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## Brain Awareness Month

### Art of the Brain



The Seaver Center's Lauren Dierdorff was featured in the Friedman Brain Institute's Art of the Brain, a virtual exhibition of photographs, paintings, illustrations and videos that celebrate the beauty of the brain as seen through the eyes of some of the world's leading researchers.

Organized in honor of Brain Awareness Week, the exhibition highlights how the latest technological advances are accelerating the development of new treatments for brain disorders.

*View the full exhibition at <https://neuroscience.mssm.edu/artofthebrain/exhibition-2024/>*

### Brain Fair

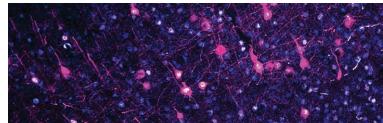
In collaboration with the Center for Excellence in Youth Education (CEYE) and Mentoring in Neuroscience Discovery at Sinai (MiNDS), The Friedman Brain Institute is the host of an annual Brain Fair during Brain Week in March. Students from schools across the city come to the hospital to participate in games and learn about the brain.

Exhibits and activities included pipe cleaner neuron models, a 3D surgery simulator, a Meet the Experts booth featuring some of Mount Sinai's most prominent neuroscientists, and a large brain: the world's only portable, inflatable, walk-through brain exhibit. The annual brain fair is always an enormous success, with 100 Mount Sinai volunteers and over 500 participants.

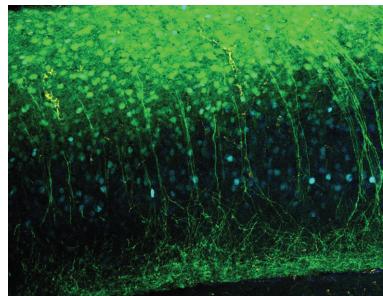


Lauren is a current Neuroscience PhD candidate in the De Rubeis Lab, whose work ultimately aims to bring new treatments for neurodevelopmental disorders such as DDX3X syndrome. She captured the two images, entitled "Neuron Forest" and "Shooting Stars," using confocal microscopy and adjusted the colors using FIJI.

"Biology is an orchestrated art form, and microscopy images truly capture this in the mesmerizing fluorescence of cells like neurons," said Lauren. "I hope that seeing science as an art motivates people to get involved and learn more about the brain and disorders that affect the brain."



Immunohistochemistry staining of layer V corticopontine neurons expressing a retrograde AAV-CAG-GFP virus, *cFos* expressing neurons, and layer V *CTIP2*-expressing neurons.



Immunofluorescence of cortical neurons expressing a retrograde AAV-CAG-GFP virus (green) in an adult female mouse. Blue neurons express the immediate early gene *c-Fos* and are a proxy for neural activation.



# Mount Sinai and Community Events

## Resource Fair

On April 5, Seaver Center Clinical Research Coordinators Thariana Pichardo and Katie Friedman represented the Center at a resource fair hosted by the Robert F. Kennedy school. Attendees of the event were parents and caregivers of students at the community school including its special education program. "It was amazing to teach parents about the diagnostic process for autism and related genetic testing, and to show them the opportunities to join our research studies and trials," said Katie.



## Autism Pilot Grant

### Autism Pilot Grant from The Simons Foundation



Dr. Herbert Zheng Wu has been awarded with an Autism Pilot Grant from The Simons Foundation. His study, "Neural basis of social decision-making in autism mouse models," will examine the impact of autism risk genes on social decision-making using

mouse models. Drs. Nan Yang and Joseph Buxbaum will be collaborating on the project.

To improve social functioning for individuals with autism, it is crucial to gain an understanding of the neural mechanisms underlying social decision-making as well as its impairments observed in autistic individuals.

Dr. Wu aims to uncover specific neural disruptions contributing to social decision-making impairments in autism, ultimately informing the development of targeted interventions.

## HOLA Educational Session

On April 9, the Heritage of Latinx Alliance (HOLA) Employee Resource Group hosted a virtual educational session about autism. The session featured a presentation from Seaver Team Psychologist, Catherine Sancimino, as well as a panel and Q&A session including Dr. Sancimino, Shawn Lee (Lead of HOLA), Jessica Carrion (Speech Language Pathologist), and Xiao Mei Gao (Program Manager at the Young Adult Institute).

