

# Neurobiology News



**Boston  
Children's  
Hospital**

Until every child is well™

**FM Kirby  
Neurobiology  
Center**

**June 2018**

## Announcements

Congratulations to **Beth Stevens**, PhD, who was named a [Howard Hughes Medical Institute investigator](#)! Read more about this honor at [The Boston Globe](#). (photo credit: [HHMI](#))



A Boston Children's Research Showcase and Networking Event, [Advancing Gene Therapy](#), was held at MassBio in Cambridge on April 30. **Jeff Holt**, PhD, gave a talk at the event.

Established with over \$7M in funding from the Japanese Ministry of Education, Culture, Sports, Science and Technology (MEXT) under the World Premier International Research Center Initiative (WPI), The International Research Center for Neurointelligence (IRCN), led by **Takao Hensch**, PhD, encourages interdepartmental translational research and currently has multiple ongoing projects at BCH. Click [here](#) to read more!

---

## Research News

*CNN* "Tomorrow's Hero" article [Teenager's brain research could one day help Alzheimer's patients](#) features college freshman, **Indrani Das**, who studies microglia in the Stevens Lab. (photo credit: [CNN](#))



*Endpoints News* article [Harvard big-shots Kevin Eggan and Clifford Woolf launch ALS startup with exclusive Q-State tech](#) discusses the work of founder **Clifford Woolf**, MB, BCh, PhD, and CEO **Kasper Roet**, PhD (Woolf lab), with QurAlis, a company newly established to generate therapies for Amyotrophic Lateral Sclerosis.

Recent work of **Ann Poduri**, MD, MPH, on genetic mutations in epilepsy is explored in *Vector* article [Elusive epilepsy mutations begin to yield up their secrets](#).

The translational work of **Mustafa Sahin**, MD, PhD, is highlighted in *Vector* article [Putting patients first in the translational research pipeline](#), part II of a two-part series recapping the 2018 BIO International Convention.

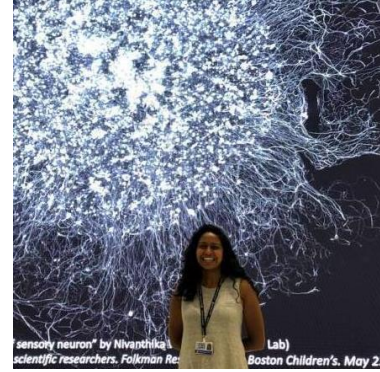
Part I of the two-part *Vector* recap of the 2018 BIO International Convention, [Forecasting the convergence of artificial intelligence and precision medicine](#), presents comments by **Clifford Woolf**, MB, BCh, PhD, on the impact of technology on research in his laboratory.

---

## Science Media Exhibition

At the [1st Science Media Exhibition](#) held in honor of the 18th Annual Dr. M. Judah Folkman Research Day, "striking images" of scientific research were displayed on the Media Wall in the hospital lobby and in the Fenway Room at the Inn at Longwood. Kirby images in the exhibition included

- [Ear hair cells of Cochlea](#) by **Carl Nist-Lind** (Holt lab), **Bifeng Pan**, PhD (Holt lab), and **Jeff Holt**, PhD.
- [Stem-cell derived dopamine-producing neurons](#) by **Maria Sundberg**, PhD (Sahin lab).
- [Radial reach of sensory neuron](#), by **Nivanthika Wimalasena** (Woolf lab). At the event's concluding ceremony, Sandra Fenwick and Dr. David Williams recognized Nivanthika's image as an extraordinary contribution!



---

## Recent Awards

**Todd Anthony**, PhD, was awarded an HBI Bipolar Disorder Seed Grant for his project titled, Connecting candidate bipolar disorder genetic risk factors to neural circuit-level phenotypes.

**Larry Benowitz**, PhD, and **Paul Rosenberg**, MD, PhD, received a multi-PI R01 for their project titled, An interneuronal signaling network governs the fate of retinal ganglion cells after optic nerve injury.

