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Date of birth: August 1, 1960

Education:

A.B. Smith College, Biological Sciences, 1982.
Ph.D. University of Maryland School of Medicine, Dept. Physiology, 1988.
Dissertation: "Potassium Conductances Control Epileptiform Activity in Rat Hippocampal Neurons In Vitro". Dr. Bradley E. Alger, Doctoral Advisor.

Positions held:

1982-1988: Predoctoral Fellow, University of Maryland School of Medicine, Department of Physiology.
1988-1991: Postdoctoral Fellow, Yale University School of Medicine, Section of Neuroanatomy, Dr. David McCormick, Postdoctoral Advisor.
1991-1995: Associate Research Scientist, Section of Neurosurgery, Yale University School of Medicine
1995-present: Assistant Professor, Department of Neurosurgery, Yale University School of Medicine.
2001-present: Associate Professor, Department of Neurosurgery, Yale University School of Medicine.

Honors and Awards:

1982-1985 Dean's Scholarship, University of Maryland School of Medicine.
1985-1988 NIDA Predoctoral Fellowship "Effects of PCP and Sigma opiates in CNS".
1989-1990 American Epilepsy Society William G. Lennox Postdoctoral Fellowship "Neurotransmitter Actions in Human and Guinea Pig Cerebral Cortex"
1991 P.I. NIH FIRST Award: "Electrophysiology of human dentate gyrus neurons in vitro"
1992: Co-PI NIH Program Project "Neurophysiological studies of human epileptic hippocampus",
1993-1997: NIH Program Project "Electrophysiological Analysis of Human Epileptogenic Foci". P.I. of Project 2 of "Human Epileptogenic Tissue, Basic Analysis and Modelling, D.D. Spencer, P.I.

1997-2002: NIH Program Project "GABA transmission in epileptic human dentate", P.I. of Project 5 of the Yale Epilepsy Research Center Grant, R.H. Mattson, P.I.
1998-2004: PI RO1: Structure and function of subcortical white matter neurons.
1999-2004: PI Subsection of "Energy and metabolism in temporal lobe epilepsy" PPG, D.D. Spencer, P.I.
2004-2007: PI ROI Excitability and metabolism in rodent hippocampus

Professional Societies

Society for Neuroscience
American Epilepsy Society

Teaching experience:

Seminar leader Medical Neuroscience course, University of Maryland 1985-1987.
Synaptic Organization of the Brain, Yale Medical School, 1992 to present
Lecturer, Principles of Neuroscience (Neuroscience for Yale Medical Students) 1993-present.
Guest Lecturer: Quinnipiac University.

Thesis Committee Member for:

Albert E. Telfeian, M.D., Ph.D.
Nicole Ullrich, M.D., Ph.D.
Eva Marie Yang, Ph.D.
Thomas Chia
Jeremy Ebersole,

Chair, Departmental Thesis Committee: 2000-present.

Publications

Refereed Papers

Alger, B.E. and Williamson, A. 1987, A transient component of the epileptiform burst afterhyperpolarization in rat hippocampus. *The Journal of Physiology*. 399: 191-205.
McCormick, D.A. and Williamson, A. 1989. Convergence and divergence of neurotransmitter action in human cerebral cortex. *Proc. Natl. Acad. Sci.* 86:8098-8102.
Williamson, A. and Alger, B.E. 1990. Components of the early phase of the afterhyperpolarization seen following trains of action potentials in rat hippocampal cells in vitro. *Journal of Neurophysiology* 63: 72-81.
Alger, B.E., Pitler, T.A. and Williamson, A. 1990. A prolonged post-tetanic hyperpolarization in rat hippocampal pyramidal cells in vitro. *Brain Res.* 521: 118-124.
McCormick, D.A. and Williamson, A. 1991. Modulation of neuronal firing mode in cat and guinea pig LGNd by histamine: possible cellular mechanisms of histaminergic control of arousal. *Journal of Neuroscience* . 11:3188-3199.
Williamson, A., Shepherd, G.M. and Spencer, D.D. 1993 Electrophysiological comparison of the membrane and synaptic properties of human and rodent dentate granule cells maintained in vitro. *Brain Research* 622:194-202.
Williamson, A. and Spencer, DD. 1994 Electrophysiological characterization of CA2 pyramidal cells from epileptic humans. *Hippocampus* 4:226-237.
Williamson, A. 1994 Electrophysiology of epileptic human neocortical and hippocampal neurons maintained in vitro, *Clinical Neuroscience* 2: 47-52.