Dr. Sancimino led the audience through an understanding of the signs and symptoms of autism, as well as the importance of seeking Early Intervention (EI). Before joining the Seaver Center, Dr. Sancimino worked within a variety of roles within mental health care, and has worked in schools, hospitals, and community mental health clinics. Her experience working from many different angles of the healthcare system has led her to believe in the importance of advocating for autism evaluations for patients right when symptoms appear, rather than opting to wait and see.

"EI evaluations are free for parents, and getting one provides helpful information to answer a parent's questions about developmental concerns. There is a tremendous amount of brain development in the first three years of life. Intervention at this young age can have a very positive long-term impact, both for the child's own growth and learning as well as for the parent's understanding of their child's needs," said Dr. Sancimino. "My experiences as a psychologist and as a parent have taught me that while reaching out for help is not easy, there are many resources that can help, and EI is a great way to begin learning about what's available."

The webinar was hosted live for the Mount Sinai community in honor of Autism Awareness Month. In his role as HOLA lead, Shawn is a big proponent of autism awareness: "When it comes to the Latinx community, we don't talk about autism spectrum disorder, let alone any neurodivergent terminology, enough," said Shawn. "We have a very diverse staff here at Mount Sinai Health System, so being able to provide sessions that promote awareness and collaboration; while also fostering engagement and learning, it's what makes it all worthwhile in the end."

Thanks to HOLA's network, 94 people from the Mount Sinai community attended the live webinar. The session is now available for all to watch on Youtube (<https://www.youtube.com/watch?v=Sp1QIMugQ5E>).

The Seaver Center thanks all the panelists as well as all of our partners within the Office of Diversity and Inclusion for bringing this important event to life.

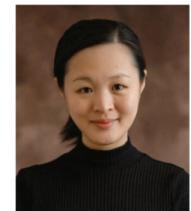


**Shawn Lee**  
Moderator

Associate Director of Operations  
FPA Administration -  
Central Billing Office  
Mount Sinai Health System



**Catherine Sancimino**  
Panelist  
Assistant Professor and Clinical  
Psychologist, Seaver Autism Center  
for Research and Treatment  
Icahn School of Medicine  
at Mount Sinai



**Xiao Mei Gao**  
Panelist  
Program Director of LINK  
(Linking Individuals to  
Necessary Knowledge)  
YAI



**Jessica Carrion,  
M.S. CCC-SLP, TSSLD**  
Panelist  
Speech Language  
Pathologist  
Prime Agency

# Publications

## Caregiver perspectives on patient-focused drug development for Phelan-McDermid syndrome

Clinical Director of the Seaver Autism Center, Dr. Alex Kolevzon, was the senior author on a study published in *Orphanet Journal of Rare Diseases* this spring: "Caregiver perspectives on patient-focused drug development for Phelan-McDermid syndrome." Phelan-McDermid syndrome (PMS) is one of several rare diseases studied at the Seaver Autism Center. Caused by loss of function of the SHANK3 gene, PMS is a neurodevelopmental disorder with clinical manifestations that profoundly affect quality of life. The aim of the study was to collect the necessary information to attempt to align drug development efforts with caregiver priorities.

On November 8, 2022, an Externally Led Patient-Focused Drug Development (EL-PFDD) meeting was held virtually to survey parents, families, and caregivers of individuals living with PMS. Results from the meeting show that caregivers prioritize: cognitive function, improved communication, increased independence, and reduced risk of regression, as key areas that affect quality of life for these individuals. The report provides the FDA and the scientific community with a clear understanding of which aspects of PMS should influence the development of future therapeutics.

Dr. Kolevzon notes that "clarifying caregivers' priorities is a crucial part of the process of developing new treatments in PMS. It is critical for the scientific community to work closely with families in designing clinical trials."

## Examining Sex Differences in Autism Heritability

It is well known that males have a higher risk of autism diagnosis than females. The dominant theory explaining this sex bias has been the "female protective effect", which suggests that females have greater genetic resilience, allowing them to carry more genetic variation before reaching the threshold for an autism diagnosis.

However, a recent population-based study led by Seaver Team Member, Dr. Sven Sandin, entitled "Examining Sex Differences in Autism Heritability," provides additional insight.

The study, published in *JAMA Psychiatry*, utilizes data from the national health registers in Sweden to suggest that males may have a higher variety of inherited genes carrying autism risk. "Our results indicate that a relatively larger proportion of autism diagnoses can be attributed to additive genetic sources in males compared to females, states Dr. Sandin. "It is also possible that females are less affected by additive genetic sources, or are particularly vulnerable to other sources of risk."

