



**Boston  
Children's  
Hospital**

**F.M. Kirby  
Neurobiology  
Center**

**Spring 2024**

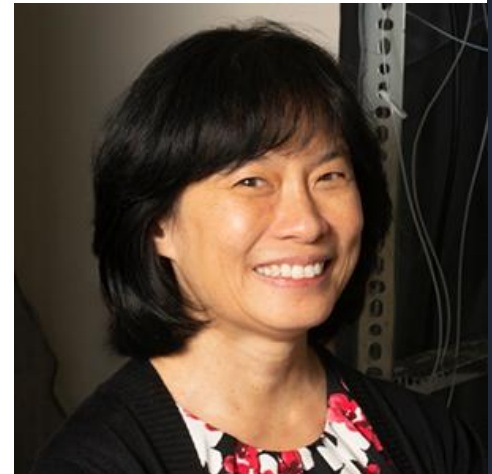
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# KIRBY CENTER NEWS & UPDATES

## **Chinfei Chen, MD, PhD elected to the American Academy of Arts & Sciences**

**Chinfei Chen, MD, PhD**, Professor of Neurobiology and Neurology at Harvard Medical School, has been elected as a member of the American Academy of Arts and Sciences. Founded in 1780, The Academy is both an honorary society recognizing the excellence of its members and an independent research center convening leaders from across disciplines to examine new ideas and to work together to address issues of worldly importance. Dr. Chen's work seeks to understand the mechanisms that underlie synaptic plasticity in the young and mature mammalian central nervous system. Her lab's studies have focused on the thalamus, a brain region that regulates consciousness, sleep, alertness, and the integration of sensory information. Her research may have significant implications for our understanding of neurodevelopmental disorders such as autism spectrum disorders, intellectual disabilities, epilepsy, and neuropsychiatric disorders.

Congratulations, Chinfei!



## **Darius Ebrahimi-Fakhari, MD, PhD, was named a winner in the Blue Skies Challenge**

The Epilepsy Foundation of New England hosted its "Blue Skies Challenge". In this "shark tank" - style contest, applicants pitch projects to win grants for epilepsy research projects. Dr. Ebrahimi-Fakhari was selected as a winner of a \$75,000 grant for his project, "Developing Clinical Trial Readiness

## Women's History Month Celebrations

March is celebrated as Women's History Month. Throughout the month there were a variety of discussions, panels, and celebrations across BCH and HMS. A few highlights:

On March 14th, the Harvard Medical School Postdoc Association launched its "Conversations with" series with a Women in Science discussion moderated and co-organized by **Wardiya Afshar Saber, PhD** (Sahin Lab) and featuring panelist **Elizabeth Engle, MD**.

On March 21st, the Kirby Center hosted a Women in STEM panel as a part of our "Diversity Discussions". **Nicole Gilette** (Lipton Lab), **Erika Norabuena** (Human Neuron Core), **Elizabeth Buttermore, PhD** (Human Neuron Core), and **Gwen Geleoc, PhD** were the featured panelists. The event created a space to discuss what it means to be a woman in STEM.

On April 9th, the Office of Faculty Development (OFD) welcomed to our community "Women in Science Symposium: Breaking Barriers and Achieving Excellence". This event brought together women from a variety of local institutions. One of the five panelists was our own **Annapura Poduri, MD, MPH**.

## Boston Children's completes third straight successful visit from AAALAC

Boston Children's had their AAALAC International site visit between March 18, 2024, and March 20, 2024. In what has become known as our "AAALAC three-peat," Boston Children's Hospital received no suggestions for improvements or mandatory findings for the third consecutive visit! Based on this exceptional site visit, our program will be recommended to receive an 'exemplary status' when the AAALAC council meets later this year. Members of the Kirby Center that were explicitly recognized included **Daniel Taub, PhD** (Woolf lab), **Sydney Campbell** (Do Lab), **Junfeng Su, PhD & Zicong Zhang, PhD** (Zhigang He lab), **Xavier Valencia** (Fagiolini lab), **Sydney O'Malley** (Holt lab) and **Brielle Ferguson, PhD**.