Dr. Benowitz, with Dr. Sally Temple (NY State Stem Cell Institute), was awarded an Innovative, Developmental or Exploratory Activities (IDEA) in Spinal Cord Injury award from the New York State Spinal Cord Injury Research Foundation for their project titled, The role of zinc in axon regeneration following spinal cord injury.

**Chinfei Chen**, MD, PhD, received an award from the Equipment Core Resource Allocation Committee (ECRAC) to partially fund the purchase of a Zeiss LSM 880 Airyscan Confocal Microscope.

**Mike Do**, PhD, is the recipient of an HBI Bipolar Disorder Seed Grant for his project titled, A circadian control system for counterbalancing bipolar disorder.

**Elizabeth Engle**, MD, was awarded a subcontract for a K08 with Dr. Matthew Rose (Brigham and Women's Hospital) for their project titled, Mapping brainstem motor neuron subtypes and genetic pathways involved in their differential susceptibility to disease.

**Gwen Geleoc**, PhD, won an R13 conference grant and a supplemental grant from the NIDCD and NEI to support her participation in the International Symposium on Usher Syndrome, to be held in Germany this summer.

**Zhigang He**, PhD, received an award from Xintrum Pharmaceuticals, Ltd., for his project titled, Developing an osteopontin/IGF-based therapy and its application on functional recovery after CNS injury such as stroke.

**Ann Poduri**, MD, MPH, received a grant from Citizens United for Research in Epilepsy for her project titled, Functional and Clinical Evaluation of Glutamate Receptor Mutations in Epileptic Encephalopathy.

Dr. Poduri was also awarded a BCH Translational Research Program Pilot Award for her project titled, Studies in Early Life Epilepsy: KCNQ2-Mediated Hyperexcitability in iPSC-Derived Neurons.

**Paul Rosenberg**, MD, PhD, was awarded a Harvard Catalyst: Clinical & Translation grant for his project titled, Restoring vision by inhibition of zinc release.

**Mustafa Sahin**, MD, PhD, and the TNC received an award from the Equipment Core Resource Allocation Committee (ECRAC) toward optimization of High Density EEG Equipment.



**Tom Schwarz**, PhD, received an R01 for his project titled, Axonal Transport of mRNA for Mitochondrial Proteins.

**Judith Steen**, PhD, received a Cure Alzheimer's Fund award for her project titled, Temporal Analysis of Infection in Alzheimer's Disease Models.

**Beth Stevens**, PhD, was awarded an HBI Seed Grant for her project titled, Synaptic Development and Pruning in Bipolar Disorder Human and Marmoset Prefrontal Cortex.

Dr. Stevens also received a Cure Alzheimer's Fund award for her project titled, Microglial Heterogeneity & Transcriptional State Changes in Alzheimer's Disease.

**Kuchuan Chen**, PhD (Woolf lab), is a William Randolph Hearst Fund Awardee for his project titled, Investigate the role of two novel ALS genes, NEK1 and C21ORF2, in neurodegeneration using human motor neurons.

**Chris Elitt** MD, PhD (Rosenberg lab), won the 2018 Dodge Young Investigator Award from the Child Neurology Society for his project titled, Zinc transporter expression in developing and injured white matter.

**Jill Falk**, PhD (Schwarz lab), received an F32 for her project titled, Investigating mitochondrial homeostasis in peripheral axons.

**Nicholas Hanovice**, PhD (Benowitz lab), received a Ruth L. Kirschstein Institutional Research Service Award (T32) from the Postdoctoral Training Program in the Molecular Bases of Eye Diseases for his project titled, Identifying the retrograde signals linking retinal ganglion cell axonal injury to the accumulation of Zinc in amacrine cells.

**Julie Jurgens**, PhD (Engle lab), was awarded a T32 Postdoctoral Fellowship Award from the Training Program in the Molecular Bases of Eye Diseases (Schepens Eye Research Institute, NIH/NEI) for her project titled, Detection of novel genetic etiologies and mechanisms for unsolved congenital cranial dysinnervation disorders.