The results provide a clearer understanding of the sex bias in autism, and may guide future research into the etiology of autism. It is important to note that the study only provides information applicable on a population level and does not provide guidance on individual autism risk.

# Graduate School News

Our Seaver Team members are leaders in the field. It is our duty to train the next generation of autism clinicians and researchers to accelerate advances and ensure the optimum care and support for autistic individuals.

Meet a few of the Seaver Team members who have contributed greatly to our work during their time here, and are now moving onto the next steps to further their education and careers.

Congratulations!



### Thariana Pichardo

Thariana graduated from Amherst College in 2022 with a BA in Psychology and a BA in Political Science. As a Clinical Research Coordinator at the Seaver Autism Center, Thariana worked on recruiting Latinx individuals on the autism spectrum and their families in order to investigate genetic risk factors. After her time at Seaver, Thariana plans to pursue a doctorate in Clinical Psychology at Fordham University and continue her work with underrepresented populations.



### Arabella Peters

Arabella graduated from Emory University in 2022 with a BA in Psychology and a BA in Linguistics. As a Clinical Research Coordinator at the Foss-Feig Lab, Arabella manages the administrative, recruitment, and data-collection aspects of a research study examining social navigation skills in adults on the autism spectrum. After her time at the Foss-Feig Lab, Arabella plans to pursue a doctorate in Clinical Psychology at Montclair State University.



### Hailey Silver

Hailey graduated from Vanderbilt University in 2020 with a BS in Child Development and from Teachers College in 2022 with a MA in Clinical Psychology. As a Clinical Research Coordinator at the Seaver Autism Center under Drs. Paige Siper and Jen Foss-Feig, Hailey coordinates our Rare Disease Program including studies on FOXP1, DDX3X, CHAMP1, and SHANK2 syndromes. She also collects and manages biomarker data for all rare disorder and trial participants. After her time at Seaver, Hailey plans to pursue a doctorate in Clinical Psychology at the Ferkauf Graduate School of Psychology at Yeshiva University.



### Yeaji Park

As an Associate Researcher at the DeRubeis Lab, Yeaji Park investigated the role of Ddx3x in prenatal cortex development to understand the origins of cortical malformations found in Ddx3x mutant mice. Utilizing cell birth dating and in utero electroporation methods, she explored how Ddx3x haploinsufficiency affects the development of cortical glutamatergic neurons born through distinct routes of neurogenesis. Her next step is to start her PhD studies in Neurobiology at the University of Chicago.



## Seaver Center Appreciation Days

Each April, the Seaver Center hosts a Family Appreciation Day event to show our gratitude to the families who come to the Center and participate in clinical research. The work that we do would not be possible without them! This year, guests enjoyed a photo booth, an ice cream truck, soccer, and other activities.

We also hosted our second Adult Participant Appreciation Day event, which provides a great opportunity for adult participants to socialize

with one another over dinner and games.

Our clinical team member and psychologist Dr. Danielle Halpern has been the organizer of Family Appreciation Day for many years, and is thrilled to have added Adult Participant Appreciation Day in our event lineup: "It is important for our Center to show appreciation for participants' commitment to our research as well as for us to provide participants with a sense of community and belonging."





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- **SEAVER IS CONTINUING TO GO GREEN!** Please send your email address to [seavercentereditor@mssm.edu](mailto:seavercentereditor@mssm.edu) to receive this newsletter electronically.

## New Staff



### Lisa (Yi) Li, PhD

Lisa joined Joseph Buxbaum's lab as an Associate Scientist in April 2024. She earned her PhD in Cell Biology in China. Currently, at the Seaver Autism Center

Biobank, she is responsible for processing and managing samples. Additionally, she is actively involved in research related to gene therapy for autism.



### Serena Cai

Serena graduated from Harvard College in May 2024 with a BS in Neuroscience, and joined the Seaver Autism Center in July as a Clinical Research

Coordinator. She oversees all studies that fall under the Rare Genetic Disorder arm of the lab, including an ongoing phenotyping study that seeks to understand post-pubertal psychiatric and behavioral changes in individuals with DDX3X syndrome. She also specializes in carrying out VEP, EEG, and eye-tracking data collection. In the future, she aims to attend medical school with a special interest in pediatrics.



### Dalia Marquez

Dalia graduated from UNC-Chapel Hill with a BA in Psychology and a BMus in Vocal Performance. She joined the Seaver Autism Center in May as a Clinical Research Coordinator. She works under Drs. Grice and Buxbaum to identify OCD and autism genes across diverse populations.