



**Boston
Children's
Hospital**

**F.M. Kirby
Neurobiology
Center**

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Quarterly Newsletter

Quarter Two - 2026

KIRBY CENTER HIGHLIGHTS



Clifford Woolf Elected to the Fellowship of the Royal Society

The F.M. Kirby Neurobiology Center is delighted to congratulate **Clifford Woolf, MB, BCh, PhD**, on his election as a Fellow of the Royal Society, one of the world's oldest and most distinguished scientific academies.

Dr. Woolf is internationally recognized for transforming our understanding of pain mechanisms. His pioneering discoveries revealed how the nervous system changes following injury, establishing the concept of central sensitization and fundamentally changing the way scientists think about chronic pain. His work has paved the way for new therapeutic strategies that continue to influence

neuroscience and medicine worldwide.

In addition to his groundbreaking research, Dr. Woolf served for 15 years as Director of the F.M. Kirby Neurobiology Center, helping build one of the nation's premier neuroscience research communities. Under his leadership, the Kirby Center expanded its scientific reach while fostering collaboration, innovation, and mentorship across disciplines.

Election to the Royal Society recognizes a lifetime of exceptional scientific achievement and places Dr. Woolf among an extraordinary community of researchers whose discoveries have shaped modern science.

Congratulations to Dr. Woolf on this remarkable honor.



Xi He Celebrates His Retirement

The F.M. Kirby Neurobiology Center recently gathered with colleagues, trainees, and collaborators to celebrate the remarkable career of **Xi He, PhD**, whose decades of groundbreaking research have advanced our understanding of Wnt signaling and developmental biology.

Throughout his career, Dr. He made foundational discoveries that shaped the field and influenced scientists around the world. His work provided critical insights into the molecular pathways that regulate embryonic development and disease, laying the groundwork for countless future discoveries.

Those who have worked alongside Dr. He also know him for something equally meaningful: his relentless curiosity. Whether during lab meetings, seminars, or scientific discussions, he consistently asked thoughtful questions that challenged assumptions and inspired new ideas. His collaborative spirit and enthusiasm for discovery have left a lasting impression on generations of trainees and colleagues.

As Dr. He begins his retirement, the Kirby community celebrates not only his remarkable scientific accomplishments but also the mentorship, curiosity, kindness, and generosity that have defined his career.

We thank Dr. He for his many contributions and wish him all the best in his next chapter.



Brielle Ferguson Named a 2026 McKnight Scholar

The F.M. Kirby Neurobiology Center is proud to congratulate **Brielle Ferguson, PhD**, on being named a 2026 McKnight Scholar, one of the most prestigious awards recognizing early-career neuroscientists. The McKnight Scholar Awards support investigators whose work has the potential to significantly advance our understanding of the brain and neurological disease.

Dr. Ferguson was recognized for her project, "Cholinergic Modulation of Attention and Adaptive Behavior," which seeks to better understand how cholinergic signaling shapes the neural circuits underlying attention, learning, and behavioral flexibility. These fundamental processes are disrupted across a wide range of neurodevelopmental and neuropsychiatric disorders, making this research especially important for identifying new therapeutic approaches.

The McKnight Scholar Award highlights both the scientific innovation and long-term impact of Dr. Ferguson's research program. Through her work at the Kirby Center and BCHI, Dr. Ferguson continues to advance our understanding of how neural circuits control complex behavior while training the next generation of neuroscientists.

Congratulations to Dr. Ferguson on this well-deserved recognition.

Hisashi Umemori Receives Tommy Fuss Center Independent Investigator Award

The F.M. Kirby Neurobiology Center congratulates Hisashi Umemori, MD, PhD, on receiving an Independent Investigator Award from the Tommy Fuss Center for Neuropsychiatric Disease Research at Boston Children's Hospital.



Dr. Umemori's funded project, "Gut Microbial Products as Mediators of Dopamine Circuit Dysfunction Following Early Life Stress," investigates how early-life stress influences the development and function of brain reward circuits through changes in the gut microbiome. By uncovering how gut-derived signals impact dopamine pathways, this research aims to identify new therapeutic targets for stress-related neuropsychiatric conditions, including ADHD, depression, and schizophrenia.

