Appel
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- The Wu Lab our new lab in Appel- Welcome!
- Interview with Dr. Zhuhao Wu
- New personnel
- New publications

Appel Institute

Weill Cornell Medicine
Brain Health Imaging Institute

Weill Cornell Medicine
Helen and Robert
Appel Alzheimer's Disease
Research Institute

REQUEST FOR APPLICATIONS

THE 2023 WCM NEURODEGENERATION RESEARCH AWARDS

FUNDED BY

THE BRAIN HEALTH IMAGING INSTITUTE (RADIOLOGY) AND

THE APPEL ALZHEIMER'S DISEASE RESEARCH INSTITUTE (BRAIN AND MIND RESEARCH INSTITUTE)

Date of Issue	February 14, 2023
Deadline: Receipt of Applications	May 1, 2023
Earliest Award Start Date	July 1, 2023
Award Amounts	Two awards each for $25,000

The Brain Health Imaging Institute (Radiology) and the Appel Alzheimer's Disease Research Institute (Brain and Mind Research Institute) announce the creation of the annual Weill Cornell Neurodegeneration Research Awards.

Purpose: To foster at WCM interdisciplinary research targeting neurodegenerative brain diseases.

Candidates: All projects will be from WCM mPI including one Basic and one Clinical scientist
Note: the collaborations must be real, with each collaborating PI active in the project.

Eligibility: WCM Faculty at all levels.

Requirements: Two-page project proposals accompanied by CVs and two relevant publications.
2-page applications must contain Specific Aims, Budget, and Bibliography (not counted).
NIH type Biosketch or WCM CV.
Format: single-spaced, 11-point Arial type with 0.5-inch margin.

Amounts: Two awards each for $25k (total costs), no overhead allowed.
Competitive renewals are possible.

All funded applications are subject to review and approval by appropriate regulatory committees (e.g. IRB)

Timeline: Application due date May 1, 2023. reviews in June 2023, awards by July 2023.

Review process: A review panel consisting of internal and external scientists.

Reporting: One page progress reports are due June 30, 2024.

Awardees should acknowledge this support in communications derived from this research.

Applications should be submitted as a PDF and sent to: mas4023@med.cornell.edu

Subject line: "2023 WCM NEURODEGENERATION RESEARCH AWARDS_FIRST NAME_LAST NAME"

Inquiries:

Basic and Laboratory Science:
Prof Li Gan
Director Appel Alzheimer's Disease
Research Institute
Lig2033@med.cornell.edu

Clinical Science:
Prof Mony de Leon
Director Brain Health Imaging Institute
Mdl4001@med.cornell.edu

Appel Institute

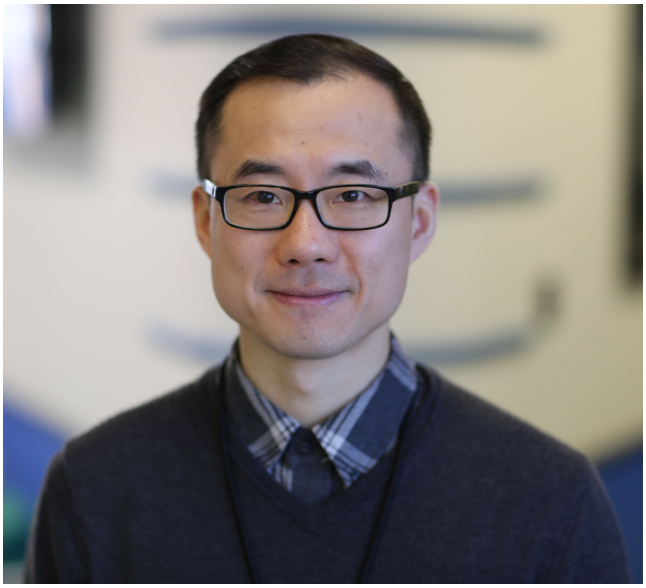
Welcome Ana!

My name is Ana Carney. I was born in Tacna, Peru and came to the United States about ten years ago. In Peru, I earned a bachelor's degree in Communications and worked for the Peruvian version of the IRS. I am fluent in Spanish, English, and Aymara (the language of my Peruvian ancestors).
I started at Weill Cornell Medicine in 2017 in the Kidney and Pancreas Transplant program as a Transplant assistant. In 2020, I moved to the Division of Pediatric Surgery and worked as a Senior Medical Secretary.
I enjoy dancing salsa and cumbia and watching Turner Classic Movies with my American husband. We have taken many nice vacations to Rome, Bermuda, Bahamas, and the Cayman Islands. On the weekends I like going shopping and explore new restaurants.
I consider myself fortunate to be working in such a prestigious Institution as Weill Cornell Medicine and I look forward meeting and working with you all.