## Steve Samuels & Ami Cipolla Innovation Grants

The Kirby Center proudly awarded two Steve Samuels & Ami Cipolla Innovation Grants to Alexander Cohen, MD, PhD, and Ryan Doan, PhD, FACMG. This one-year grant provides each researcher \$120,000 for studies at Boston Children's Hospital focused on attention, anxiety, and their associated disorders. Dr. Cohen's project is titled, "Optimizing Real-time fMRI Neurofeedback to Improve Sustained Attention in ADHD." Dr. Doan will be collaborating with Co-investigators Anne Arnett, PhD, **Brielle Ferguson, PhD**, and William Barbaresi, MD, on the project "Rare genetic variation as novel biological markers for ADHD with comorbid anxiety." The selection committee included faculty from the Kirby Center, the Rosamund Stone Zander Translational Neuroscience Center, and the Departments of Neurology, Psychiatry, and Developmental Medicine at Boston Children's Hospital.

# RESEARCH IN THE

# NEWS & MEDIA

## Lee and Farrell Featured in Answers Blog

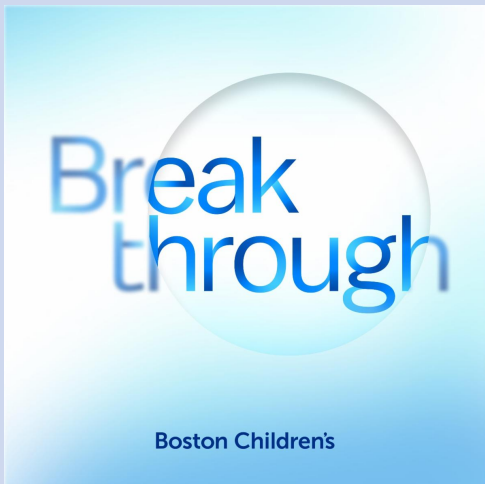
**Exploring brain operations: Making decisions, snapping to attention, and forming memories** was written for the BCH Answers blog to bring attention to the work of **Wei-Chung Allen Lee, PhD** and **Jordan Farrell, PhD**. Both researchers recently had publications featured in *Nature* that look at brain mechanisms in their brain areas of interest. The work of the Lee lab focuses on decision-making and the specific brain regions involved. Dr. Farrell's work is rooted in attention and memory-making.

## Kirby Center Researchers Featured on "Breakthrough" Podcast

**Breakthrough** is a podcast about science revolutionizing the future of pediatrics and what that means for children and their families. This podcast recently featured work in the Kirby Center in two different episodes:

**"Pain in a Petri Dish? How Scientists Are Reimagining Pain Treatment"** includes an interview with **Clifford Woolf, MB, BCH, PhD**, and connects research in his lab to clinical applications.

**"Understanding Epilepsy Through Genetics."** This episode features **Ann Poduri, MD, MPH**, and **Chris Walsh, MD, PhD**, and their collaborative efforts to better understand the genetic underpinnings of epilepsy and assist with the clinical treatment of epilepsy in children.



## In Memorium

Family, friends, and colleagues mourn the tragic passing of Kamil Moroz, who served a research assistant in the Animal Behavior Core from February of 2021 until now. It is indeed a tragic and sudden loss that has left a profound void in our hearts and in our organization. Funeral services for Kamil were held on March 27 at Saint Monica's Parish in South Boston.

# EVENTS

## Developmental Neuroscience Symposium

On May 7, 2024, Boston Children's hosted a Developmental Neuroscience Symposium to honor the work of **Scott Pomeroy, MD, PhD** as he prepares to step down from his role as Neurologist-in-Chief and Chair of the Department of Neurology. Dr. Pomeroy has led Neurology at Boston Children's since 2005, and he has been a valued member of the Boston Children's, Dana-Farber Cancer Institute, and Harvard Medical School community for more than 30 years.

