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EDITORIAL

40 Years of *Cellular and Molecular Neurobiology*

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In the mid to late 1970s, George Stefano first approached me with the suggestion that we start a new scientific journal. The initial suggestion was that the subject matter be limited to invertebrate neurobiology. George and his group were involved in finding opiate receptors in the invertebrate nervous system. At the time, my major research was study of neurotransmitter and peptide receptors on Aplysia neurons. My laboratory was just beginning to move to the use of rodent brain slices to study synaptic transmission. George had already made some initial inquires of possible publishers. On consideration, we decided that limiting the focus to invertebrates was much too narrow, and the result was the creation of *Cellular and Molecular Neurobiology*, which published its first issue in 1981. I was the Editor-in-Chief, a position I held until 1987 when my friend and colleague, Juan Saavedra, took over. I have remained as an Editorial Advisor up to the present time. And I'm delighted to find a manuscript in this issue from George Stefano and his colleagues 40 years later, now doing real molecular neurobiology in humans.

Neuroscience research has undergone major changes over the last 40 years. In the 1980s, there were relatively few good models of human neurologic diseases available for study in cellular or animal model systems. True molecular neuroscience was in its infancy, and, in retrospect, I'm surprised that we had the foresight to include the term "molecular" in the title of the journal. At that time, there were many laboratories focused on the biochemistry of the nervous system, but that wasn't really "molecular" neuroscience. Tissue culture of other types of cells was common, but there were extra challenges growing nerve cells in culture. The manuscripts published in volume 1 of *Cellular and Molecular Neurobiology* were primarily electrophysiologic reports, some studies of tissue culture of hybrid neurons or glia, and biochemical measurements of transmitter substances in various nervous tissues. It is interesting to look at the manuscripts in this issue, most of which are the study of molecular mechanisms in the nervous system. While there are still questions that are best addressed using electrophysiologic and cellular methods, most current research questions require more molecular approaches.

The other major development in cellular and molecular neuroscience has been the ability to study good animal models of human disease, often using mutants and genetic variants, and even with direct study of humans using cellular and molecular methods. My own research has moved to the direct study of humans, albeit using epidemiologic approaches. It is striking that of the manuscripts is this anniversary issue, most are models of hypertension, stroke, Alzheimer's disease, glaucoma, spinal cord injury, and menopause. There are several manuscripts focused on COVID-19 infection and some using human stem cells. This movement to study human disease as directly as possible is a very positive development. The fundamental goal of basic research is to understand how biologic systems function, which will lead to an understanding of the cause of and how to treat human diseases. Such information is essential if we are to ultimately find ways to prevent disease in the first place.

Neurobiological research 40 years from now will probably be very different from what it is now, as new methods are developed and new questions asked that are beyond our ability to tackle today. Neurobiology remains an exciting science. It is our brain that makes us different from animals, and while have learned much about the fundamental mechanisms upon which all nervous systems function, we have a long way to go to fully understand the basis of learning, memory, emotions, and human behavior. I hope that over the next 40 years, *Cellular and Molecular Neurobiology* will remain at the forefront in publishing research advances that will elucidate how our brains work.

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