Ana Carney
Administrative Specialist

amc9119@med.cornell.edu

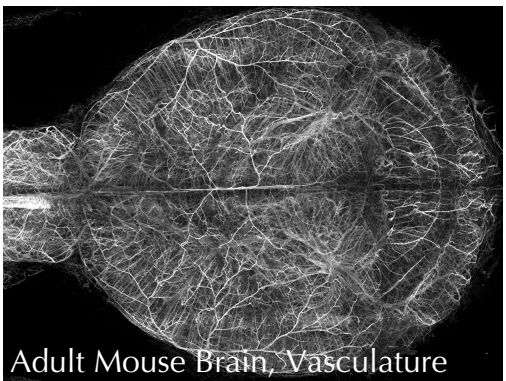
Interview



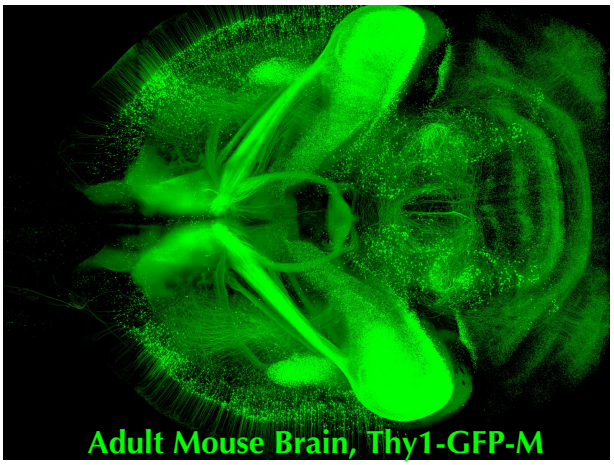
Dr. Zhuhao Wu
Assistant Professor of Neuroscience
Appel Institute
zhw4007@med.cornell.edu

Dr. Zhuhao Wu, thank you for taking the time to do this interview. When did you know you wanted to become a scientist?

It was in college when I first experienced research in a laboratory setting. I was always curious about nature when growing up. When realizing how knowledges are being generated and validated in scientific research, from small steps to big pictures, I immediately found myself wanting to follow this process as far as I could.



Adult Mouse Brain, Vasculature



Adult Mouse Brain, Thy1-GFP-M

Your lab has developed an advance tissue clearing and imaging techniques, would you provide us with more information about the benefits and future goals on this field?

The benefit is obvious as we are three-dimensional beings, and so are most of our tissues and organs. Tissue clearing with volumetric imaging provide a facile and high-throughput platform to appreciate large biological structures like neural circuits and vessels, to profile organ-wide cell distributions and interactions, and to detect early and rare events like disease initiation and spreading. It also promotes systems level analysis with a holistic view, which is critical for understanding brain functions with circuitry and network properties. In the future, we hope to further expand and standardize tissue clearing applications, and to build up automated analysis (yes, the data could be huge) to facilitate broad biomedical research.

Interview

Dr. Zhuhao Wu

Can you describe your ongoing projects on 3D Proteomics and Neurodegeneration?

With tissue clearing and volumetric imaging, we could generate detailed 3D description of molecular and cellular patterns of diverse brain components. We are focusing on protein targets now, with an ongoing screening of robust monoclonal antibodies for scalable quantitative analysis. We aim to establish a panel of markers with significance in brain physiology and disease for brain-wide landscape profiling. We hope to contribute to neurodegeneration studies through such holistic view, to probe global dynamic changes over time and to identify key neural substrates underlying disease progression.

From your perspective, what is the most important discovery in Neuroscience of all time?

In my opinion, that would be the neuro-anatomical work by Santiago Ramón y Cajal, and the neuron doctrine that he proposed which set the beginning of modern neuroscience research.

What is your favorite book and why?

In science, my favorite would be "The Growth of Biological Thought – Diversity, Evolution, and Inheritance" by Ernst Mayr. He systematically discussed many of the fundamental concepts in biology, while keeping it easy to read.