**Shreya Mathur** (Woolf lab) received a Hoopes Prize, the highest college-wide award for senior theses, from the Harvard University Faculty of Arts and Sciences for her project titled, Role of Nociceptors in Driving Antibody Class Switching in Allergic Inflammation.

**Sheri Peterson**, PhD (Benowitz lab), was awarded a postdoctoral fellowship from the Craig H. Neilsen Foundation for her project titled, The role of zinc in axon regeneration following spinal cord injury.

**Daisy Robinton**, PhD (Stevens lab), is a William Randolph Hearst Fund Awardee for her project titled, Microglia impact neurodevelopment through TGF-beta signaling.

**Jaehoon Shim**, PhD (Woolf Lab), received funding from the Postdoctoral Fellowship Program (Nurturing Next-generation Researchers) granted by National Research Foundation of Korea (NRF) for his project titled, Modeling sodium channelopathies in a dish using iPSC and CRISPR to develop novel therapeutics.

(photo credit: [Vector](#))

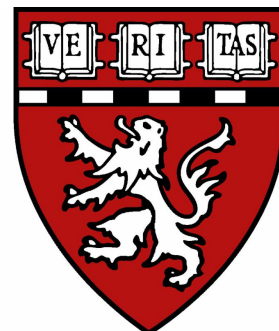
---

## Graduate Student News

### *Upcoming Dissertation Defenses*

June 20: **Matthew Baum** (Stevens lab) defends "The Schizophrenia-Associated Gene, CSMD1, Encodes a Brain-Specific Complement Inhibitor."

August 9: **Stephen Zhang** (Crickmore lab) defends "Mysteries of Motivation."



---

## Recent Featured Publications

**Pomeroy lab.** Brain cancer genomics and

epigenomics. Handbook of Clinical Neurology. 2018.

**Benowitz lab.** In Vitro and In Vivo Methods for Studying Retinal Ganglion Cell Survival and Optic Nerve Regeneration. Methods in Molecular Biology. January, 2018.

**Rotenberg lab.** Alterations in the Timing of Huperzine A Cerebral Pharmacodynamics in the Acute Traumatic Brain Injury Setting. Journal of Neurotrauma. January, 2018.

**Benowitz lab.** Zinc chelation and Klf9 knockdown cooperatively promote axon regeneration after optic nerve injury. Experimental Neurology. February, 2018.

**Hensch lab.** Inhibitory circuit gating of auditory critical-period plasticity. Nature Neuroscience. February, 2018.

**Sahin lab.** Purkinje cells derived from TSC patients display hypoexcitability and synaptic deficits associated with reduced FMRP levels and reversed by rapamycin. Molecular Psychiatry. February, 2018.

**Poduri, Sahin, and Rotenberg labs.** A mouse model of DEPDC5-related epilepsy: Neuronal loss of Depdc5 causes dysplastic and ectopic neurons, increased mTOR signaling, and seizure susceptibility. Neurobiology of Disease. March, 2018.

**Poduri lab.** PCDH19-related epilepsy is associated with a broad neurodevelopmental spectrum. Epilepsia. March, 2018.

**Rosenberg lab.** Behavioral phenotyping and dopamine dynamics in mice with conditional deletion of the glutamate transporter GLT-1 in neurons: resistance to the acute locomotor effects of amphetamine. Psychopharmacology (Berlin). May, 2018.

**Lee lab.** Focused ultrasound brain stimulation to anesthetized rats induces long-term changes in somatosensory evoked potentials. International Journal of Imaging Systems and Technology. June, 2018.

(photo credit [Nat Neurosci](#))

For a listing of additional recent Kirby Center publications, please visit PubMed (last name [A-K](#), last name [L-Z](#)).



[FM Kirby Neurobiology Center](#) | [Boston Children's Hospital](#) | [Harvard Medical School](#)

