



**Boston  
Children's  
Hospital**

F.M. Kirby  
Neurobiology  
Center

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# Quarterly Newsletter

Winter 2024/25

## 2025 WORK MILESTONES

### 5 Years of Service

Christine Barthelemy  
Bronwen Beaudoin  
Andrea Bianchi  
Yael Braverman  
Franklin Caval-Holme  
Cidi Chen

Maya Chopra  
Sindhuja Gowrisankaran  
Wonhee Han  
Kathryn Mansour  
Nader Morshed  
Veselina Petrova

Maxi Pitsch  
Takuma Sonada  
Kyle Evan Takach  
Amy Tam  
Jie Xue  
Guoqi Zhang

### 10 Years of Service

Mantu Bhaumik

### 15 Years of Service

Sameer Dhamne   Hing Cheong (Henry) Lee  
Mike Do  
Jessica Landers   Kathy Rodrigues  
Beth Sheidley

### 20 Years of Service

Padam Gharti  
Judith Steen  
Jianlin Wang

### 25 Years of Service

Tom Schwarz

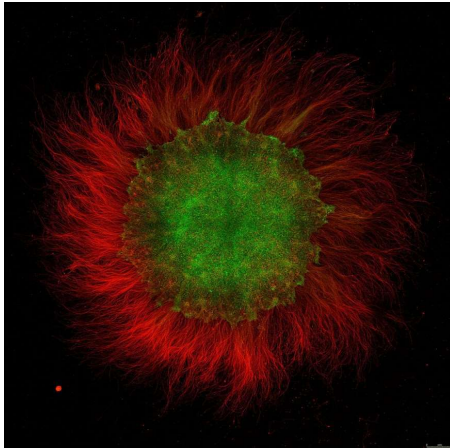
# THANK YOU FOR ALL YOU DO!

Winners of the



# HBI Beauty of the Brain Awards Announced

Congratulations to the winners of the Harvard Brain Science Initiative "Beauty of the Brain Image Contest"! Out of 31 images, five were selected as winners, with two of those coming from Kirby Center members.

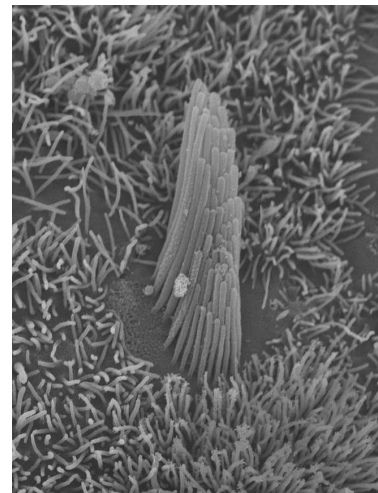


***A Sparkling Spot by Keunjung Heo, PhD  
(Woolf Lab)***

Motor neuron spot cultures were stained with TUJ1 (red) and F-actin (green). Millions of motor neuron cell bodies were seeded in the center, with their axons extending outward from the central cluster.

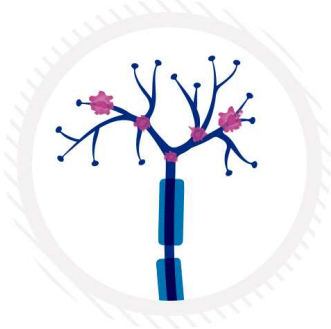
***Stairway to Heaven: The Bundle of a Human Stem-Cell Derived Hair Cell by Carl Nist-Lund (Koehler Lab)***

Scanning electron microscopy reveals the intricate structure of a human stem-cell derived hair cell. Cells like these, found in the inner ear, are responsible for the detection of sound and gravitational stimuli. When this bundle deflects, mechanosensitive ion channels open and convert mechanical stimuli into electrical impulses sent to the brain.



February 11, 2025 was the annual International Day of Women and Girls in Science. In honor of that, we asked some of our faculty and affiliates to share their advice for young women in STEM.

