



Boston Children's Hospital

F.M. Kirby Neurobiology Center

Kirby Center News & Updates

Visit our
Website

Announcements



Gwenaelle Géléoc, PhD, was promoted to HMS Associate Professor of Otolaryngology/Head and Neck Surgery. Congratulations, Gwen! (photo credit: [ARO](#))

Another congratulations is due to **Gwenaelle Géléoc** for her appointment as Co-Director of Harvard's [Speech and Hearing Bioscience and Technology \(SHBT\)](#) Program!

Annapurna Poduri, MD, MPH, was selected to present at the [Boston Investment Conference](#). Fundraising from the conference will support her project on modeling candidate human epilepsy genes in zebrafish. Congratulations, Ann!

2021 Service Awards: The following Kirby Center personnel achieve BCH service milestones in 2021:

- 30 years: **Edward Cosgrove**, PhD.
- 25 years: **Amy Weinberg**.
- 20 years: **Chinfei Chen**, MD, PhD.
- 15 years: **Michela Fagiolini**, PhD.
- 10 years: **Gwenaelle Géléoc**; **Jeffrey Holt**, PhD; **Andreas Liu**, PhD; **Ceren Uncu**.
- 5 years: **Patricia Awad**, PhD; **Michael Brown**; **Kuchuan Chen**, PhD; **Kayla Davis**, PhD; **Jill Falk**, PhD; **Szu-Yu (Tammy) Ho**, PhD; **Naosuke Hoshina**, PhD; **Corey Seehus**, PhD; **Jaehoon Shim**, PhD; **Volha Shubina-Aleinik**, PhD; **Alan Tenney**, PhD; **Laura Turner**, DVM; **David Yarmolinsky**, PhD; **Yu Zhang**; **Guoli Zhao**, PhD.

Brain, Mind & Behavior Center

The Kirby Center joins our colleagues in neurology, psychiatry and developmental medicine to support the research component of the Brain, Mind & Behavior Center, located in the new BCH facility at [Two Brookline Place](#).

We are excited to begin work with this outpatient clinical care and clinical research center, designed to provide collaborative care for patients with neurodevelopmental and neuropsychiatric conditions. (photo credit: [BCH](#))



Research in the News

Gino Figliola shares about his seizure experience, as well as the helpful tools he acquired from **Alexander Rotenberg**,



MD, PhD, in [Answers](#) article, [I had a seizure. Here's what I learned.](#) (photo credit: [Answers](#))

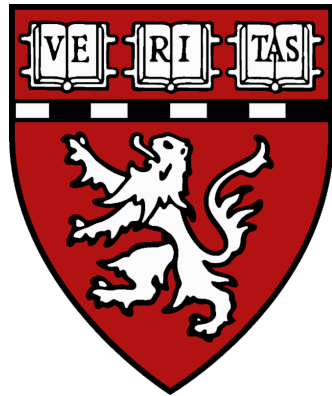
[Answers](#) article, [Recommendations for reproducibility in stem cell research](#) highlights work taking place in the Intellectual and Developmental Disabilities Research Centers (IDDRC) and in the laboratory of **Mustafa Sahin**, MD, PhD.

Mustafa Sahin's investigation into the association between ASD and dopaminergic neurons is featured in [Answers](#) article, [New technique yields potential treatment for a](#)

[common cause of autism.](#)

[Answers](#) article, [Motor neurons made from patients' cells reveal possible ALS drugs and targets](#) discusses the potential ALS treatments under investigation in the lab of **Clifford Woolf**, MB, BCh, PhD.

Graduate Student News



*Recent Dissertation Defenses:
Congratulations, PhDs!*

John Lee (Holt lab). Mechanosensory Transduction Contributes to the Development and Maintenance of Cochlear and Vestibular Synapses.

Jasper Selvin Phelps (Lee lab). The Structure of Motor Control Circuits in Adult *Drosophila*.

Nivanthika Wimalasena (Woolf lab). Itch and insensitivity to pain in an Nav1.7 mutant mouse model.

Postdoc News

Support for Fellows Entering the Job Market

If you are entering the market and would like assistance, please email [Lynn Bruning](#) and [Mike Do](#) well in advance of your first deadline. We will convene a committee of Kirby faculty members who are appropriate for your research. This committee will

1. Review a draft of your application.
2. Provide coaching on preliminary interviews.
3. Offer feedback on your job talk.
4. Take you through a mock chalk talk.
5. Provide advice on closing the deal.

When reaching out to us, please copy your advisor and ask them to give the green light for this process. We are most effective when your application, talk, and chalk talk are each at the fine-tuning stage.

Note that BCH offers a related service. Please choose one to avoid overburdening our faculty. I recommend ours because it is a fine way to strengthen ties within Kirby.

