



**Boston
Children's
Hospital**

**F.M. Kirby
Neurobiology
Center**

Summer 2024

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KIRBY CENTER NEWS & UPDATES

Mustafa Sahin, MD, PhD named next Neurologist-in-Chief

Boston Children's Hospital announced the appointment of **Mustafa Sahin, MD, PhD**, as the new Neurologist-in-Chief and Chair of the Department of Neurology, succeeding **Scott Pomeroy, MD, PhD**, after his nearly 20 years of exceptional leadership.

Dr. Sahin is renowned for his groundbreaking work in the neurobiology of autism and translational studies for neurogenetic disorders, particularly Tuberous Sclerosis Complex (TSC). His research has identified critical mechanisms underlying neuron mis-wiring in TSC, paving the way for potential therapeutic breakthroughs.

Congrats, Dr. Sahin!



Annapurna Poduri, MD, MPH announced as Deputy Director of NINDS

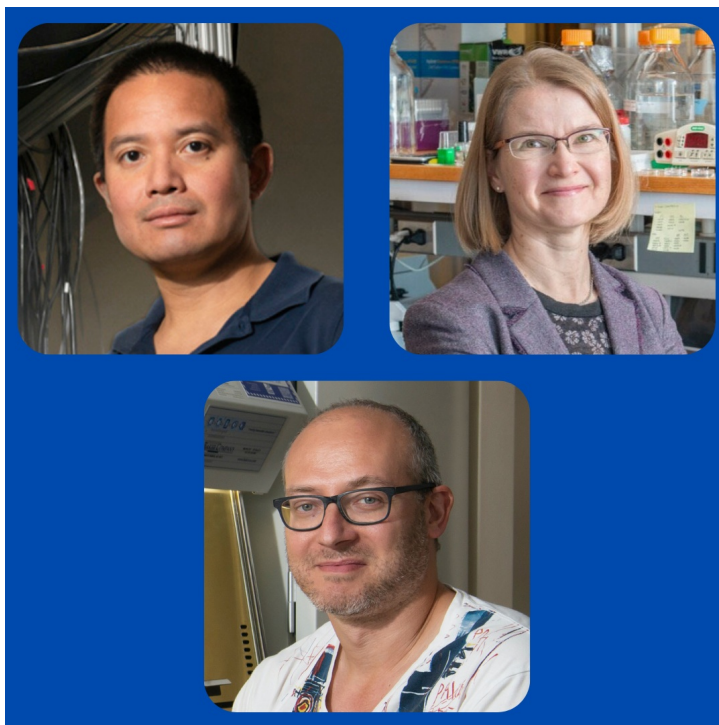
Congrats to **Annapurna Poduri, MD, MPH** on being invited to serve as the Deputy Director of the National Institute of Neurological Disorders and Stroke (NINDS).

Dr. Poduri has been an integral part of the Kirby Center by developing the Epilepsy Genetics

Program with Beth Sheidley, and growing the Neurogenetics Program over the past 26 years. She has also served as Associate Chief for Academic Development and helped mentor many aspiring researchers and physicians. We will miss Dr. Poduri's positive influence on our work and environment, as well as her kind-heartedness and friendship.

Kirby Innovation Grants Awarded

The FM Kirby Neurobiology Center announced its 2024 annual Innovation Award recipients: **Michael Do, PhD** for his project, "Molecular Determinants of Circadian Photoregulation," **Maria Lehtinen, PhD** for her project, "Maternal psychedelic exposure alters fetal brain development via choroid plexus and cerebrospinal fluid," and **Jonathan Lipton, MD, PhD** for his project, "ReCYCLing Dogma: RNA as a Biophysical Regulator of Circadian Timekeeping."



