



## A Scientific Life Fully Realized: Glenn I. Hatton, Ph.D. 1934-2009

Neuroscience, and particularly neuroendocrinology, lost a great friend and pioneering investigator with the death of Glenn I. Hatton on January 16, 2009, following a brief illness from pancreatic cancer. At the time of his passing, Glenn was a Distinguished Professor in the Department of Cell Biology and Neuroscience at University of California, Riverside, where he had served as Chair, and as founding Director of the Neuroscience Program from 1992-2002. He had recently celebrated his 74<sup>th</sup> birthday.

Glenn hailed from Chicago, Illinois, and received his B.S. from North Central College, Naperville, Illinois in 1960 in Psychology. He then studied under Professor Larry O'Kelly at the University of Illinois, Urbana, where he received M. A. (1962) and Ph.D. (1964) degrees in Psychology. After a very short postdoc, Glenn became Assistant Professor of Psychology at Michigan State University in East Lansing in 1965, where he would remain for 26 years and become Distinguished Professor in 1986. He also served as Director of MSU's fledging Neuroscience Program from 1978-1991.

Glenn's career began with behavioral studies investigating the mechanisms of thirst and drinking. His curious and expansive nature led him into neurophysiological and neuroanatomical studies, under the tutelage of an early collaborator, John I. Johnson. In the early 1970s Glenn began to apply these methods to studies of oxytocin and vasopressin cells in the supraoptic and paraventricular nucleus, and it was in the study of these magnocellular neurosecretory neurons that Glenn was to make many seminal and lasting contributions, from over 150 peer-reviewed articles and many insightful reviews and chapters.

With Charles Tweedle, Glenn published landmark papers in 1976 and 1977 demonstrating a dynamic morphological relationship between glia and neurons, a relationship very sensitive to the physiological state of the animal. This foray into quantitative electron microscopy served as foundation for a series of papers on neuro-glial relationships in both hypothalamus and neurohypophysis, and crystallized Glenn's profound interest in how neurons and glia intercommunicated in order to their shape their structure and function.

In 1977 Glenn took a sabbatical with Gary Lynch at the University of California, Irvine to learn the brain slice technique, and soon after his lab was first to apply this technique to the hypothalamus (Hatton et al. 1978). Glenn enjoined collaboration with Ed Dudek, whose lab then made the first published intracellular recordings from neurosecretory neurons in the rat hypothalamic slice preparation and the first reports of dye coupling in these neurons. Glenn continued developing this technique on sabbatical with Bill Mason at the Babraham Institute in Cambridge in 1981, where, among other things, he studied the synaptic, cholinergic excitation of phasic neurons. This would be the first of two sabbaticals Glenn would spend in England, a country, and whose people, he greatly admired. On his second visit a few years later, he and John Bicknell demonstrated that vasopressin and adrenaline directly altered pituicyte morphology and calcium regulation. Fogarty and Guggenheim Foundation Fellowships supported Glenn's time in Cambridge, where he became a member of Corpus Christi College and a University of Cambridge Senior Scholar.

Electrophysiological studies characterized the Hatton lab until the end, and along the way produced many revolutionary, sometimes controversial findings. A short list, in no way comprehensive, includes evidence that: 1) dye-coupling (suggestive of electrotonic communication) among neurosecretory neurons was prominent, modulated by transmitters, sex steroids, and physiological state; 2) phasic bursting activity characteristic of vasopressin neurons occurred independent of synaptic transmission; 3) the degree of intrinsic buffering by calbindin determined whether magnocellular neurons firing phasically or not; 4) the slow depolarizing afterpotential underlying phasic activity resulted from a calcium-dependent decrease in a potassium current; 5) histamine released from tuberomammillary neurons mediated fast, H1-receptor-mediated EPSPs and fast, H2-receptor mediated IPSCs on supraoptic neurons; and 6) acetylcholine mediated fast EPSPs *via* alpha-7 nicotinic receptors. Most recently, in a final and amazingly productive period, Y-F Wang and Glenn provided intriguing evidence that oxytocin promoted milk-ejection-like bursting in supraoptic neurons by way of complex, second messenger pathways involving actin mobilization, and pituicyte remodeling.

Glenn's career had many marks of distinction. He was continuously funded from the National Institutes of Health, from which he was twice awarded the prestigious Jacob Javits Award as well as a Career Development Award. He served as president of the Association of Neuroscience Departments, on many NIH and NSF panels, and on journal editorial boards. He was very proud to have edited, with Vlad Parpara, the remarkably successful book: *Glial-Neuronal Signaling* (Kluwer, Amsterdam, 2004).