This assistance is meant to be highly individualized. If you communicate your particular needs (e.g., "I am a biophysicist with neuroethological leanings for whom English is a second language"), that would help us arrange the appropriate committee.

Kirby Center Awards & Publications

Recent Awards

Todd Anthony, PhD, received an HMS HBI Bipolar grant for his project titled, Mechanisms underlying co-morbidity of mood and sleep disruptions in Bipolar Disorder.

Chinfei Chen, together with collaborators at Beth Israel Deaconess Medical Center, was awarded an NIH/NEI R01 for their project titled, State-dependent modulation of retinothalamic axons boutons.

- Dr. Chen and the Imaging Core received ECRAC funding for a Zeiss LSM980 Airyscan2 Confocal Microscope.

Recent Featured Publications

Mike Do, PhD, received an HMS Broderick Phytocannabinoid Research Grant to support his project titled, Cannabinoid Dependence of Circadian Photoregulation.

Michela Fagiolini was awarded a LouLou Foundation grant for her project titled, ASO therapy in a humanized animal model of CDKL5 deficiency disorder.

- Dr. Fagiolini, together with collaborators at Dartmouth College, received an NIH RF1 for their project titled, Novel transparent, ultra-soft neuroelectrode arrays based on nanomeshing conventional electrode materials.

Xi He, PhD, was awarded a grant from the American Cancer Society for his project titled, Understanding Wnt-Notch crosstalk in cancer and stem cell biology.

Zhigang He, PhD, BM, and the Viral Core received ECRAC funding for a Heracell 240i CO2 Incubator.

- Dr. He was awarded an administrative supplement to his R01 project titled, Mechanism and Optimization of CBD-mediated analgesic effects.

Karl Koehler, PhD, received funding from L'Oreal USA S/D, Inc. to support his project titled, Study of hair-bearing organoids derived from human induced pluripotent stem (iPS) cells of various typology origins.

Jonathan Lipton, MD, PhD, was awarded a BCH RFC Pilot grant for his project titled, Circadian prions and temporal vulnerabilities to neurodegenerative disease.

- Dr. Lipton received an HMS HBI Bipolar award for his project titled, Exploring Local Circadian Control of Presynaptic Function for Therapeutic Discovery in Bipolar Disorder.

Multiple PIs **Scott Pomeroy**, MD, PhD, and **Mustafa Sahin** successfully renewed our longstanding Boston Children's Hospital/HMS Intellectual and Developmental Disabilities Research Center grant from NIH (P50).

Alex Rotenberg and collaborators at the University of Pennsylvania were awarded a LouLou Foundation grant for their project titled, Measures of cortical excitability and plasticity by transcranial magnetic stimulation (TMS) in patients with CDKL5 deficiency disorder.

Dr. Rotenberg also received the following funding:

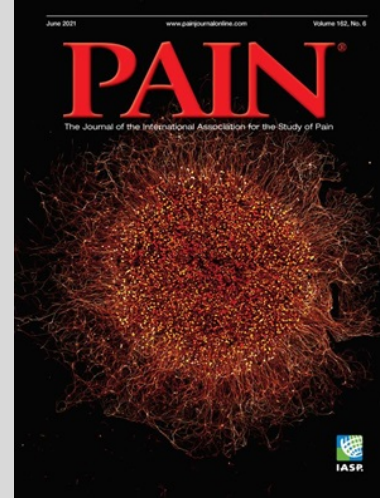
- NIH/NINDS R21 - Astrocytic Glutamate Transporter 1 (GLT-1) enhancement for the treatment of seizures in Dravet Syndrome.
- NIH/NINDS R21 (with PREVEP, LLC) - Network Pharmacology for Epilepsy Prevention.
- National Football League - Mechanisms of and Potential Treatments for Repetitive Concussions and Chronic Traumatic Encephalopathy.

Mustafa Sahin was awarded a Tuberous Sclerosis Alliance grant for his project titled, TSC Biosample Repository and Natural History Database Contract.

- Dr. Sahin received an NIH/NIMHS S10 for the Purchase of a high-density electroencephalography (EEG) and neuromodulation system for use in an institutional core facility.

Tom Schwarz, PhD, and **Elizabeth Engle**, MD, renewed the Developmental Neurology Institutional National Research Service Award (T32) for a five-year period, starting 7/1/21. Their grant will fund 6 postdoctoral fellows yearly.

Judith Steen, PhD, received an NIH/NIA R01 for her project



Nivanthika Wimalasena, PhD (Woolf lab), & **Long Chen**, PhD (Steen lab). "Radial Reach of Sensory Neurons," immuno-fluorescence staining for beta-tubulin, a neuronal protein, which visualizes patterns of radial axon growth in a "spot culture" of thousands of sensory neurons. (photo credit: [Pain](#))

Umemori lab.

An activity-dependent determinant of synapse elimination in the mammalian brain. *Neuron*. April 2021.