The Tommy Fuss Center's Research Award Program supports early-career independent investigators conducting innovative basic, translational, and clinical research focused on severe mental health disorders affecting children and adolescents. These awards help advance discoveries that may lead to improved approaches for identifying risk, developing interventions, and ultimately preventing or mitigating psychiatric illness.

Congratulations to Dr. Umemori on this well-deserved recognition and for his continued contributions to understanding the biological mechanisms underlying neuropsychiatric disease.

Celebrating the Career of Clifford Woolf

In May, colleagues, collaborators, trainees, and friends gathered at Boston Children's Hospital for a symposium celebrating the extraordinary career of Clifford Woolf, whose scientific discoveries have transformed the field of pain research.

The symposium, Technological & Translational Breakthroughs in Neuroscience, featured presentations from former trainees and collaborators whose own research careers have been shaped by Dr. Woolf's mentorship. Their talks reflected not only the breadth of his scientific influence but also his enduring commitment to developing future leaders in neuroscience.

Over decades of research, Dr. Woolf has fundamentally changed our understanding of chronic pain by uncovering how the nervous system adapts following injury. His discoveries continue to guide the development of new approaches for treating pain and neurological disorders.

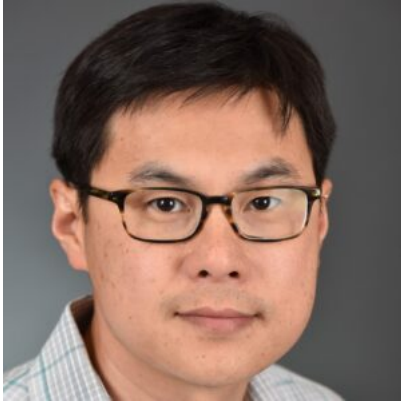
Beyond his scientific accomplishments, Dr. Woolf's leadership as Director of the F.M. Kirby Neurobiology Center helped establish a collaborative research environment that continues to drive innovation today.

The symposium served as both a celebration of an exceptional scientific career and a testament to the lasting impact of mentorship, collaboration, and discovery.

Pictured: Dr. Woolf with his trainees from over the years who were able to attend.



IN THE MEDIA



Research Spotlight: Mapping the Complete Connectome of the Adult Fruit Fly Nervous System

A landmark study published in [*Nature*](#) has provided the first complete map of the neural connections, or connectome, of the central nervous system of an adult fruit fly, creating an unprecedented resource for understanding how neural circuits give rise to behavior.

The study, which involved an international collaboration of researchers, offers a comprehensive view of how neurons throughout the fruit fly's brain and ventral nerve cord are connected. This detailed wiring diagram provides scientists with a foundation for exploring how sensory information, movement, and complex behaviors are coordinated across the nervous system.

Wei-Chung Lee, PhD, of the F.M. Kirby Neurobiology Center, served as a co-senior author on the study. "It is really important to have a central nervous system connectome that is as complete as possible so we can link up the brain and body and start thinking about behavior holistically," said Dr. Lee.

By revealing the architecture of the entire central nervous system, this work represents a major step forward in neuroscience and provides a powerful resource for researchers seeking to understand how neural circuits function in health and disease.

CURE Epilepsy Video features Dr. Ann Poduri

A recent video shared by CURE Epilepsy highlights the inspiring partnership between a family affected by Sudden Unexpected Death in Epilepsy (SUDEP) and **Ann Poduri, MD, MPH**, whose research advances our understanding of this devastating condition.



As Director of Research for the Robert's Program on Sudden Unexpected Death in Pediatrics at BCH, Dr. Poduri leads research to uncover the genetic and biological factors that contribute to epilepsy and SUDEP. By working closely with patients and families, her team translates personal experiences into discoveries that could one day improve risk assessment and prevention.

The family's courage in sharing their story is a powerful reminder of why this research matters and how collaboration between families and scientists drives progress toward better outcomes for people living with epilepsy.