The all-day symposium in Folkman Auditorium featured speakers from across neurology with topics that ranged from basic through translational work. Moderated by **Mustafa Sahin, MD, PhD**, speakers included Kirby Center faculty members, **Elizabeth Engle, MD, Ann Poduri, MD, MPH**, and **Beth Stevens, PhD**, and affiliates, **Christopher Walsh, MD, PhD**, and **David Glahn, MD**.



## Family Food Connections Drive

Throughout March, the Kirby Center hosted a food and utensil drive to benefit Family Food Connections. This BCH-run food pantry located in Jamaica Plain helps many patient families as well as the surrounding community. Thanks to your generosity, we were able to donate essential pantry items (such as olive oil, condiments, and spices), healthy snacks and breakfast items, and outdoor equipment to get kids outdoors and enjoy the spring weather! Thanks to all who donated!

## Food for Thought Series

In April, the Kirby Trainee Committee for Postdoctoral Career Development launched "Food for Thought," a lunch and learn series for postdoctoral fellows to get together and learn about topics important to them. The first session was centered around the transition from postdoctoral work to work in an industry setting and featured Kirby alumni, Meera Modi, PhD, Lasse Dissing-Olesen, and Andrew Kaplan, PhD. Thanks to **Wardiya Afshar Saber, PhD** (Sahin Lab) for helping to coordinate!

## Eclipse Celebrations

On April 8, many faculty members and trainees took the opportunity to enjoy the total solar eclipse. Some even made the trip up to Vermont and New Hampshire to experience it in fullness. Check out the photo taken by **Jeffrey Holt, PhD** at Lake Magog, Vermont.



Copyright Jeffrey R. Holt  
April 8, 2024

## Multi-Cultural Communications Series

With help from Ombuds Director Jennifer Mahony, the Kirby Center hosted a three-part interactive workshop series on communication in a multicultural setting. These three sessions helped Kirby members understand identities and how to create an inclusive culture for various individuals in the Kirby community. Thank you to **Jordan Bessette, PhD** for organizing.



### HMS Neurobiology Retreat

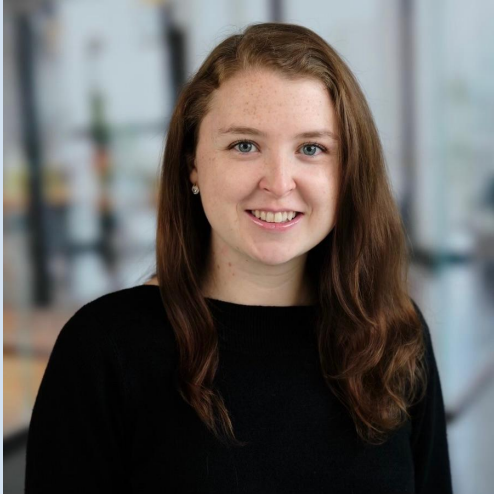
On May 24, Harvard Medical School hosted its Neurobiology Retreat. Many members of the Kirby were in attendance for the event at SoWa Power Station. **Daniel Taub, PhD** (Woolf Lab), **Olumide Fagboyegun** (Stevens Lab), **Mark Andermann, PhD**, and **Chinfei Chen,**

**MD, PhD** were all speakers at the event. At the end of the program, there was a poster session that featured **Ismael Izquierdo Villalba, PhD** (Schwarz Lab), **Whitney Gibbs, PhD** (Schwarz Lab), **Annohya Muppitala** (Rao Lab), **Kathryn Evans** (Andermann Lab), **Kiersten Ruda, PhD** & **Rachel Essner** (Andermann Lab), **Peter Kalugin** (Andermann & Lehtinen Labs), **Ya'el Courtney** (Lehtinen Lab) and **Rasheen Powell, PhD** (Woolf Lab). Rasheen Powell won an award for his poster, "Disrupting Ankyrin/Nav Channel Interactions Attenuates Nociceptor Hyperexcitability in Models of Neuropathic Pain" and can be seen celebrating alongside Dr. Woolf and other lab members in the picture above.