Umemori lab.

Female-specific synaptic dysfunction and cognitive impairment in a mouse model of PCDH19 disorder. *Science*. April 2021.

Engle lab.

Novel variants in TUBA1A cause congenital fibrosis of the extraocular muscles with or without malformations of cortical brain development. *European Journal of Human Genetics*. May 2021.

Rotenberg lab.

Transcranial Magnetic Stimulation in Succinic Semialdehyde Dehydrogenase Deficiency: A Measure of Maturation Trajectory of Cortical Excitability. *Journal of Child Neurology*. May 2021.

Sahin lab.

16p11.2 deletion is associated with hyperactivation of human iPSC-derived dopaminergic neuron networks and is rescued by RHOA inhibition in vitro. *Nature Communications*. May 2021.

TNC/HNC.

Generation and characterization of human induced pluripotent stem cells (iPSCs) from three male and three female patients with CDKL5 Deficiency Disorder (CDD). *Stem Cell Research*. May 2021.

titled, Integrated Platform to study Neurodegeneration in Alzheimer's Disease.

- Dr. Steen was awarded ECRAC funding for a KingFisher Flex Purification System.

Beth Stevens, PhD, was awarded an Alzheimer's Association grant for her project titled, Endolysosomal Defects and Neuron-glia Crosstalk in Neurodegenerative Diseases.

Dr. Stevens also received the following funding:

- Alzheimer's Association - Using the power of large unbiased exploratory approaches to discover novel biomarkers across neurodegenerative diseases, Project 1 (BCH).
- Alzheimer's Association - Identification of Novel Biomarkers of Neuroimmune Function/Dysfunction, Biomarker Project 2 (BCH).

Crickmore lab.

Hormonal control of motivational circuitry orchestrates the transition to sexuality in *Drosophila*. *Science Advances*. June 2021.

Hensch lab.

Kv3.1 channels regulate the rate of critical period plasticity. *Neuroscience Research*. June 2021.

Woolf lab.

Two independent mouse lines carrying the Nav1.7 I228M gain-of-function variant display dorsal root ganglion neuron hyperexcitability but a minimal pain phenotype. *Pain*. June 2021.

For a listing of additional recent Kirby Center publications, please visit PubMed:

- last name [A-K](#)
- last name [L-Z](#)

Hisashi Umemori, MD, PhD, received an NIH/NIHMS R01 for his project titled, Molecular Codes for the Establishment of Functionally Segregated Dopaminergic Circuits.

Clifford Woolf was awarded an HMS Broderick Phytocannabinoid Research Grant for his project titled, Identifying cannabidiol derivatives as novel ion channel modulating therapeutics for pain, epilepsy and neurodegenerative diseases.

Omer Barkay, PhD (Anthony lab), was awarded a Fuss Fellowship for his project titled, Neural circuitry of stress-induced sleep disorders.

Lee Barrett, PhD (Woolf lab), and the Human Neuron Core received ECRAC funding for an Echo655 acoustic liquid handler.

Sivapratha Nagappan Chettiar, PhD (Umemori lab), was awarded a Lefler Fellowship for her project titled, Activity-dependent mechanisms of neuron-microglia signaling in synapse elimination.

Sara Conti, PhD (Z. He lab), was awarded a grant from The Craig H. Neilsen Foundation to support her project titled, Manipulating Microglia to Promote Scar-less Wound Healing and Axon Regeneration.

Darius Ebrahimi-Fakhari, MD (Sahin lab), received a Tom Wahlig Foundation award for his project titled, Characterization of ap4b1^{-/-} zebrafish as a novel in vivo model of SPG47 and its application in small molecule screens.

- Dr. Ebrahimi-Fakhari was also awarded an NIH/NINDS K08 for his project titled, Development of a Translational Research Platform to Understand and treat Defective Protein Trafficking in Childhood-Onset Hereditary Spastic Paraplegia.

Chris McGraw, MD, PhD (Poduri lab), received a LouLou Foundation grant for his project titled, Advancing a mosaic CDKL5 zebrafish model for high-throughput screening approaches.

Huyan Meng, PhD (Z. He lab), was awarded a Wings for Life fellowship for her project titled, Manipulating microglia for improving axon regeneration after SCI.

Lauren Miner (Crickmore lab) was awarded a 2021 National Science Foundation Graduate Research Fellowship.

Takuma Sonoda, PhD (Chen lab), received an NIH/NEI F32 for his project titled, Understanding the role of convergence at the retinogeniculate synapse.

Tracey Suter, PhD (Z. He lab), received an NIH/NEI F32 for her project titled, Developing new strategies to promote axon myelination for vision restoration.



Boston Children's Hospital

Where the world comes for answers



**HARVARD MEDICAL SCHOOL
TEACHING HOSPITAL**