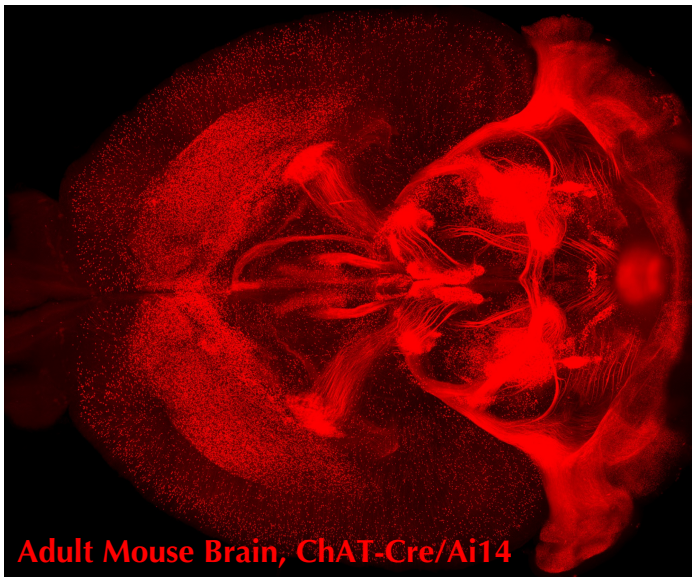
Adult Mouse Brain, Tyrosine Hydroxylase (TH)

Interview

Dr. Zhuhao Wu

Who inspired you in your career to get to where you are today? Can you name that person and tell us how she or he inspired you?

There are many persons that I could think about. Starting from my dad who is very into learning how things work. He would rather explain Newton's laws and Maxwell's equations to me, while the family business was supposed to be about crops and pigs. I think he could be in research if given the opportunity to go to college. Then my high school physics and chemistry teachers who encouraged us to think about how the textbook knowledges were first discovered. Then the college research mentors, both the PI and the graduate student that I was working with who brought me into their daily research. It was fun observing how they did literature search and debated over both experimental design and result interpretation. I feel fortunate to have continued working with stellar scientists during graduate school, postdoc training and beyond. My PhD mentor, Alex Kolodkin, taught me that in research it is not about proving how one could be right, but how it might not be wrong – the definition of the boundaries of the knowledge. My postdoc mentor Marc Tessier-Lavigne is an amazing visionary leader, and the other mentor Jeff Friedman is also such an insightful scientist. I also learnt a lot from the people that they recruited to the lab at all different levels to form a complementary and synergistic team. From them, I realized that research is not just about the projects, but more so about the people. I continue to learn from my own group and all my collaborators now, who are working at the frontline to generate hypothesis, collecting firsthand data, and building up new working models. It has always been inspiring!



Adult Mouse Brain, ChAT-Cre/Ai14

Interview

Dr. Zhuhao Wu

What is your favorite part of the brain and why?

Brain functions as a whole, while also interacting extensively with the rest of the body. Thus, we are developing approaches to allow us looking at all different brain regions together. If I may pick, neocortex is probably the most fascinating part to me. It is disproportionally expanded in human and non-human-primates to carry out sophisticated functions, likely defining why we are even human.

Do you currently have any job openings in your lab?

Yes, we are setting up our new space at Appel now and we will continue to grow our group here! We welcome inquires from students and young scientists and we are always delighted to discuss our work with fellow researchers. Our motivation is to contribute to the development of both tools/resources and biological insights, as well as to engage in community effort for the education and training of scientists to lead future brain research.

Can you share any advice to those who would like to pursue a career in Academia?

If you enjoy research, go for it! I'd like to take Academia as a broad and inclusive term. I am happy to see more and diversified opportunities arising these years to contribute to science and education, so you can find what fits for you to exercise your best talent!

By Guillermo Billy Coronas
Laboratory Manager
Appel Institute
guc9014@med.cornell.edu

Wu Lab

NEWS

Wu Lab

Welcome Ava!

Hi Appel,
My name is Ava Shipman and I grew up in Maui, Hawaii. I graduated from Wellesley College in 2021 with a major in Neuroscience and minor in English. I have been in Zhuhao Wu's lab for a little less than 1 year and am excited to continue our work with optimizing immunohistochemistry techniques to investigate neural systems and development at Weill Cornell! I am broadly interested in neurobiology, especially with psychiatric disorders and how they change brain circuitry and systems. Outside of the lab, I enjoy soccer, long walks in Central Park, and exploring the city with friends. I look forward to meeting you all and being a part of the Appel community!