Feature on Dr. Elizabeth Engle in BCH Magazine



Elizabeth Engle, MD, Director of the F.M. Kirby Neurobiology Center, is featured in the Spring 2026 issue of Boston Children's Hospital Magazine. The article highlights Dr. Engle's pioneering research into the genetic basis of neurodevelopmental disorders and her longstanding commitment to translating fundamental discoveries into improved care for patients and families.

As an internationally recognized physician-scientist, Dr. Engle has advanced our understanding of the genetic mechanisms that guide nervous system development, helping to shape the diagnosis and treatment of rare neurological conditions. The feature also reflects the Kirby Center's mission to drive innovative neuroscience research that leads to better outcomes for children with neurological disorders.

[Read the full feature in the Spring 2026 issue of Boston Children's Hospital Magazine.](#)

2026 Kirby Innovation Grants Awarded

Congratulations to the recipients of the 2026 Kirby Innovation Grants! These awards support bold, high-impact ideas that have the potential to transform our understanding of the nervous system and accelerate discoveries that improve human health. We are proud to invest in innovative research that pushes the boundaries of neuroscience.



Mandana Arbab, PhD

“Unifying neuronal identity and function by quantitative transcriptomic read-out of calcium signaling”

Mike Do, PhD

“Developmental Transformations of Sensory Signaling”



Xin Tang, PhD

“Harnessing GABAergic Inhibition to Halt Pediatric Brain Tumor Growth”

Kirby Research Advances Gene Therapy for Hearing Loss

A recent Boston Children's Answers feature highlights exciting progress in the development of gene therapies for inherited hearing loss, showcasing the collaborative efforts of researchers at Boston Children's Hospital, including **Jeffrey Holt, PhD**, investigator at the F.M. Kirby Neurobiology Center, and **Eliot Shearer, MD, PhD**, a Kirby Center affiliate.

For more than two decades, Dr. Holt's laboratory has led pioneering research to better understand the genetic causes of hearing loss and develop gene-based therapies that restore hearing in preclinical models. Working alongside clinician-scientists like Dr. Shearer, whose expertise in pediatric hearing loss and genetic diagnosis helps bring these discoveries closer to patients, the team is helping translate fundamental neuroscience research into potential new treatments.

This work exemplifies the Kirby Center's commitment to collaborative, translational neuroscience by bringing together basic researchers and clinicians to accelerate discoveries that improve the lives of children and families affected by neurological and sensory disorders.

[Read the full story in Boston Children's Answers.](#)

EVENTS

Supporting Patient Families Beyond the Hospital

The F.M. Kirby Neurobiology Center recently partnered with Boston Children's Hospital's Patient Family Housing Program to support families staying at the Yawkey Family Inn while their children receive medical care.



With funds donated by the Kirby community, Kirby faculty, staff, and trainees assembled 40 care packages filled with snacks, drinks, and handwritten notes of encouragement. Each package included water, juice, granola bars, fruit snacks, candy bars, and small treats designed to offer families a moment of comfort during what can be an incredibly stressful time.

Boston Children's Patient Family Housing Program provides affordable accommodations for families who live more than 50 miles from the hospital, allowing them to remain close to their child throughout treatment. With locations in Brookline and Boston, the program serves as a home away from home for families navigating complex medical care.



Celebrating Employee Appreciation in Action Week

In recognition of Employee Appreciation in Action Week, the Kirby Neurobiology Center brought faculty, staff, trainees, and lab members together for an afternoon of appreciation following the weekly Lab Results Talk.

Hosted by Kirby leadership in the Center for Life Sciences 12th floor kitchen, the gathering offered an opportunity for members of the Kirby community to connect over sweet treats and celebrate the dedication and hard work of everyone who contributes to the Center's mission.

Inaugural Kirby Music Festival

On June 26, members of the F.M. Kirby Neurobiology Center community came together for the inaugural Kirby Music Festival, an afternoon celebrating the musical talents of our faculty, trainees, and staff.

