



For 5 new Ph.D.s, an auspicious beginning

1 Demystifying memory

Allison Blum

American University
Barbara McClintock Fellow,
Entering Class of 2002
Thesis: *rutabaga signaling in distinct circuits supports short- vs. long-term memory in Drosophila*

As a native of Long Island, Blum was always aware of the advantages of spending a few years at CSHL, soaking up the world-class science performed in what is, literally, her own backyard. In Josh Dubnau's lab, she focused on anatomically defining the neural networks involved in memory formation and maintenance, using the fruit fly as an experimental model. She has discovered that short- and long-term memory have their own distinct circuitry and that each can be separately recovered in flies lacking *rutabaga*, a signaling molecule. Blum will soon explore a management track when she begins a job as lab manager of a renowned stem cell and developmental biology research group at NYU.

2 Plant patterns and variations

Daniel Harrison Chitwood

University of California, Davis
George A. and Marjorie H. Anderson Fellow,
Entering Class of 2004
Thesis: *Patterning in leaves via a cascade of small RNAs*

Chitwood's interest in studying the genetics underlying shape formation and organ patterning in plants was initially piqued by a brush with the California wine industry. A scholarship from Gallo Wines and an internship in a grape genetics lab cemented his future plans. Working on his dissertation in Marja Timmermans's lab, he showed that a gradient of small RNAs act as mobile positional signals and instruct growing cells to correctly define the top and bottom layers of leaves — a critical phenomenon called "patterning" that allows a leaf to become optimized for photosynthesis. He now heads back to UC Davis for a postdoc, studying the genetics of natural variation in tomatoes.

3 Untangling brain circuits and signals

Shu-Ling Chiu

National Tsing Hua University
Elisabeth Sloan Livingston Scholar,
Entering Class of 2002
Thesis: *The role of insulin receptor in the development of neuronal structure and function*

The thesis work undertaken by Chiu in mentor Holly Cline's lab addressed a question that has great significance for two major health fields: diabetes and disorders affecting memory and cognition. Although insulin is known to impact brain function, how the signals transmitted by insulin's receptor on nerve cell surfaces influences the establishment and function of brain circuits is a mystery. Chiu showed that insulin receptors regulate the way in which neurons make contact with each other at junctions called synapses and modify the strength with which information is passed from one neuron to the next. She will continue her work as a postdoc at The Johns Hopkins University.



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4 A signaling protein in the brain

Keisha Ann John

University of Maryland, Baltimore
Meyerhoff and Marc U Star Scholar,
Entering Class of 2004

Thesis: *Characterization of the role of DOCK7 in neuronal development*

After finishing a summer internship in neuroscience at WSBS, John stayed on to work on her doctoral thesis with Linda Van Aelst, with whom she discovered a role for the novel signaling protein DOCK7 in neuronal development. John will continue this work as a postdoc at Rockefeller University. Her love for the sciences is rivaled only by her strong belief that all students should be given an opportunity to develop an understanding of the sciences, regardless of their career goals. John eventually hopes to merge her interests in biomedical research and science education policy.

5 A big small-RNA discovery

Jeremy Edward Wilusz

The Johns Hopkins University
Beckman Graduate Student,
Entering Class of 2005
Thesis: *3' end processing of long nuclear retained non-coding RNAs yields tRNA-like small RNAs*

At the start of his doctoral work in David Spector's lab, Wilusz intended to carve out a research project that would arc away from the RNA-based studies his father, a biologist, had performed. But a single, unexpected band of RNA observed among scores of other bands on a gel and a leap of faith landed Wilusz back in familiar territory - where he discovered an entirely new mechanism by which the cell generates a set of previously unknown small RNA molecules. He heads off to a postdoctoral fellowship at MIT in the laboratory of Nobel laureate Phillip Sharp, an authority on RNA splicing mechanisms.



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