<p><b>ELIZABETH ENGLE, MD</b> KIRBY FACULTY</p> <p><b>Focus on your research and treasure the freedom of discovery!</b></p>	<p><b>GWENAELLE GELEOC, PHD</b> KIRBY FACULTY</p> <p><b>Believe in yourself and be persistent in reaching your dreams and goals.</b></p>	<p><b>JUDITH STEEN, PHD</b> KIRBY FACULTY</p> <p><b>Focus on the science and follow the data – the rest is noise.</b></p>	<p><b>BRIELLE FERGUSON, PHD</b> KIRBY FACULTY</p> <p>Be intentional about finding your cheerleaders, whether its peers or mentors. Science can be hard, so it can be so helpful to have a squad that has your back. Do this informally but also plug into existing communities with folks who share your experience locally or through national organizations</p>	<p><b>ANNAPURNA PODURI, MD, MPH</b> FORMER KIRBY FACULTY</p> <p>My advice is in three parts: (1) Find your questions that are important to you and pursue them at your pace as part of the larger vision for what you hope to achieve. (2) Cultivate your team of mentors and advisers. (3) Embrace new possibilities and opportunities!</p>
<p><b>MARIA LEHTINEN, PHD</b> KIRBY AFFILIATE</p> <p><b>Be curious, ask questions, find something you are passionate about and work on that!</b></p>	<p><b>MAYA CHOPRA, MBBS, FRACP</b> KIRBY AFFILIATE</p> <p>Never abandon your curiosity, creativity and ambition. Embrace mentors who inspire and elevate you. The path to scientific discovery can take unexpected turns, but as long as you stay fearless and focused, you will exceed your goals and inspire those that follow.</p>	<p><b>MARY WHITMAN, MD, PHD</b> KIRBY AFFILIATE</p> <p><b>Don't let anyone make you feel like you don't belong.</b></p>	<p><b>EMILY OSTERWEIL, PHD</b> KIRBY AFFILIATE</p> <p><b>You think you aren't good enough, not smart enough, but you are! Persist!</b></p>	<p><b>MEENAKSHI RAO, MD, PHD</b> KIRBY AFFILIATE</p> <p><b>Stick with it – it is really fun and immensely rewarding to lead a research lab. There is no job I would rather be doing!</b></p>



## Woolf Lab featured in BCH Answers Blog

The **BCH Answers blog** recently featured work from the lab of Clifford Woolf, MB, BCh, PhD.

The work published in *Nature* finds that in a mouse model of type 2 diabetes, immune cells flood into peripheral nerves in an apparent attempt to protect them from damage. This surprising insight could lead to strategies to prevent, slow, or minimize peripheral neuropathy in diabetes.

## Kirby Researchers featured in new issue of Boston Children's Hospital Magazine

The newest issue of Boston Children's Hospital Magazine features some familiar faces including:

A feature on **Beth Stevens, PhD** and her work with glia.

An article discusses work being done by **Jeffrey Holt, PhD** and **Eliot Shearer, MD, PhD** in the Translational Hearing Genomics lab to advance treatments for hearing loss.

A feature on organoids being done by **Karl Koehler, PhD**, **Xin Tang, PhD**, and many other researchers across different specialties.

Check out the online version [here](#).



*The Kirby Center is now on LinkedIn*

**Be sure to follow our page to stay up-to-date on all the Kirby news!**

## Annual Embrace-a-Family Holiday fundraiser

The Kirby Center again participated in the Boston Children's Embrace-a-Family fundraiser, towards which we raised \$1,006.

Funds raised through this program were used to purchase gift cards for patient families in need in collaboration with the Social Work department. In total, 376 families were supported during the 2024 holiday season by this program. Thank you all for your participation and thanks to Karen Caballero for coordinating this effort!