The festival featured performances spanning classical, ragtime, and contemporary music by Eboni Arnold, Tien Phuoc Tran, Jack Polo, Jonathan Lipton, and Maria Lehtinen. Colleagues gathered to enjoy the performances while connecting over coffee, cookies, and conversation.

The event highlighted the creativity and diverse talents of the Kirby community, offering a wonderful opportunity to celebrate the people behind the science.



TRAINEE & LAB NEWS

CONGRATS!

The Kirby Neurobiology Center wants to recognize interns and RAs who are heading off to graduate school!

JUSTIN BUCALO (CHEN LAB) - CORNELL | PHD IN NEUROSCIENCE

VALENTINA DE LA TORRE (FAGIOLINI LAB) - UNIVERSITY OF EDINBURGH | PHD PROGRAM

CHLOE DISCIPIO (UMEMORI LAB) - UNIVERSITY OF FLORIDA | PHD IN NEUROSCIENCE

CHENG GAO (FARRELL LAB) - COLUMBIA UNIVERSITY | MASTERS IN PUBLIC HEALTH

JULIA GROCOTT (FARRELL LAB) - MT. SINAI | PHD IN NEUROSCIENCE

YANA HONCHARUK (LIPTON LAB) - NORTHWESTERN | MEDICAL SCHOOL

IVAN JARA-MARQUEZ (CHEN LAB) - TEMPLE | MEDICAL SCHOOL

HYO KIM (EBRAHIMI-FAKHARI LAB) - UNIVERSITY OF WASHINGTON | MEDICAL SCHOOL

JANE LI (STEVENS LAB) - SCRIPPS RESEARCH | GRADUATE SCHOOL

LEENA MEHENDALE (SAHIN LAB) - NEW YORK UNIVERSITY | PHD IN NEUROSCIENCE

FIONA MENSCHING (ENGLE LAB) - COLUMBIA UNIVERSITY | MEDICAL SCHOOL

TRANG NGUYEN (STEVENS LAB) - PURDUE UNIVERSITY | MEDICINAL CHEMISTRY & PHARMACOLOGY

JOSH RONG (EBRAHIMI-FAKHARI LAB) - ROYAL COLLEGE OF SURGEONS | MEDICAL SCHOOL

DAVIDE SPERI (Z. HE LAB) - MIT | PHD IN BRAIN & COGNITIVE SCIENCES

ELIZABETH STRANG (UMEMORI LAB) - USC | NEUROSCIENCE GRADUATE PROGRAM

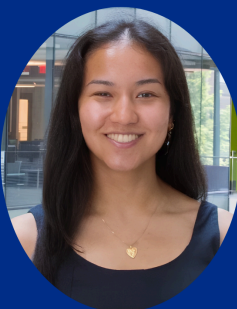
CYNTHIA WANG (FERGUSON LAB) - NEW YORK UNIVERSITY | LAW SCHOOL

CRISTOBAL VON MUHLENBROCK (HOLT/GELEOC LAB) - SUNY UPSTATE MEDICAL | MASTER OF SCIENCE

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

**Kathleen
Esfahany**

Farrell Lab



**Carl
Nist-Lund**

Koehler Lab



PiN Excellence in Service Award Recipients

The F.M. Kirby Neurobiology Center is proud to celebrate Kathleen Esfahany (Farrell Lab) and Carl Nist-Lund (Koehler Lab), who have been named recipients of the 2026 Harvard Program in Neuroscience (PiN) Excellence in Service Award.

Presented annually, the award recognizes graduate students who have made exceptional contributions to the PiN community through leadership, mentorship, and service.

Kathleen was recognized for her outstanding leadership as a PiN class representative, peer mentor, NSF Graduate Research Fellowship Program mentor, and organizer of community-building events. Her commitment to creating

an inclusive and supportive environment with strengthened connections across the neuroscience community.

Carl was honored for his dedication to mentorship, student advocacy, and mental health initiatives. In addition to serving as a PiN class representative and peer mentor, he co-led the PiN Mental Health Working Group, helping expand resources and foster a culture of well-being among trainees.