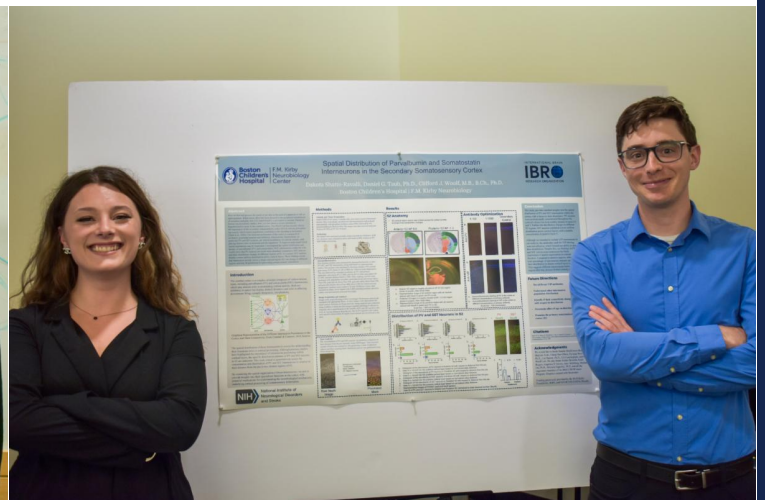
Jordan Farrell, PhD receives Klingenstein-Simons Fellowship Award

Jordan Farrell, PhD was named a recipient of a Klingenstein-Simons Fellowship Award in Neuroscience. This award is granted to early-career investigators engaged in basic or clinical research that may lead to a better understanding of neurological and psychiatric disorders and is geared toward promoting high-risk and potentially high-reward projects. Dr. Farrell's project is "Hijacking Synchronous Brain States In Hyperexcitability."



Kirby Center Hosts 5th Cohort from Bunker Hill Community College (BHCC)

This summer the Kirby Center hosted our fifth cohort of interns from Bunker Hill Community College (BHCC). Students participating in BHCC's Learn & Earn program spent ten weeks in Kirby and Kirby-affiliated labs gaining hands-on experience conducting research and learning scientific and professional skills. At the end of the program, the interns presented their work in a poster session to celebrate their accomplishments. These internships are made possible by support from the F.M. Kirby Foundation, the International Brain Research Organization (IBRO), Boston Children's Hospital, and BHCC.



RESEARCH IN THE NEWS & MEDIA

Woolf Lab Featured in Answers Blog

In "[A deeper understanding of inflammatory pain could reveal new solutions](#)", BCH Answers shared the work of **Aakanksha Jain, PhD**, and her team in the lab of **Clifford Woolf, MB, BCh, PhD**. Dr. Jain and her team collaborated with Harvard Medical School's Laboratory of Systems Pharmacology to identify thousands of molecular interactions between pain-triggering neurons (nociceptors) and different types of immune cells. The work continues to identify more mechanisms surrounding pain in hopes of translating into better treatments.



Hensch Lab Collaboration Highlighted in BCH Answers

A recent post on the BCH Answers blog titled, "[The gut-brain connection: A new approach to OCD and tic disorders?](#)", highlighted a current collaboration occurring between Dr. Hensch and members of the Department of Psychiatry and Behavioral Disorders. **Takao Hensch, PhD** is developing mouse models for Obsessive Compulsive Disorder (OCD) to help clinicians develop treatments for those affected by OCD.

Stevens Lab Featured on AlzForum

Nicole Scott-Hewitt, PhD's (Stevens Lab) recent *Cell* paper titled "[Microglial-derived C1q integrates into neuronal ribonucleoprotein complexes and impacts protein homeostasis in the aging brain](#)"



sparked a conversation with [AlzForum](#). In the piece, Dr. Scott-Hewitt discussed the article and answered questions from other researchers.

Dr. Stevens interviewed for a special *Nature Neuroscience* Issue

As part of a special issue about glia, **Beth Stevens, PhD** was interviewed about the evolving field and what is next. **In the article**, she discusses how she became interested in science and research, how she developed into the researcher she is, and the current projects in her lab.

Congrats Dr. Stevens on this recognition in your field!