Ava Shipman
Research Technician I

avs4006@med.cornell.edu

Wu Lab

Welcome Ansa!

Hi Appel! My name is Ansa Malik, and I am a research technician in the Wu Lab. I graduated from Kennesaw State University (KSU) in 2021 with a major in biology and a minor in mathematics. Through my experience in developmental neuroscience research at KSU, I am interested in the formation of distinct neural pathways in the brain during development. In the Wu Lab, I plan on continuing my work with optimizing our delipidation procedures in order to fully examine internal neural structures. Additionally, I am excited to fine-tune my research skills and learn more about the broad field of neuroscience. Outside of the lab, I enjoy reading, watching Netflix, and playing lacrosse!

Ansa Malik
Research Technician I

aam4005@med.cornell.edu

Wu Lab

Welcome Janet!

Hi! My name is Janet Xu, and I am research tech in the Wu lab. I graduated in 2020 from Manhattanville College with a Bachelor of Arts in biochemistry. At Manhattanville, some of the research I was involved in focused on identifying potential biomarkers for concussion. I have utilized my experience from undergrad in my current role in the Wu lab, where I work to validate good antibodies for protein markers and also optimize immunohistochemistry techniques. Moreover, I am interested in understanding the mechanisms that underlie neurodegenerative diseases using the IHC and whole brain imaging techniques that are employed in our lab. I plan to apply to MD/PhD programs in the future and hope to use the knowledge and skills that I've acquired from the Wu lab in my future research. Outside of the lab I love going for long runs along the Hudson river or trying new food with friends. In the winter, you can catch me playing ice hockey or exploring the city in freezing temperatures!

Janet Xu
Research Technician I

jax4002@med.cornell.edu

Wu Lab

Welcome Kasey!

Hi, nice to meet you all! My name is Kasey Bowyer. I am a current research tech in Zhuhao Wu's lab. I graduated from Princeton University in 2021 with a major in Neuroscience. While at Princeton, I participated in a variety of research projects — from elucidating how ethnic minority neighborhoods in New Jersey are particularly vulnerable to climate change to studying the role that certain visual effects play in online sensory motor integration. Since joining the Wu lab, I have transitioned into performing wet lab research. I have helped to develop an array of immunohistochemistry techniques with the goal of utilizing these techniques in whole mount analysis which will help us to understand the brain in a more comprehensive, holistic manner. I am particularly looking forward to the application of these techniques in unlocking many of the mysteries surrounding neurodegenerative diseases. Currently, I am applying to MD/PhD programs and hope to matriculate this summer. In my free time, I enjoy spending time with friends, reading, painting, and walking along the Hudson River. And in the past year or so, I have also taken up cooking/baking and cutting my own hair. So, if you want to trade any recipes that would be great! And if you see my hair suddenly shorter and messed up one day, you probably know why.

Kasey Bowyer
Research Technician II

kab4025@med.cornell.edu

Wu Lab

Welcome Vrinda!

Vrinda has completed a residency in Psychiatry and was a practicing psychiatrist in India before moving to New York City. She joined the lab in early spring, 2022 to pursue her research interests in neuroscience and eventually plans to do a residency from NYC. She is keen on working in advancement of neuroimaging techniques in neurodegenerative disorders and ultimately wants to work in a way that impacts patient wellbeing.
In her free time, she likes to go for runs, hikes and explore new activities. She also carves miniatures out of chalk and plays the 100 stringed Persian instrument Santoor!

Vrinda Saxena, PhD
Postdoc

vrs4002@med.cornell.edu

Wu Lab

Welcome Wei!

Hello Appel! My name is Wei Wang. I graduated from Johns Hopkins with a PhD in Human Genetics and a concurrent MHS in biostatistics. During my PhD, I worked with Dr. Stephen Baylin studying the mechanism of epigenetics in tumorigenesis and exploring the possibility of combining epigenetic therapy with immunotherapy in the treatment of solid tumor. I later got fascinated with imaging and joined Dr. Zhuhao Wu's lab for the development of whole mount tissue labelling and imaging techniques. My goal here is to broaden my knowledge and vision in both general neuroscience questions and neurodegenerative diseases. Outside lab, I enjoy reading novels (mostly in Chinese), travel, and exploring the city. Looking forward to meeting everyone!