# TRAINEE & LAB NEWS



Congrats to Keunjung Heo, PhD and Sunze Zeng, PhD (both from the Woolf lab) on the celebration of their marriage on May 3rd in Oahu!



**Congrats to Dr. Lauren Miner!**

**Lauren (Crickmore Lab) defended her PhD thesis, "Motivational Control of Drosophila Copulation Across Timescales" on April 25, 2024.**



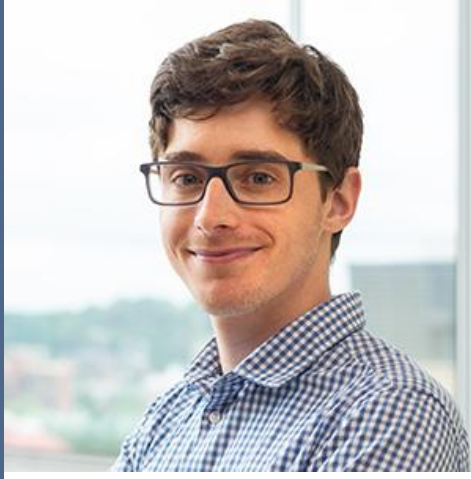
**Congrats to Dr. Sara Hakim!**

**Sara (Woolf Lab) defended her PhD thesis, "Neuro-Immune Mechanisms of Diabetic Neuropathy" on April 23, 2024. She has received a fellowship role at Vertex Pharmaceuticals.**

**Congrats to Amy Tam for receiving an Employee Community Volunteer Award!**

**Amy Tam (Ebrahimi-Fakhari Lab) was one of five winners announced at the awards, and her organization, the Allston-Brighton Food Pantry, will receive a \$5,000 donation. Amy has volunteered with the organization for three and a half years, and she now helps manage volunteers and serves on a grant committee.**





## **Daniel Taub, PhD, receives Torsten Wiesel Outstanding Postdoctoral Award**

Dr. Taub, a postdoctoral researcher in the Woolf lab, was presented with this annual award by Harvard Medical School's Department of Neurobiology. As the award recipient, Daniel was invited to give a talk at the HMS Neurobiology Retreat.

Congrats, Daniel!

**Congrats to Navid Mousavi and Sam Brill-Weil (Do Lab) on completing their qualifying examinations for Harvard's PhD Program in Neuroscience!**

