MA
 Gordon Research Conference on Mechanisms of Epilepsy, Waterville, ME
 Mount Sinai School of Medicine, Dept. of Neuroscience seminar
 University of Arkansas, Center for Translational Neuroscience Distinguished Speaker Series
- 2007: Northwestern University School of Medicine, Dept. of Physiology, seminar
 Baylor College of Medicine, Dept. of Neuroscience, seminar
 Allen Institute for Brain Science, seminar speaker, Seattle, WA
 Curing Epilepsy meeting, NIH, symposium discussant
 Children's Hospital of Pennsylvania, Univ. of Pennsylvania, Epilepsy Seminar Series
 Lecturer, Neurobiology summer course, Marine Biological Laboratory, Woods Hole, MA
 Symposium on Electrical Synapses, International Brain Research Org. meeting, Melbourne, Australia
 Children's Hospital, Boston, Neuroscience seminar series
- 2008: Neurostimulation for Neurobehavioral Disorders Conference, speaker, Key Biscayne, FL
 Hebrew University, Institute for Advanced Study, seminar speaker, Israel
 Ben-Gurion University, Dept. of Physiology, seminar speaker, Israel
 Hot Topics in Epilepsy symposium, Univ California, Irvine
 Hamilton College, Dept of Biology, seminar, Clinton, NY
 Carnegie-Mellon Univ, Dept of Biological Sciences, Student-Invited Seminar Series, Pittsburgh, PA
 Keynote speaker, Miami Ohio Valley chapter, Society for Neuroscience, Dayton, OH
 King's College London, Dept of Neurology, seminar, London UK
 Adrian Seminar in Neuroscience, Cambridge University, UK
 Gordon Research Conference on Synaptic Transmission, invited speaker, Biddeford, ME
 MIT, Dept of Brain and Cognitive Sciences, seminar speaker, Cambridge, MA
- 2009: Albert Einstein Medical College, Dept. of Neuroscience, seminar, New York, NY
 University of Dayton, Dept. of Biology, seminar, Dayton, OH
 International Gap Junction Conference, Keynote Speaker, Sedona, AZ
 Japan Neuroscience Society, Plenary Lecture, Nagoya, Japan (planned, Sept)
 Camillo Golgi and Modern Neuroscience, invited speaker, University of Pavia, Italy (planned, Sept)
 Columbia University, Dept of Neuroscience, seminar speaker, New York (planned, Nov)

DOCTORAL DISSERTATIONS SUPERVISED :

- 1983-88 Aric Agmon, Ph.D., Stanford Neurosciences Graduate Program. Dissertation title: "Intrinsic properties and synaptic connectivity of mouse barrel cortex neurons: Correlation between firing patterns and thalamocortical inputs"; currently Associate Professor, Dept. of Physiology, West Virginia Univ.
- 1985-91 Lauren S. Silva, Ph.D., Stanford Neurosciences Graduate Program. Dissertation title: "Pyramidal neurons of neocortical layer 5: Intrinsic firing properties, mechanisms of inhibition, and role in synchronized cortical activity"; currently Project Director, Boston Univ. School of Public Health and VA Medical Center.
- 1989-93 Albert E. Telfeian, M.D., Ph.D., Brown Physiology Graduate Program. Dissertation title: "Mechanisms and pathways for the horizontal propagation of synchronized discharges in neocortex"; currently Associate Professor of Neurosurgery, Texas Tech Univ. Health Sci Center.
- 1994-00 Michael Beierlein, Ph.D., Brown Neuroscience Graduate Program. Dissertation title: "Dynamic properties of chemical and electrical synapses in neocortex"; currently Assistant Professor, Univ of Texas Medical School at Houston
- 1999-02 Michael A. Long, Ph.D., Brown Neuroscience Graduate Program. Dissertation title: "Electrical synapses in the mammalian brain"; currently Assistant Professor, NYU.

- 2004-present Seung-Chan Lee, Brown Neuroscience Graduate Program.
 2006-present Timothy A. Zolnik, Brown Neuroscience Graduate Program (predoctoral NRSA from NIH)
 2006-present Jennifer A. Kim, Brown Neuroscience Graduate and MD/PhD Programs (predoctoral NRSA from NIH).

POSTDOCTORAL FELLOWS SUPERVISED (fellowships received in Connors lab):

- 1986-87 Yael Amitai, M.D. (Katherine McCormick Fellowship); currently Professor, Dept. of Physiology, Ben-Gurion Univ., Israel
 1988-91 Lawrence Cauller, Ph.D. (postdoctoral NRSA from NIH); currently Associate Professor, Univ. of Texas at Dallas
 1990-93 Isabelle Bühlhoff, Ph.D.; currently research staff, Max-Planck Institute, Tübingen, Germany
 1990-93 Han Kim, Ph.D. (postdoctoral NRSA from NIH); currently self-employed
 1992-93 Andrew Nicoll, D.Phil.; currently teaching, Bristol, U.K.
 1993-94 Lauren Silva, Ph.D. (postdoctoral NRSA from NIH); currently Project Director, Boston Univ. School of Public Health and VA Medical Center.
 1994-95 Ayako Ajima, Ph.D. (Human Frontiers Science Program Postdoctoral Fellow); currently Staff Scientist, RIKEN, Wako, Japan
 1994-97 Manuel Castro-Alamancos, Ph.D. (postdoc fellow, Ministry Science & Education of Spain; American Epilepsy Soc. Research Fellow; postdoc NRSA from NIH); currently Associate Professor, Dept Neurobiology & Anatomy, Drexel Univ Coll Medicine.
 1996-98 Gerald Finnerty, M.D., Ph.D. (Wellcome Trust Advanced Training Fellowship); currently Lecturer, Dept. Neurology, Institute of Psychiatry, Kings College London.
 1997-2001 Jay Gibson, Ph.D. (postdoctoral NRSA from NIH); currently Assistant Professor, Center for Basic Neuroscience, Univ of Texas Southwestern Medical Center, Dallas.
 2002-2003 Michael A. Long, Ph.D. (Fox Postdoctoral Fellowship); currently Assistant Professor, NYU.
 1996-2004 Carole Landisman, Ph.D. (Helen Hay Whitney Postdoctoral Fellowship); currently Assistant Professor, Harvard University.
 1997-2004 David Pinto, Ph.D. (Burroughs-Wellcome postdoctoral fellowship); currently Assistant Professor, University of Rochester
 2000-2004 Cynthia Rittenhouse, Ph.D. (postdoctoral NRSA from NIH); currently Research Associate, University of Rochester
 1999-2004 Jaime Mancilla, Ph.D. (postdoctoral NRSA from NIH; American Epilepsy Soc. Research Fellow); currently Research Associate, University of North Carolina
 2001-2007 Erika Faselow, Ph.D. (postdoctoral NRSA from NIH; American Epilepsy Soc. Research Fellow); currently Assistant Professor, Dept. of Neurobiology, University of Pittsburgh
 2001-present Scott Cruikshank, Ph.D.; Assistant Professor (Research), Brown Univ.
 2004-present Kristen Richardson, Ph.D. (postdoctoral NRSA from NIH)
 2007-present Tanya Stevens, Ph.D.