These awards reflect the vital role that service and mentorship play in advancing scientific communities. We congratulate Kathleen and Carl on this well-deserved recognition and thank them for their many contributions to the Kirby Neurobiology Center and the broader neuroscience community.

TNC BIOREPOSITORY CORE

Every Sample Has the Power to Advance Discovery

Help build the Translational Neuroscience Center Biorepository- a growing resource of biological samples accelerating neurological research.



Samples we collect

Specimens		Processing Options	
Brain		Live Tissue	
		Fresh Frozen Tissue	
		Formalin-Fixed Paraffin-Embedded Tissue	
Blood		PBMCs	
		DNA	
		Serum	
CSF		CSF Supernatant	
		CSF Cell Pellet	
Skin		Fibroblasts	

Who is eligible



Individuals with neurological conditions



Unaffected individuals used as controls

Contact



617-919-2773



NeuroCore@childrens.harvard.edu



Pager: 3436



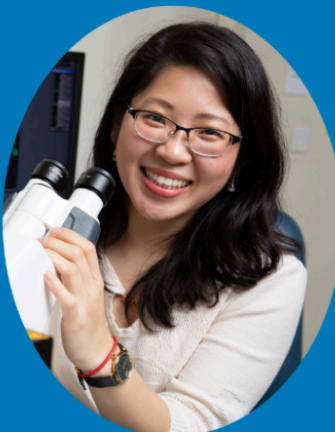
Epic message: NeuroCore

PI: Mustafa Sahin, MD, PhD · Director: Elizabeth Buttermore, PhD · Manager: Parul Chaudhary, PhD · CRAs: Ryan Guardado & Remi Hirsh

Sam Abbaspour, PhD
Farrell Lab



Youtong Huang, PhD
Stevens Lab



Georg Jocher, PhD
Steen Lab



Boston Children's Hospital
F.M. Kirby Neurobiology Center

Protecting the Talent Pipeline in Neurodegeneration: Postdoctoral Research Award Recipients

The F.M. Kirby Neurobiology Center is proud to celebrate Georg Jocher, PhD (J. Steen Lab), Youtong Huang, PhD (Stevens Lab), and Sam Abbaspour, PhD (Farrell Lab), all selected by the Boston Children's Hospital Awards Committee as recipients of funding through the inaugural year of the philanthropically funded Protecting the Talent Pipeline in Neurodegeneration postdoctoral research award program.

This new program supports outstanding postdoctoral researchers whose work advances our understanding of neurodegenerative disease and helps sustain the next generation of scientific leaders. By providing critical research support, the program recognizes the importance of investing in early-career investigators and fostering innovative discoveries.

Georg, Youtong, and Sam represent the breadth of impactful neuroscience research taking place across the F.M. Kirby Neurobiology Center. Their work spans fundamental mechanisms of neurodegeneration, neural circuit function, and disease-related processes, contributing to the Center's mission of advancing discoveries that improve our understanding of neurological disorders.

Congratulations to all of the award recipients on this well-deserved recognition. We are excited to see the discoveries and innovations that will emerge from their continued research.

Carl Nist-Lund Receives 2026 NIH Outstanding Scholars in Neuroscience Award

The F.M. Kirby Neurobiology Center is proud to congratulate Carl Nist-Lund of the Koehler Lab on being named a recipient of the 2026 NIH Outstanding Scholars in Neuroscience Award Program (OSNAP).



The NIH Outstanding Scholars in Neuroscience Award Program recognizes exceptional early-career neuroscientists whose research demonstrates outstanding scientific promise and the potential to advance the field of neuroscience. The award provides support for innovative research that deepens our understanding of the nervous system and contributes to improving human health.

Carl's research in the Koehler Lab focuses on inner ear biology and hearing restoration. By investigating strategies to regenerate the sensory cells responsible for hearing, his work aims to lay the foundation for new treatments that could one day restore hearing for individuals affected by hearing loss.

This prestigious recognition reflects Carl's scientific accomplishments and the innovative research taking place at the F.M. Kirby Neurobiology Center. We congratulate Carl on this well-deserved honor and look forward to following the continued impact of his work.