Wei Wang, PhD
Research Associate

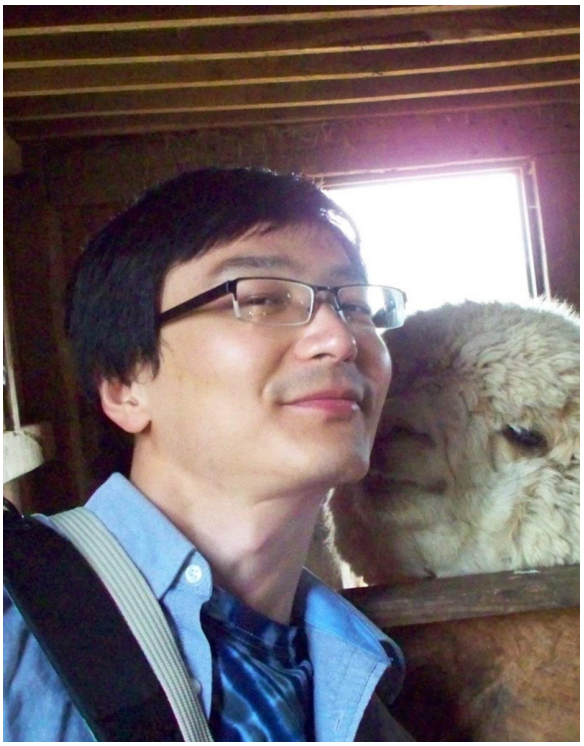
wew4002@med.cornell.edu

Wu Lab

Welcome Shang!

Happy 2023 Everyone! My name is Shang (if you know of the city of Shanghai or watched the movie of Shang-Chi, then you know my name) and it is an honor to join the family here! Coming with official degrees in engineering, I will be focusing lots of my endeavors here on analyses and the computational types of research, especially including whole-brain analyses and building a sharing and dissemination platform for a new generation of brain maps as a united effort of the Wu lab, with whole-brain resolution down to the single-cell level and an expanding assembly of biomarkers. I additionally hope to make the bridge between us and the resources and departments at the Ithaca campus.

Let me know if you'd like to learn about how the retina recognizes motion and direction, how artificial neural networks read images, the number of cell types in the retina, or the number of cells in a fruit fly brain. Or how to confidently and quickly learn alpine skiing from zero (results partially guaranteed)!



Shang Mu, PhD
Assistant Professor

shm4038@med.cornell.edu

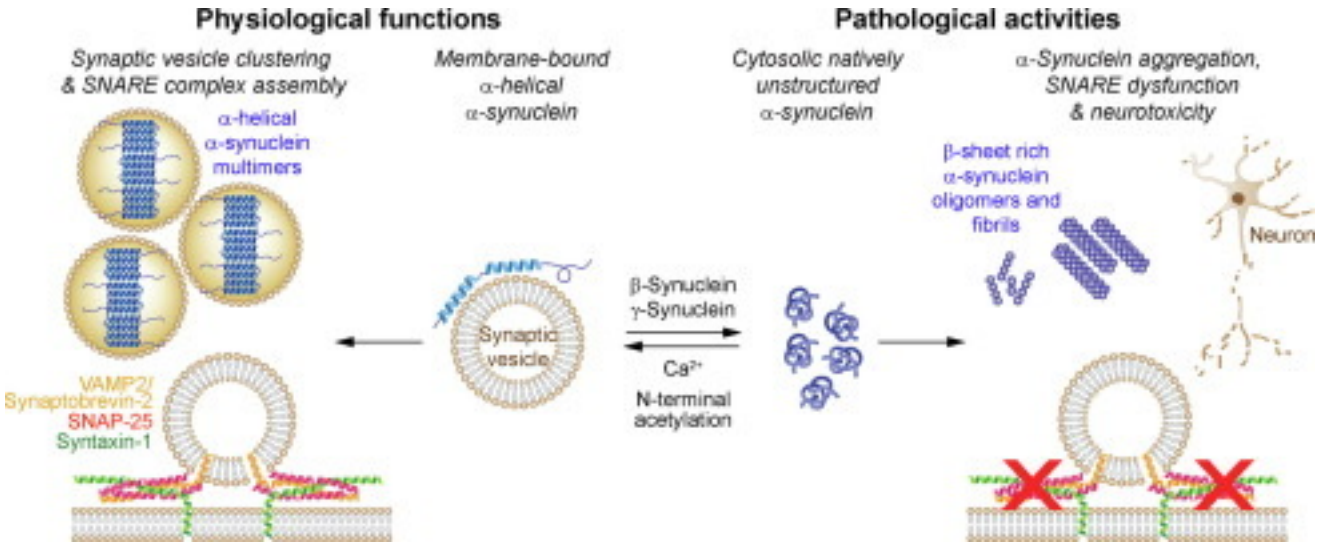
Burré Lab

NEWS

Burré Lab

New paper:

-Gao V, Briano JA, Komer LE, Burré J. Functional and pathological effects of alpha-synuclein on synaptic SNARE complexes. Journal of Molecular Biology, online ahead of protein & part of special issue “Protein membrane interactions at the synapse”. [invited review]



New funding:

- We have received funding from the CTSC for “Enteric Nervous System alpha-Synuclein As a Biomarker For Parkinson’s Disease”.

Burré Lab

Mentee awards:

- Noah and Katie have graduated. Katie on Sept 29, and Noah on Oct 3.

- Noah has transitioned to postdoc (since December 1)

- Virginia has received a Jr. Investigator Travel Fellowship for attending “Planning for Prevention of Parkinson’s – A trial design forum”.

- Shrey Jhalani has been accepted early in Harvard University for his undergraduate studies. So happy for him!

Orr Lab

NEWS

Orr Lab

Accomplishments and Milestones

-We have several new lab members that have joined recently: Grant Schell (Research technician) and Cinthia Garcia (Pharmacology graduate student)

-Our Neuroscience graduate student Samantha Meadows defended her thesis on January 26th Sam was the first student to join the lab and first to graduate. Congratulations!

Orr Lab

Accomplishments and Milestones

-Laraib Ijaz and Caroline Booraem are two Neuroscience graduate students currently rotating with us.

-Stephanie Jackvony won a Best Poster Award at the Neuroscience Program Retreat in October..

Orr Lab

Welcome Cinthia!

Hi Appel! My name is Cinthia Garcia. I received my B.S. with Distinction in the Field of Biology from Emmanuel College in Boston. During my undergraduate training, I worked as an Undergraduate Research Fellow under the mentorship of Dr. Padraig Deighan and Dr. Ann Hochschild at Harvard Medical School, studying protein-protein interactions that underpin prokaryotic transcription. Before starting graduate school, I worked as a lab manager and did research in Dr. Fabian Rivera-Chavez's laboratory at the University of California San Diego. I´m a recipient of the NIH/NIGMS Initiative to Maximize Student Development Fellowship, and I am currently interested in neurodegenerative disease mechanisms and receptor signaling.

Cinthia Garcia
Graduate Student
Rotation Student

cpg4001@med.cornell.edu

Orr Lab

Welcome Caroline!

Hi Appel! My name is Caroline Booraem and I'm a rotating student in the Orr lab! I graduated from Amherst College in 2020, majoring in neuroscience and religion. Before coming to Weill Cornell, I worked in Boston at Brigham and Women's Hospital in a lab investigating the inflammatory response after stroke and intracerebral hemorrhage, mainly focusing on changes in peripheral immune cells that eventually contribute to swelling in the brain after such injuries. Since starting grad school, I've been increasingly interested in neuroimmunology, so I'm excited to rotate with the Orr lab and learn more about immune cells in the brain and how they can contribute to neurodegeneration. Outside of the lab I enjoy running (currently training for the Brooklyn Half Marathon!), knitting, and reading!