# Kirby Gingerbread House Competition

In honor of the holiday season, the Kirby Center held its annual winter celebration which was full of food and fun. Labs competed in a gingerbread house competition, won by the Engle Lab!



**Our faculty got together for their annual celebration of the Lunar New Year. This is a yearly opportunity for members of the Kirby Center to come together to kick off the new year Chinese style!**





Congrats to **Sinead Greally** (Steen Lab) who successfully defended her PhD thesis, "*Systems biology analysis of synucleinopathies*".



**Congratulations Dr. Israel Abebe Admasu (Fagiolini Lab) on receiving a fellowship award from the Association for Creatine Deficiencies!**



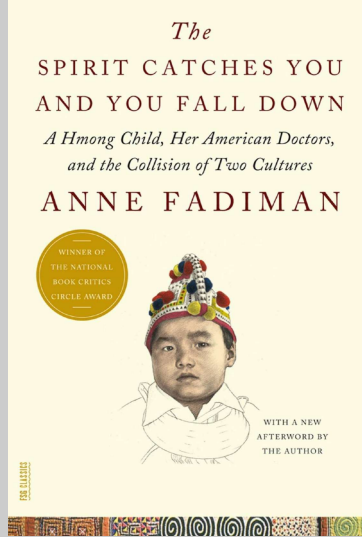
His work addresses the need for precise tools to evaluate emerging therapies for Cerebral Creatine Deficiency Syndromes (CCDS). Israel's project establishes a non-invasive method to measure brain signals as biomarkers of disease severity, providing objective assessments for new treatments.

"I believe that my research will establish a critical framework for evaluating the potential impact and efficacy of upcoming therapeutic approaches targeting creatine deficiency syndromes," said Dr. Admasu.

**Gabriela Carrillo, PhD** (Engle Lab) was a 2024 HHMI Hanna Gray Fellow Finalist

Although Gabby did not receive the fellowship, as a finalist, she received \$10,000 to support their career development during her postdoctoral training period.





## Update

In January, the Brainy Book Club met for the second time to discuss our fall/winter book, *The Spirit Catches You and You Fall Down* by Anne Fadiman.

Our discussion focused on themes around cross-cultural medicine and the progress that has been made since the publication of the book in 1997.

## 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.

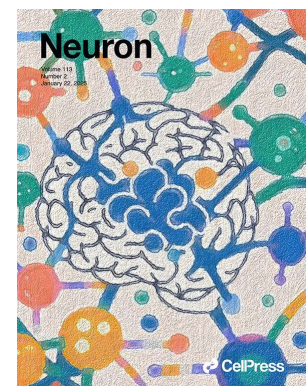
# AWARDS & PUBLICATIONS

## Recent Awards

**Mike Crickmore, PhD** was awarded an R01 from the NIH for his project "Use-Dependent Adjustments to Dopamine Reception in Motivational Control."

**Darius Ebrahimi-Fakhari, MD, PhD** received a TIDO Accelerator grant for his project "Comprehensive Preclinical Development of Small Molecule Modulators of Protein Trafficking to Restore AP-4 Deficiency".

**Gwenaëlle Géléoc, PhD and Eliot Shearer MD, PhD**, received an R13 from the NIH to support the International Usher Syndrome Conference.



**Ebrahimi-Fakhari Lab.**  
Quantitative natural



**Zhigang He, BM, PhD**, received funding from the Advanced Research Projects Agency for Health (ARPA-H) for his project Viability, Imaging, Surgical, Immunomodulation, Ocular preservation and Neuroregeneration (VISION) Strategies for Whole Eye Transplant

**Jeffrey Holt, PhD, Gwenaëlle Géléoc, PhD, Karl Koehler, PhD, Eliot Shearer, MD, PhD, Marly Kenna, MD, and Tim Yu, MD, PhD** received funding from the Usher Syndrome Society for a collaborative project to develop a new Pipeline for Usher Syndrome (PUSH) to accelerate the development of novel USH therapies for translation to clinical application.