[Be sure to follow our page to stay up-to-date on all the Kirby news!](#)

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.

RECENT AWARDS

Chinfei Chen, MD, PhD, received funding from the Harvard Brain Science Institute for her project, "Examining a noncanonical pathway through which elevated norepinephrine may drive mania in bipolar disorder."

Elizabeth Engle, MD, and **Tom Schwarz, PhD**, were awarded a competitive continuation for the T32 program from the NIH.

Michael Fagiolini, PhD, **April Levin, MD**, and **Takao Hensch, PhD**, received an R01 from the NIH for their project, "VIP Circuits Dynamics in Sensory Processing in Rett Syndrome."

Zhigang He, PhD, BM, was awarded funding from Wings for Life for his project, "Developing New Therapeutic Strategies for Treating Chronic Spinal Cord Injury."

Zhigang He, PhD, BM, and **the Viral Core** received funding from BCH via ECRAC to purchase a Discover Echo Revolve R4 Microscope.

Karl Koehler, PhD, received an R01 from the NIH for his project, "Bioengineering a human pluripotent stem cell system for studying inner ear development."

Jonathan Lipton, MD, PhD, and **Hisashi Umemori, MD, PhD**, received an R01 from the NIH for their project, "Local circadian regulation of synaptic function and sleep/wake behavior."

Annapurna Poduri, MD, MPH, received funding from Nippon Shinyaku Co. for the project, "Uncovering Molecular Genetic Mechanisms of Pediatric Epilepsies: Translation from Patients to Models to Identify Therapeutic Targets."

Mustafa Sahin, MD, PhD, received funding from Nippon Shinyaku Co. for the project, "Identification of novel epilepsy targets in dysmorphic neurons from Focal Cortical Dysplasia."

Mustafa Sahin, MD, PhD, was also awarded funding from the Tuberous Sclerosis Alliance to support the Developmental Synaptopathies Consortium.

Mustafa Sahin, MD, PhD, was also awarded funding from the Cure SYNGP1.

Tom Schwarz, PhD, received an R21 from the NIH for his project, "Assessing neuronal and glia contributions to Autosomal Dominant Optic Atrophy."

Judith Steen, PhD, was awarded funding from the Michael J. Fox Foundation for Parkinson's Research for her project, "Development and Application of FLEXI2Plex to Characterize Synuclein and Tau across Pure and Mixed Synucleinopathies."

Beth Stevens, PhD, was awarded funding from the Alzheimer's Association for her project, "Leveraging the normal pressure hydrocephalus (NPH) cohort to Understand the Role of the Brain Borders in Disease."

Beth Stevens, PhD, also received funding from Cure Alzheimer's Fund for her project, "NIC: Neuroimmune mechanisms linking peripheral infection-induced dysregulation of perivascular A β clearance and amyloid pathology."

Hisashi Umemori, MD, PhD, and the **Imaging Core** received funding from BCH via the ECRAC to purchase a Photo Multiplier for FV3-AGAPD.

Katerina Bernardi, MD, (Ebrahimi-Fakhari Lab) was awarded funding from the Dystonia Medical Research Foundation for her project, "Creating Clinical Trial Readiness for cAMP-Related Dystonias through Natural History Characterization and Therapeutic Discovery."

Chen Ding, PhD, (Schwarz Lab) received a K99/R00 from the NIH for his project, "Targeting SARM1 as a Therapeutic Strategy for Autosomal Dominant Optic Atrophy (ADOA) and Leber Hereditary Optic Neuropathy (LHON)."

Sneham Tiwari, PhD, (Poduri Lab), was awarded a fellowship from the American Epilepsy Society for her project, "Mosaic depdc5 zebrafish: seizures, hyper-excitability and drug screening."

Kellen Winden, MD, PhD, (Sahin Lab) was awarded funding from the Pediatric Epilepsy Research Foundation for his project, "Examining the mechanisms of epigenetic dysregulation and their contribution to neuronal abnormalities in Tuberous Sclerosis Complex."

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