Glenn was an exuberant scientist who never lost the zest for discovery or debate. He was fearless in approach, unguarded in opinion. He was an outstanding and demanding teacher, a critical yet supportive colleague. He loved family first. Wine and science followed, in no particular order. He is survived by his wife of 53 years, Patricia Dougherty Hatton, his children Jim, Bill, Chris, Jennifer and Tracy (Silla), his granddaughter Aubrey and his many friends, collaborators, colleagues, students, and postdocs.

William E. Armstrong, Ph.D.  
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## Glenn I. Hatton Memorial Fund

The Glenn I. Hatton Memorial Fund commemorates Professor Hatton's contribution to neuroscience, neuroendocrinology, and in particular, studies of the magnocellular neurosecretory system. Two awards will be made at each World Congress on Neurohypophysial Hormones (WCNH) to meritorious students or postdocs.

Two inaugural awards were made at the 8<sup>th</sup> WCNH in Kitakyushu, Japan, Sept. 5, 2009, following a symposium in Dr. Hatton's honor featuring Drs. William Armstrong, Gareth Leng, and Françoise Moos:

### **Ara Schorscher-Petcu, MSc.**

Ara is a Ph.D. student working with Drs. Jeffrey Mogil and Rémi Quirion at the Douglas Mental Health University Institute, McGill University, Montreal, Canada. She received a Masters degree in Biology from the University of Geneva, Switzerland, where she studied central oxytocin and vasopressin receptor distribution with Dr. Eliane Tribollet. Her Ph.D. thesis, and the subject of her WCNH abstract, concerns the mechanisms of oxytocin-induced analgesia in mice; she has determined that the central analgesic effects of oxytocin are actually mediated by vasopressin V1A receptors. As a student she has 4 publications, including two as first author, and has a promising career in neurohypophysial hormone research.

### **Hirofumi Hashimoto, M.D., Ph.D.**

Hirofumi is a postdoctoral fellow working with Dr. Mike Ludwig at the University of Edinburgh, Scotland. Hirofumi received his Ph.D. with Dr. Yoichi Ueta studying, among other things, the neuromodulation of vasopressin and oxytocin neurons by adrenomedullin. In his current research, as reported in his WCNH abstract, he demonstrates novel effects of vasopressin on olfactory bulb processing using electrophysiological techniques. In his short but productive career, Dr. Hashimoto has published over 20 papers, including 7 as first author.

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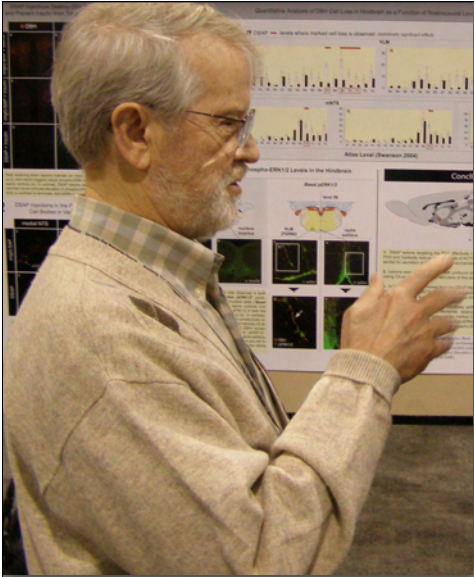
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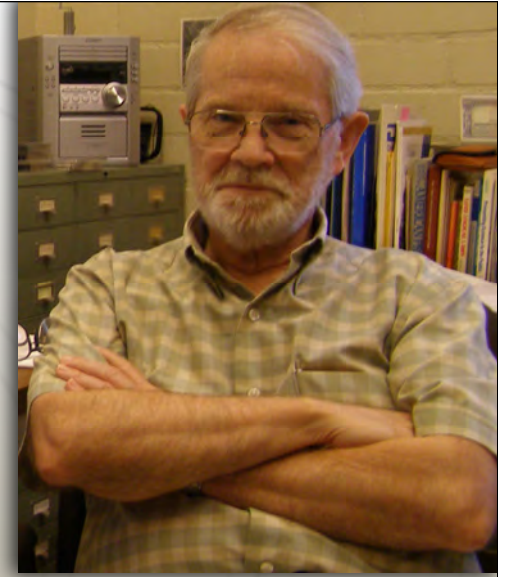
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(1934-2009)

# 2009 Glenn I. Hatton Memorial Award



(1934-2009)

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Presented at the VIIIth World Conference for Neurohypophysial Hormones  
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