**Karl Koehler, PhD** received a diversity supplement from the NIH for his project, "Engineering multi-lineage inner ear organoids."

**Karl Koehler, PhD** received a grant from the Epidermolysis Bullosa Research Partnership (EBRP) to study and target mechanisms of EB blistering and repair in skin organoids.

**Mustafa Sahin, MD, PhD** was awarded financial support from the Phelan-McDermid Syndrome Foundation for his project, "Mapping the Genotype, Phenotype, and Natural History of Phelan McDermid Syndrome."

**Mustafa Sahin, MD, PhD** received funding from the Tuberous Sclerosis Alliance to help support the Developmental Synaptopathies Consortium for tuberous sclerosis complex.

**Clifford Woolf, MB, Bch, PhD** received a diversity supplement for his NIH R35 project titled, "Unravelling Mechanisms and Novel Therapeutic Targets for Peripheral Neuropathy and Neuropathic Pain."

**Israel Abebe Admasu, PhD** (Fagiolini Lab) received a fellowship award from the Association for Creatine Deficiencies for his project, "Establishing novel functional biomarkers for Creatine Deficiency Syndromes."

**Elizabeth Buttermore, PhD** (Human Neuron Core) received funding from the CURE5 Foundation for her project CDKL5 patient induced pluripotent stem cell resource development.

**Kathleen Donovan** (Sahin Lab) received an NIH predoctoral training grant for her project, "Neuronal Primary Cilia Dysfunction in Tuberous Sclerosis Complex."

**Veselina Petrova, PhD** (Woolf Lab) was awarded an HMS Goldenson Fellowship for her project, "Identification of novel neuroprotective and regenerative small molecules for the treatment of cerebral palsy and other neurological disorders."

**Maxi Pitsch, MD** (Crickmore Lab) received an HMS Hearst Fellowship for his project, "Using *Drosophila* to understand the function of genes disrupted in attentional disorders."

**Evan Ratzan, PhD** (Holt/Geleoc Lab) was awarded a K99 Pathway to Independence Award from the NIH for his project, "Defining the role of MET components in vestibular hair cell maturation and gene therapy responsiveness."

**Takuma Sonoda, PhD** (Chen Lab) was awarded an HMS Goldenson Fellowship for his project "Plasticity of early visual computations and their role in perception."

**Xu Zhang, PhD** (Farrell Lab) received funding from the Dravet Syndrome Foundation for his project, "Selective Activation of

history modeling of HPDL-related disease based on cross-sectional data reveals genotype-phenotype correlations. *Genet Med.* December 2024.

**Steen Lab.** Dementia with lewy bodies patients with high tau levels display unique proteome profiles. *Mol Neurodegener.* December 2024.

**Poduri Lab.** Genome Sequencing After Exome Sequencing in Pediatric Epilepsy. *JAMA Neurol.* December 2024.

**Human Neuron Core.** Harnessing the potential of human induced pluripotent stem cells, functional assays and machine learning for neurodevelopmental disorders. *Front Neurosci.* January 2025.

**Sahin Lab.** Phenotypic rescue via mTOR inhibition in neuron-specific Pten knockout mice reveals AKT and mTORC1-site specific changes. *Mol Psychiatry.* February 2025.

**Woolf Lab.** Macrophages protect against sensory axon loss in peripheral neuropathy. *Nature.* February 2025.

**Tang Lab.** Neuroimmune-competent human brain organoid model of diffuse midline glioma. *Neuro Oncol.* February 2025.

Hippocampal Parvalbumin Interneurons via Focused Ultrasound Neuromodulation for Seizure Suppression in Scn1a+/- Mice.”

The Kirby Center received funding from the Danaher Foundation to support our summer internship program, led by **Michael Do, PhD.**

Boston Children's Hospital | Boston Children's Hospital 300 Longwood Ave Center for Life Science  
| Boston, MA 02115 US

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