# CONGRATS!

## The Kirby Neurobiology Center wants to recognize our RAs who are heading off to graduate school!

JASON BIUNDO (Z. HE LAB) - HARVARD | PHD IN BIOLOGICAL & BIOMEDICAL SCIENCES

SYDNEY CALDWELL (STEVENS LAB) - HARVARD | PHD IN BIOLOGICAL & BIOMEDICAL SCIENCES

SYDNEY CAMPBELL (DO LAB) - MIT | PHD IN BRAIN & COGNITIVE SCIENCES

MALLORY CARON (LIPTON LAB) - TUFTS | PHD IN GENETICS, CELLULAR & MOLECULAR BIOLOGY

LIA D'ALESSANDRO (STEVENS LAB) - HARVARD | PHD PROGRAM IN NEUROSCIENCE

ANU DHANASHEKAR (STEVENS LAB) - ORLANDO COLLEGE OF OSTEOPATHIC MEDICINE | MEDICAL SCHOOL

JACKIE FAHEY (STEVENS LAB) - TUFTS | PHD IN NEUROSCIENCE

LYDIA FOZO (ENGLE LAB) - YALE | MD/PHD PROGRAM

REBECCA FULTHORPE (STEVENS LAB) - UCSF | PHD IN BIOMEDICAL SCIENCES

ZOE GARDNER (PODURI LAB) - UW MADISON | MD/PHD PROGRAM

KELLY GIM (KOEHLER LAB) - DUKE | PHD IN DEVELOPMENTAL STEM CELL BIOLOGY

SARAH HUANG (STEVENS LAB) - RUTGERS | PHD IN MOLECULAR BIOSCIENCES

AMANDA LIEBHARDT (ROTENBERG LAB) - TEMPLE | MEDICAL SCHOOL

DENNIS KALLOOR (CRICKMORE LAB) - HARVARD | PHD PROGRAM IN NEUROSCIENCE

EMMA MARTIN (SAHIN LAB) - BRANDEIS | PHD IN NEUROSCIENCE

ENGIE MOSTAFA (LIPTON LAB) - DARTMOUTH | PHD IN MOLECULAR AND CELL BIOLOGY

JUAN RUIZ (SAHIN LAB) - YALE | MD/PHD PROGRAM

NICOLE TEANEY (SAHIN LAB) - TUFTS | PHD IN NEUROSCIENCE

MAKENZIE TOMIHIRO (Z. HE LAB) - UC IRVINE | MEDICAL SCHOOL

XAVIER VALENCIA (FAGIOLINI LAB) - NORTHWESTERN | PHD IN NEUROSCIENCE

DELANEY WOOD (HUMAN NEURON CORE) - STANFORD | PHD IN NEUROSCIENCE

LUCY YU (SAHIN LAB) - WAYNE STATE | MEDICAL SCHOOL

**Thank you for all your hard work and dedication! Best of luck on the next endeavor!**

## 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.



# AWARDS & PUBLICATIONS

## Recent Awards

**Chinfei Chen, MD, PhD**, received a Foundation Research Grant from Harvard Medical for her project titled "Functional Interrogation of ASD-related Mutations in Synaptic Circuits of the Thalamus."

**Michael Crickmore, PhD**, was awarded an R01 from the NIH for his project titled "Molecular and circuit mechanisms of memory prevention and removal."

**Michael Crickmore** received a REC pilot grant for his project, "Inducing and reverting anovulation in flies and mice."

**Michael Do, PhD**, was awarded an R01 from the NIH for his project titled "Signal Generation and Processing in the Retinohypothalamic Pathway."

**Darius Ebrahimi-Fakhari, MD, PhD**, received a grant from Cure AP-4 for the project, "Preclinical development of BCH-HSP-CO1, BCH-MCC-10, BCH-MCC- 17."

**Michela Fagiolini, PhD**, was awarded a Foundation Research Grant from Harvard Medical for her project, "Understanding sensory processing in ASD."

**Michela Fagiolini** and the **Neurodevelopmental Behavioral Core** were selected for an ECRAC award for a Bussey-Saksida touchscreen operant conditioning system.

**Jordan Farrell, PhD**, received an R00 grant from the NIH for his project, "Dissecting Hypothalamic Pathways for Seizure Control."

**Zhigang He, PhD, BM**, was awarded an R01 from the NIH for his project titled "Promoting myelination of regenerating axons for vision restoration."

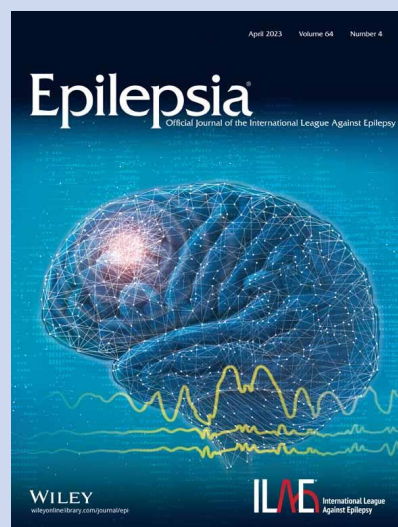
**Zhigang He** and the **Viral Core** were selected for an ECRAC award to purchase an Eppendorf Centrifuge 5810 R for the core.

**Zhigang He** received funding from Sanogene Bio USA Inc. to fund his project, "Assessing several compounds for their effects on mouse pain models."