Caroline Booraem
Graduate Student
Rotation Student

ceb4003@med.cornell.edu

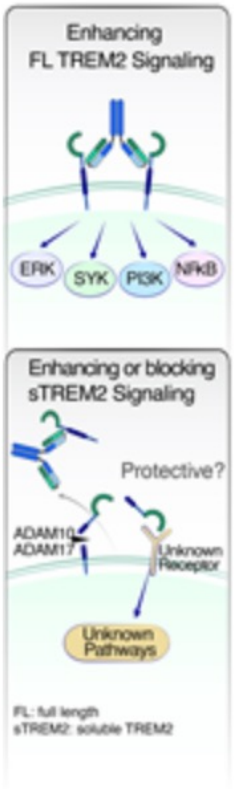
Gan Lab

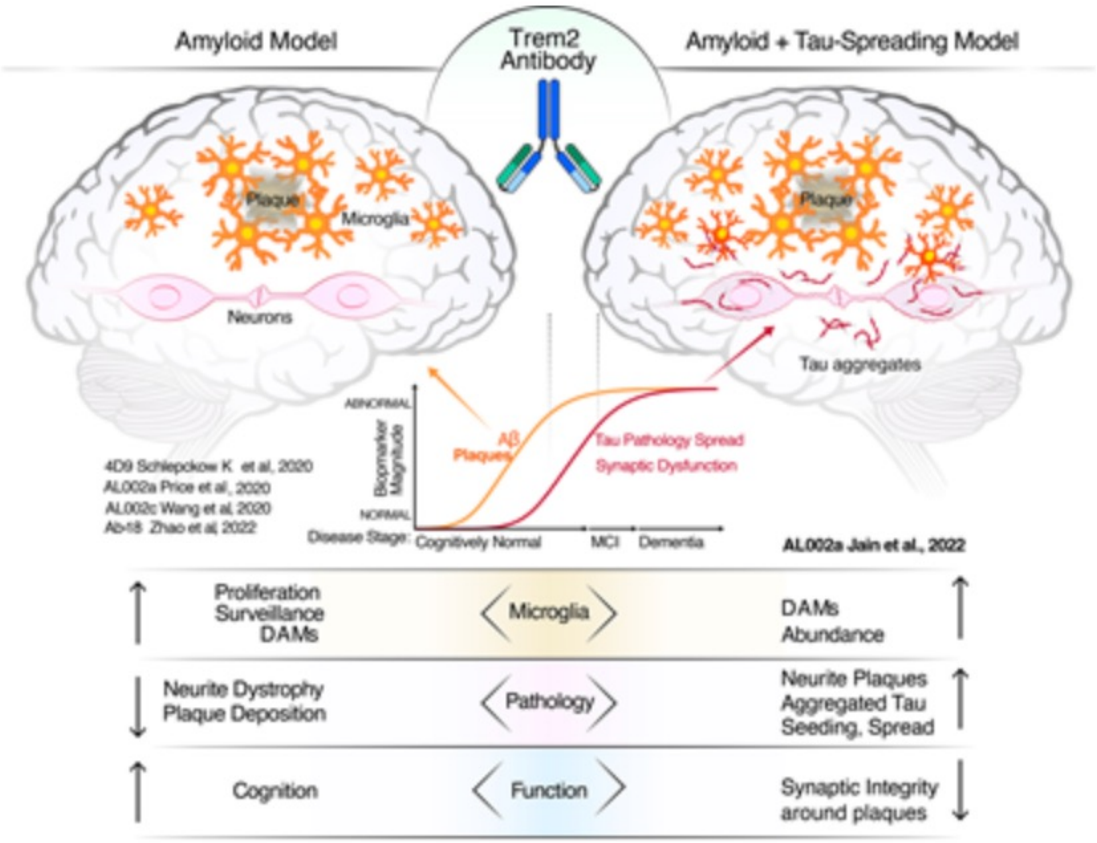
NEWS

Gan Lab

New paper:

-Gillian Carling, Wenjie Luo, Li Gan. Friend turned foe: TREM2 agonist in battles against tau. Journal of Experimental Medicine.