- Williamson, A., Telfeian, A.E. and Spencer, D.D. 1995. Prolonged GABA responses in dentate granule cells of patients with temporal lobe sclerosis. *Journal of Neurophysiology* 74:378-387.
- Williamson, A. and Spencer, D.D. 1995. Zinc reduced granule cell hyperexcitability in epileptic humans. *Neuroreport* 6:1562-1564.
- Williamson, A., Spencer, S.S. and Spencer, D.D. 1995. Correlations between depth electrode studies and intracellular dentate granule cell recordings in patients with temporal lobe epilepsy. *Annals of Neurology* 38:778-787.
- Schweitzer, J.S. and Williamson, A. 1995. Relationship between synaptic activity and prolonged field bursts in the rat dentate gyrus, *Journal of Neurophysiology* 74:1947-1952.
- Chen, W., Lee, S-H., Kato, K. Shepherd, G.M., Spencer, D.D. and Williamson, A. 1996. Long-term modification of synaptic efficacy in the human inferior and middle temporal cortex. *PNAS* 93:8011-8015.
- de Lanerolle NC, Williamson A, Meredith C, Kim JH, Tabuteau H, Spencer DD, Brines ML. 1997. Dynorphin and the kappa 1 ligand [3H]U69,593 binding in the human epileptogenic hippocampus. *Epilepsy Res* 28 :189-205.
- Williamson, A., Patrylo, P.R. and Spencer, D.D. 1999. Decrease in inhibition in dentate granule cells from patients with medial temporal lobe epilepsy. *Annals of Neurology* 45:92-99.
- Patrylo, P.R., Spencer, D.D and Williamson, A GABA transport is impaired in the dentate gyrus of epileptic human and rat hippocampus. Submitted.
- Williamson, A. and Patrylo, P. Regulation of excitability in the epileptic human hippocampus. 1999. *The Neuroscientist* 5:362-370.
- Patrylo, P.R., Spencer, D.D, van den Pol, A., and Williamson, A. 1999. NPY inhibits glutamateric excitation in the epileptic human hippocampus. *J Neurophysiol* 82:478-83.
- Telfeian AE, Spencer DD, Williamson A. 1999. Lack of correlation between neuronal hyperexcitability and electrocorticographic responsiveness in epileptogenic human neocortex. *J Neurosurg.* 90(5):939-45.
- Telfeian, A.E., Federoff, H, Leone, P, During, M.J. and Williamson, A. 2000. Overexpression of GluR6 in rat hippocampus produces seizures and spontaneous non-synaptic bursting in vitro. *Neurobiol. of Disease.*7:362-374.
- Patrylo, P.R., Spencer, D.D, and Williamson, A. 2001. GABA transport is impaired in the dentate gyrus of kainate-induced epileptic rats and humans with temporal lobe sclerosis. *J. Neurophysiol.* 85: 1533-1542.
- Errante, L.D., Williamson, A., Spencer, D.D. and Petroff O.A.C. 2002. Vigabatrin and gabapentin increase GABA in the human neocortical slice. *Epilepsy Research* 49:203-210.
- de Lanerolle NC, Kim JH, Williamson A, Spencer SS, Zaveri HP, Eid T, Spencer DD. 2003 A retrospective analysis of hippocampal pathology in human temporal lobe epilepsy: evidence for distinctive patient subcategories. *Epilepsia*, 44:677-87.
- Williamson, A., Patrylo, P.R., Lee, S.H and Spencer, D.D. 2003. Physiology of human cortical neurons adjacent to cavernous malformations and tumors. *Epilepsia*. 44:1413-9.
- Amiry-Moghaddam M, Williamson A, Palomba M, Eid T, de Lanerolle NC, Nagelhus EA, Adams ME, Froehner SC, Agre P, Ottersen OP. 2003. Delayed K⁺ clearance associated with aquaporin-4 mislocalization: phenotypic defects in brains of alpha-syntrophin-null mice. *Proc Natl Acad Sci U S A.* 100(23):13615-20.