**Jeffrey Holt, PhD**, was awarded an R01 from the NIH for his project. "Structure and Function of Mechanosensitive Channels in Inner Ear Hair Cells."

**Karl Koehler, PhD**, received TWO R01 grants from the NIH for his projects titled "Engineering self-assembled skin-on-a-chip," and "Engineering multi-lineage inner ear organoids."

## Recent Featured Publications



**Engle & Whitman Labs.** Presence of Copy Number Variants Associated With Esotropia in Patients With Exotropia. JAMA Ophthalmol. March 2024.

**Stevens Lab.** CSDM1 regulates brain complement activity and circuit development. Brain Behav Immun. March 2024.

**Farrell Lab.** Neural and behavioural state switching during hippocampal dentate spikes. Nature. April 2024.

**Holt/Geleoc Lab.** TMC function, dysfunction, and restoration in mouse vestibular organs. Front Neurol. April 2024.

**Annapurna Poduri, MD, MPH**, received a U24 from the NIH for her project, "Brain Malformation Expert Panels for Gene and Variant Curation."

**Alexander Rotenberg, MD, PhD**, was awarded an R21 grant from the NIH for his project titled "Mitigating post-traumatic epileptogenesis by enhancing synaptic glutamate transport via long-term non-bactericidal beta-lactam administration."

**Alexander Rotenberg** and the **Experimental Neurophysiology Core** were selected for an ECRAC award to acquire a Data Sciences International Ponemah wireless telemetry acquisition system for the core.

**Mustafa Sahin, MD, PhD**, received funding from the PTEN Research Foundation for his project, "Feasibility project supporting the grant to examine Sirolimus mTOR for improving social abilities in people with PTEN mutations."

**Mustafa Sahin** received funding as a Co-Investigator on an R01 grant with Dr. David Simon at BIDMC for the project, "Targeting the FBXW7/PGC1 Pathway as a Therapeutic Strategy for Parkinson's Disease."

**Thomas Schwarz, PhD**, was awarded a renewal of his previously funded NIH R01 for his project, "Axonal Transport of mRNA for Mitochondrial Proteins."

**Thomas Schwarz**, with help from **Ceren Uncu**, was selected for an ECRAC award for a Beckman Optima MAX-XP Tabletop Ultracentrifuge with HEPA filter kit, being purchased as departmental equipment.

**Judith Steen, PhD**, received funding from the Michael J Fox Foundation for Parkinson's Research for her project, "Development of a FLEXISyn Assay for Absolute Quantification of  $\alpha$ -Synuclein and its Post-translational Modifications."

**Alissa D'Gama, MD, PhD** (Poduri Lab), was awarded a BCH Office of Faculty Development/BTREC/CTREC Career Development Fellowship.

**Hing Cheong (Henry) Lee, PhD** (Rotenberg Lab), received funding from Citizens United for Research in Epilepsy for his project, "Minimizing seizure-associated adverse effects upon gene replacement therapy in *slc6a1* epileptic encephalopathy."

**Matthew Mun** (Holt/Geleoc Lab) was awarded a National Science Foundation Graduate Research Fellowship for his project, "Characterization of Molecular Components Essential for Auditory and Vestibular Transduction."

**Zachary Stayn** (Poduri Lab) was awarded an American Epilepsy Society BRIDGE summer internship grant.

**Sahin Lab.** Generation and characterization of six human induced pluripotent stem cell lines (hiPSCs) from three individuals with SSADH Deficiency and CRISPR-corrected isogenic controls. Stem Cell Res. April 2024

**Z. He Lab.** Spinal projecting neurons in rostral ventromedial medulla co-regulate motor and sympathetic tone. Cell. May 2024.

**Ebrahimi-Fakhari Lab.** The spectrum of movement disorders in young children with ARX-related epilepsy-dyskinesia syndrome. Ann Clin Transl Neurol. May 2024.



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