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Neuron Article Highlights Grass Program’s Success in Encouraging Young Investigators at MBL

MBL, WOODS HOLE, Mass.—The Grass Fellowship Program at the Marine Biological Laboratory (MBL) in Woods Hole successfully develops young scientists into independent investigators, according to a recent “Neuroview” article in the journal Neuron.

In the article, Grass Fellowship Program director Alberto Pereda of Albert Einstein College of Medicine explores the impact of the fellowship on the 8 to 12 young investigators who experience it each summer. He and his co-authors find that the 14-week program has a strong effect on its fellows’ future career paths. Former Grass fellows went on to make important contributions to neuroscience, the article states, as exemplified by the early decades of the program, which began in 1951 during an important era of discovery in the areas of synaptic transmission and ion channel structure and function.

"In addition to [furthering] personal growth and confidence in your own scientific views, a Grass fellowship is a wonderful opportunity to conduct independent research before going out in the job market,” says co-author Steven J. Zottoli of Williams College. Zottoli, who is now an adjunct scientist at the MBL, was a Grass Fellow in 1978. "You not only have to assemble your [experimental] equipment but you need to overcome the challenges inherent in conducting an original research project. Meanwhile, you have the support of the program’s directors and other fellows facing similar challenges, as well as all the resources that the MBL brings." Thus, the Grass Fellowship is a potential career-making experience.
A CRITICAL PERIOD

The authors posit that the fellows enter the Grass Laboratory at a critical period in their research careers (usually during the postdoctoral period). They are given the opportunity to pursue their own research projects with the economic and practical support of the MBL, the Grass Foundation, and a range of companies that provide much of the equipment and software necessary to conduct cutting-edge research.

In addition, the fellows are exposed to hundreds of talented and influential scientists who work, study, and lecture at the MBL each summer, which stimulates their own ideas for future work, the authors state. The experience also endows them with the self-confidence and drive to pursue an independent research career after the summer is over.

“Setting up my research project at MBL was the best possible preparation for setting up my own lab when I was hired by Denison University,” says neurophysiologist Heather Rhodes, a Grass Fellow in 2006 who was not involved with the Neuron review. “It was a chance to set up fully independent research, but with an incredible wealth of support and expertise around me.”

TRANSFERRING KNOWLEDGE

The Grass Laboratory Program was initiated by Albert and Ellen Grass, along with the Trustees of The Grass Foundation, in 1951. The Grass couple were founders of the Grass Instrument Company, a manufacturer of EEG machines and other electrophysiological equipment. The Grass Laboratory was intended as a place where new and exciting research in neurophysiology, as well as related fields, could flourish in an environment where young scientists are mentored by members of the broader MBL community.

Harry Grundfest (Columbia University), Stephen Kuffler (Harvard University) and Ichiji Tasaki (National Institutes of Health), all of whom are important figures in 20th century neuroscience, played a crucial mentoring role in the early years of the Grass Fellows program and could be considered its first “directors.”

Since that time, more than 600 scientific researchers have graduated from the Grass Fellows program. Many fellows have gone on to make significant contributions to their fields of study, and many maintain a lifelong connection with the MBL.
For example, the Grass Fellowship first inspired neuroscientist Ricardo Miledi to study the role of calcium ions in synaptic transmission in 1955. Miledi later went on to make a huge impact in science’s understanding of neurotransmitter release – work that helped him win the Royal Medal in 1998 and the prestigious Ralph W. Gerard Prize in 2010. Michael V. L. Bennett, another program alumnus, performed one of the first experiments that demonstrated electrical coupling between vertebrate neurons while still a fellow in 1958. The experience launched Bennett’s long and fruitful career studying synaptic transmission.

Despite funding trends that challenge scientific training, the authors hope that the success of the program will help to transfer the core scientific values and uncompromised passion for discovery that characterizes the MBL to future generations of neuroscientists.

"The science is very important but it is the overall experience of being in the vibrant MBL community that is critical to the success of the program," said Zottoli. "This exposure allows each fellow to grow and prosper and to move on in their career."

Written by Aviva Hope Rutkin

Citation:


Photo captions:

Jessica Fox, a 2013 Grass Fellow at MBL from Case Western Reserve University, is recording the responses from visual neurons in the fruit fly brain. Photo by Tom Kleindinst.

(Fig. 2 from the Neuron paper): Former Grass Fellow Ricardo Miledi (left) with Albert Grass (right) at the MBL in 1955. The Grass fellowship was transformative for Miledi, seeding his interest in the role of Ca\(^{2+}\) in synaptic transmission. In collaboration with Bernard Katz and Paul Fatt, Miledi later provided major contributions to our understanding of mechanisms of transmitter release and pioneered the use of frog oocytes to study native receptors and express exogenous messenger RNA. Bottom: Grass Fellow Michael V.L. Bennett in 1958, recording from supramedullary cells in a puffer fish. Bennett’s investigations while a Grass fellow led to one of the first demonstrations of electrical coupling between vertebrate neurons. He later contributed
to the detailed characterization of this modality of synaptic transmission, which is mediated by membrane specializations known as gap junctions. Michael Bennett’s seminal observations defined this field of research.

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