- Moresco EM, Donaldson S, Williamson A, Koleske AJ. 2005. Integrin-mediated dendrite branch maintenance requires Abelson (Abl) family kinases. *J Neurosci.* 25:6105-6118.
- McNay, EC, Williamson A, McCrimmon RJ and Sherwin RS. 2006 Cognitive and neural hippocampal effects of long-term, moderate recurrent hypoglycemia. *Diabetes,* 55(4):1088-95.
- Patrylo, PR, Tyagi, I, Willingham, AL, Lee S and Williamson, A. 2007. Dentate filter function is altered in a pro-epileptic fashion during aging. *Epilepsia*, in press.
- Sfakianos MK, Eisman A, Gourley, LS, Scheetz, AJ, Settleman, JA, Taylor JA, Greer CA, Williamson A and Koleske AJ. 2007 Inhibition of Rho via Arg and p190RhoGAP regulates dendritic spine maturation and synapse and dendrite stability in the postnatal mouse hippocampus. *J. Neurosci.* 27:10982-10992.
- Williamson, A., Patrylo, PR., Kim, JH, Spencer, DD and Petroff, OA. Correlations between granule cell physiology and neurometabolite levels in human temporal lobe epilepsy. In Preparation.
- McNay, EC, Williamson, A, McCrimmon, R and Sherwin, RS. Cognitive and neural hippocampal effects of long-term, moderate recurrent hypoglycemia. In preparation.

Chapters

- McCormick DA. Pape HC. Williamson A. 1991. Actions of norepinephrine in the cerebral cortex and thalamus: implications for function of the central noradrenergic system. *Progress in Brain Research.* 88:293-305.
- de Lanerolle, N.C., Brines, M.L., Williamson, A., Kim, J.H. and Spencer, D.D. 1992. Neurotransmitters and their Receptors in Human Temporal Lobe Epilepsy, In: C.E. Ribak, C.M. Gall and I. Mody Eds., "The Dentate Gyrus and its Role in Seizures" a volume in the series "Supplement to Epilepsy Research". Elsevier, The Netherlands, Chapter 17, pp 235-250.
- de Lanerolle, N.C., Brines, M.L., Kim, J.H., Williamson, A., Philips, M.F. and Spencer, D.D. In press. Neurochemical remodelling of the hippocampus in human temporal lobe epilepsy, In: J. Engle, Jr. (Ed) "Molecular Biology of Epilepsy, Proceedings of the Workshop on the Neurobiology of Epilepsy, Supplement to Epilepsy Research.
- Cornell-Bell, A. and Williamson, A. 1993. Hyperexcitability of neurons and astrocytes in epileptic human cortex. In: S. Federoff and G. Buckholder (Eds.) "Biology and Pathology of Astrocyte-Neuron Interactions." Plenum Press, New York. pp. 51-65.
- Avoli, M. and Williamson, A. 1996. Electrophysiology of epileptic human neocortex. *Progress in Neurobiology,* 48:519-554
- Williamson, A. 1999. Electrophysiology of epileptic human hippocampal and neocortical neurons studied in vitro. *Basic Mechanisms of the Epilepsies*, A. Delgado-Esqueta, ed. In press.
- Williamson, A. and Patrylo, P.R. 1999. Neuromodulation in the Epileptic Human Hippocampus. *The Neuroscientist.*
- Patrylo PR and Williamson A. 2007 The effects of aging on dentate circuitry and function. *Prog. in Brain Research* 163:679-696 48:1964-1978..
- Williamson A and Patrylo PR 2007 Physiological studies of human dentate granule cells. *Prog. in Brain Research* 163:183-198.