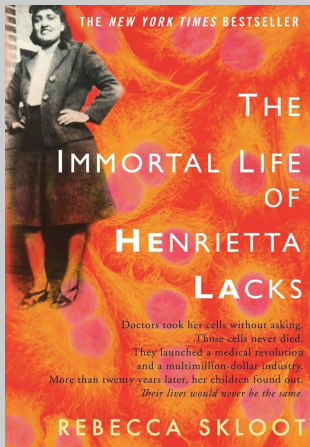
EVENTS

Kirby Field Day

In August, we celebrated the return of the Kirby Cup competition. Our labs competed against each other in a variety of games such as an egg relay, pin the nucleus on the neuron, and trivia. The fun day was capped off with treats from an ice cream truck. The



winning team was composed of lab members from the Do/X. He/Schwarz labs!



Brainy Book Club

Thank you to those who joined us for the first meeting of the Brainy Book Club! This initiative started as a way to build community within the Kirby Center over the discussion of books. For our first meeting, we discussed *The Immortal Life of Henrietta Lacks* by Rebecca Skloot. The discussion focused on race, bioethics, and the impact these topics have on research and innovation. Keep an eye out for the next reading selection with a meeting coming in early 2025!

Neurobiology v. Neurosurgery Blood Drive

In late July, the Kirby Center and the Neurosurgery department competed in our annual Blood Battle. This blood drive pits the two departments against each other to see who can make the

most donations at the BCH Blood Donor Center. This year neurosurgery got the win and will keep the axon trophy. Members of both groups enjoyed a pizza party courtesy of the Kirby Center.



TRAINEE & LAB NEWS

Stevens lab member awarded Gilliam Fellowship

Olumide Fagboyegun, a graduate student in the lab of **Beth Stevens, PhD**, was one of 50 graduate students from across the country awarded a Gilliam Fellowship from Howard Hughes Medical Institute. While part of the Program in Neuroscience at Harvard Medical School, Olumide is also the Co-president of the Underrepresented Scholars of Neuroscience at HMS. This fellowship supports his PhD work on the molecular coordination of frontal cortical maturation and also provides professional development opportunities.

Congratulations

Gilliam Fellowship
from Howard Hughes
Medical Institute

**Olumide
Fagboyegun**
(Stevens Lab)

 Boston
Children's
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Neurobiology
Center



Congrats to Katharina Sarnow, PhD (Tang Lab) on receiving an International Society for Stem Cell Research (ISSCR) Abstract Merit Award.

Congrats to Daniel Taub, PhD on receiving a Spotlight Scholar Award at the BRAIN Initiative Conference in June for his work on the secondary somatosensory cortex.

Support for Fellows Entering the Job Market

If you are entering the market and would like assistance preparing to do so, please email [SJ Cunningham](#) and [Mike Do](#) well in advance of your first deadline. If you communicate your particular needs/research interests (e.g., "I am a biophysicist with neuroethological leanings for whom English is a second language"), we will convene a Practice 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.

AWARDS & PUBLICATIONS

Recent Awards

Michael Crickmore, PhD was awarded a grant from the Harvard Brain Initiative for his project, "A genetic model for understanding D2 receptor desensitization cycles."

Michela Fagiolini, PhD received funding from the Rett Syndrome Research Fund to support her Rett Syndrome research.

Jordan Farrell, PhD was awarded a CureSHANK Research to Cure Award for his project, "Assessing the contribution of GABAergic neuron hypofunction to pathological network states in PMS."

Zhigang He, PhD, BM and the **Viral Core** were selected for an ECRAC grant to purchase an Endotoxin Testing System.

Recent Featured Publications

Annapurna Poduri, MD, MPH was awarded a grant from the American Epilepsy Society for her work, “Genetics of Epilepsy.”

Alexander Rotenberg, MD, PhD, Mustafa Sahin, MD, PhD, and Hing Cheong (Henry) Lee, MPhil, PhD were awarded an NIH R61 for exploratory clinical trials from the NINDS for the project titled, “Gene Therapy for Succinic Semialdehyde Dehydrogenase Deficiency (SSADHD).”