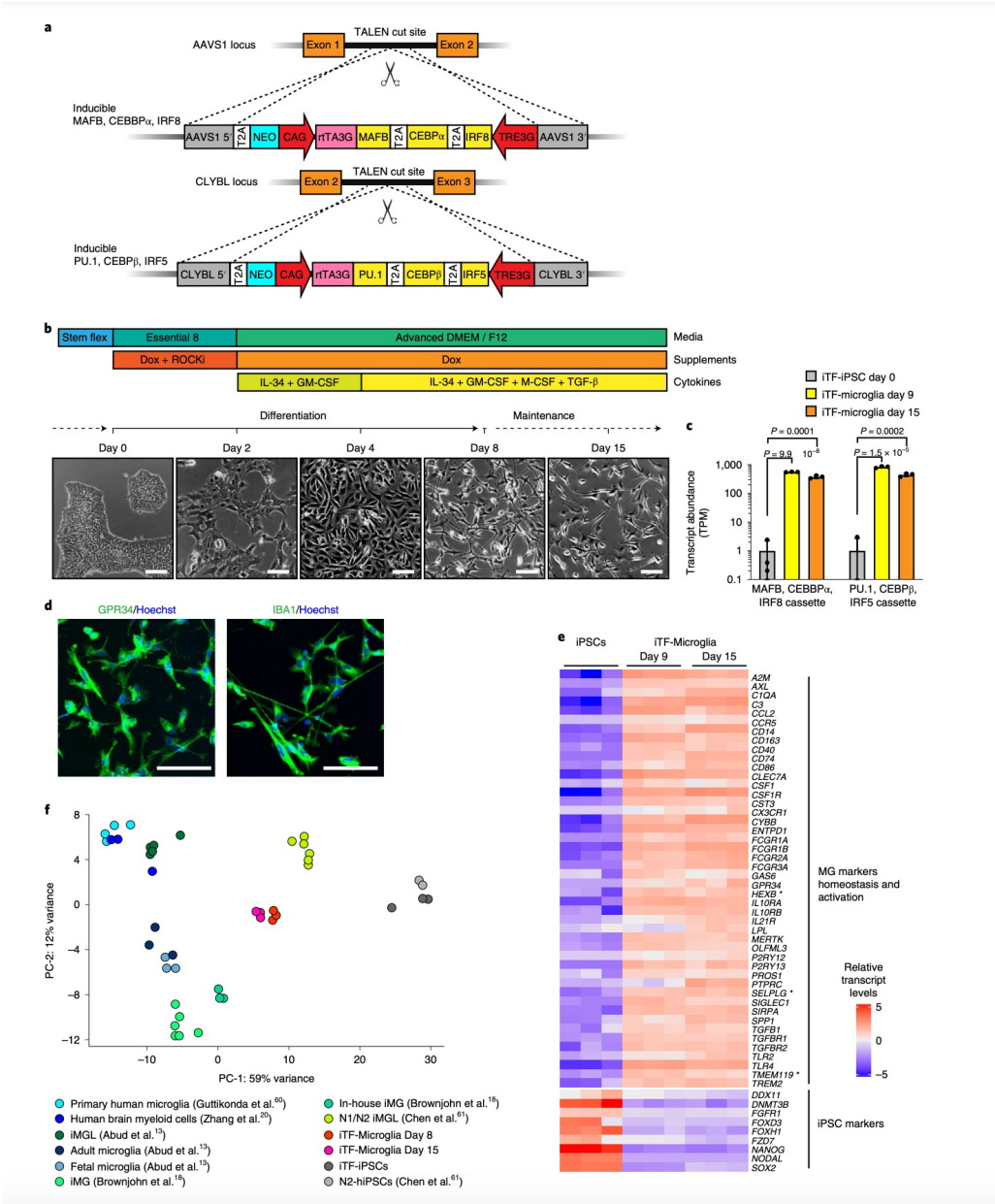




Gan Lab

New paper:

-Nina M. Dräger, Sydney M. Sattler, Cindy Tzu-Ling Huang, Olivia M. Teter, Kun Leng, Sayed Hadi Hashemi, Jason Hong, Giovanni Aviles, Claire D. Clelland, Lihong Zhan, Joe C. Udeochu, Lay Kodama, Andrew B. Singleton, Mike A. Nalls, Justin Ichida, Michael E. Ward, Faraz Faghri, Li Gan & Martin Kampmann
A CRISPRi/a platform in human iPSC-derived microglia uncovers regulators of disease states. Nature Neuroscience.



Gan Lab

-**Congratulations** to Celeste for her poster award in BMRI retreat!

Poster Title: “Dissecting Pathological Tau Propagation Using a Novel 4R-Tau iPSC Tauopathy Platform”

-Our lab members were inspired this winter in our painting night activity.

Gan Lab

Welcome Sarah!

Hi Appel! My name is Sarah Naguib and I am a new postdoc in the Gan lab as of August 22nd! I graduated with my BA in neuroscience from Kenyon College in Gambier, Ohio, which is an hour from where I grew up in Columbus, Ohio. My undergrad research project focused on agonizing a GABAA receptor subunit to increase social interaction in a mouse model of autism. I then moved to Nashville, TN to start my PhD at Vanderbilt University in the fall of 2017. My PhD research focused on elucidating how early we can detect retinal oxidative stress in a mouse model of glaucoma. We also utilized the NRF2/ARE pathway as a potential therapeutic target in neurons and astrocytes in our glaucoma model. I defended my thesis in March 2022 and moved to NYC just a few weeks ago! I'm excited to learn about innate immunity, microglia and neurodegeneration in a new disease model (to me) in my postdoc. In my free time, I love to try new food throughout NYC and going to the gym!

Sarah Naguib, PhD
Postdoctoral Associate

san4008@med.cornell.edu

Participate!

Get inspired and send us your work!
guc9014@med.cornell.edu