Alexander Rotenberg, MD, PhD and the **Experimental Neurophysiology Core** were selected for an ECRAC grant to get a Human Brain Slice Electrophysiology.

Mustafa Sahin, MD, PhD was awarded an administrative supplement to his NIH U54 project, “Developmental Synaptopathies Associated with TSC, PTEN and SHANK3 Mutations.”

Mustafa Sahin, MD, PhD received funding through the GRIN therapeutics-sponsored research program for his project, “Pharmacotherapy by NMDA receptor negative allosteric modulator (NAM), radiprodil, in a mouse model of Tuberous Sclerosis Complex (TSC).”

Thomas Schwarz, PhD received funding from an NIH R25 at Harvard to support a participant in the PiNBAC program.

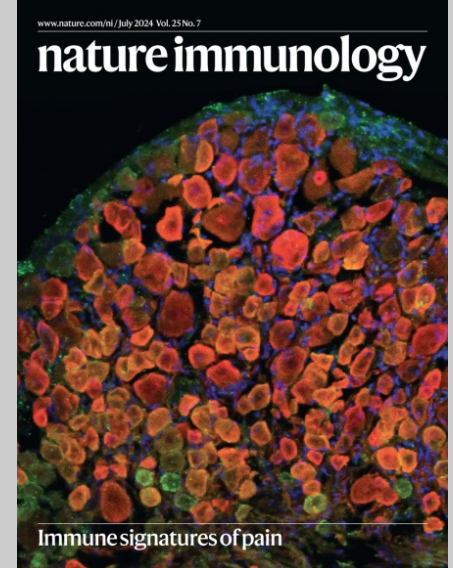
Thomas Schwarz, PhD was awarded a diversity supplement from NIH to support **Nicolai Pena’s** work on the project, “Axonal Transport of mRNA for Mitochondrial Proteins.”

Judith Steen, PhD was awarded funding from the Harp Helu Alzheimer’s Disease Research Acceleration Fund to support her Alzheimer’s research.

Xin Tang, PhD was awarded an R01 from NINDS for his project, “Molecular pathways that strengthen GABAergic inhibition and reduce seizure susceptibility.”

Gabriela Carrillo, PhD (Engle Lab) received an NIH/NINDS Loan Repayment Program for Pediatric Research (LRP-PR) Award.

Alissa D’Gama, MD, PhD (Poduri Lab) was awarded the Thrasher Research Fund’s Early Career Award for her project, “Precision Therapy Amenability Assessment of Pathogenic Variants in Infantile Epilepsy.”



Wolf Lab. Nociceptor-immune interactomes reveal insult-specific immune signatures of pain. *Nat Immunol.* May 2024.

Steen Lab. Longitudinal plasma proteomic analysis of 1117 hospitalized patients with COVID-19 identifies features associated with severity and outcomes. *Sci Adv.* May 2024

Stevens Lab. Microglial-derived C1q integrates into neuronal ribonucleoprotein complexes and impacts protein homeostasis in the aging brain. *Cell.* June 2024.

Wolf Lab. Downregulation of the silent potassium channel Kv8.1 increases motor neuron vulnerability in amyotrophic lateral sclerosis. *Brain Commun.* June 2024.

Engle Lab. Expanding the

Anna Duncan, MD (Poduri Lab) received the Massachusetts General Hospital Department of Pediatrics award from the Faculty Development Program of Harvard Medical School.

Thibault Peineau, PhD (Holt/Geleoc Lab) received an American Otological Society Fellowship Award for his project, "Loss of sensory transduction leads to synaptopathy: the role of hair cell membrane potential."

Jaeyoung Yoon, PhD (Ferguson Lab) received a travel award from Harvard University to attend Gordon Research Conference on Mechanisms of Epilepsy and Neuronal Synchronization.

genetics and phenotypes of ocular congenital cranial dysinnervation disorders. *Genet Med.* July 2024.

Woolf Lab. Identification of novel neuroprotectants against vincristine-induced neurotoxicity in iPSC-derived neurons. *Cell Mol Life Sci.* July 2024.

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