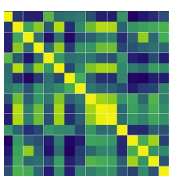
HOCK E. TAN AND K. LISA YANG CENTER FOR AUTISM RESEARCH AT HARVARD UNIVERSITY

Fall 2020 Newsletter

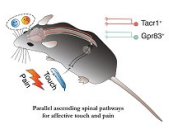
Welcome to the inaugural issue of the Tan-Yang Center Newsletter, designed to bring you updates on papers, awards and events from Center labs and others in the autism research community!

The Tan-Yang Center at Harvard focuses on the biological basis of neural development as it relates to autism spectrum disorders. It leverages talent from different parts of the Harvard community, bringing together deep knowledge of the biological basis of brain development and function. The Center was established with a $20 million gift from philanthropists Lisa Yang and Hock Tan, MBA '79, and is partnered with the Tan-Yang Center for Autism Research at MIT.

News from Tan-Yang Center Labs



Parsing Large Scale Behavioral Datasets Using Motion Sequencing
Tatsuya Tsukahara shares new research from the lab of Sandeep Robert Datta on the use of their Motion Sequencing (MoSeq) behavioral analysis technique, built on 3D animal postures and unsupervised machine learning, to organize large and complex behavioral datasets from mice treated with neuroactive and psychoactive drugs. Also highlighted in Spectrum News.



Ascending Spinal Pathways that Underlie Affective Touch and Pain
Seungwon (Sebastian) Choi shares new research from the labs of David Ginty and colleagues at the University of Pittsburgh. They applied new mouse genetic tools in conjunction with anatomical, physiological and behavioral approaches to better understand the functional organization of ascending touch, thermal and pain pathways.

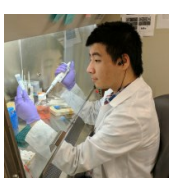
Double Deletions of Non-Coding DNA in Autism
Klaus Schmitz and Kyriacos Markianos share a powerful method for identifying important noncoding regions in the human genome—revealing the potential significance of gene regulation in cognitive and social function, in a study performed in collaboration with Christopher A. Walsh and Timothy Yu.

Michela Fagiolini, together with Yuri Bozzi of the University of Trento, wrote an editorial introducing a special issue of the journal *Neuroscience* this October, on Animal Models of Neurodevelopmental Disorders. The special issue also includes a review article by **Lauren Orefice**, on peripheral somatosensory neuron dysfunction and its potential roles in ASDs, and a review article by Fagiolini & colleagues on taking a multidisciplinary approach to understanding the pathogenesis of MECP2-related disorders.

Awards & Honors from Tan-Yang Center Labs

Catherine Dulac was awarded a 2021 Breakthrough Prize in the Life Sciences. She was honored for deconstructing the complex behavior of parenting to the level of cell-types and their wiring, and demonstrating that the neural circuits governing both male and female-specific parenting behaviors are present in both sexes. Click here to read more in the Harvard Gazette, and here for a video explaining her discovery.

Lauren Orefice was named a 2020 Pew Scholar and Searle Scholar. She was honored for her research into how alterations in sensory input from the skin and gastrointestinal tract can influence brain development in people with autism spectrum disorders.



Xuyu Qian, postdoctoral fellow in the Walsh Lab, received The Helen Hay Whitney Foundation Fellowship. With the goal of increasing the number of imaginative, well-trained and dedicated medical scientists, the Foundation grants financial support of sufficient duration to help further the careers of young men and women engaged in biological or medical research.

More Autism News from the Harvard Community

Research News

New Interneuron
HMS News article on the discovery of a new type of interneuron found only in primates, which may accelerate research on neuropsychiatric conditions such as schizophrenia and autism. From the labs of Steven McCarroll, Guoping Feng, Gord Fishell and colleagues.

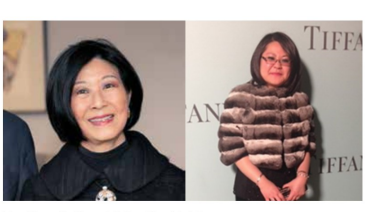
See corresponding article from the MIT Tan-Yang Center.
See original research article in Nature.

Autism-Cholesterol Link
HMS News article on new research from the labs of Isaac Kohane and colleagues, revealing a sub-type of autism associated with lipid abnormalities.

See original research article in Nature Medicine.

Fellowship Fuels Autism Research

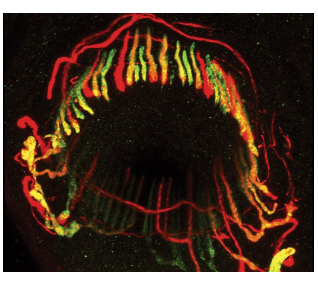
HMS Pulse article highlighting the establishment of the Y. Eva Tan Postdoctoral Fellowship at the Tan-Yang Center, which will provide $4M to support young investigators. "It is imperative that young researchers are motivated and encouraged to pursue solutions in autism spectrum disorder," says Yang.



Lisa Yang (left) and Y. Eva Tan (right)

The Beauty of Touch

Harvard Medicine Magazine article showcasing many beautiful images taken by members of the lab of David Ginty at HMS showing cutaneous sensory neurons in action.



Young Investigator Highlight

Gabriella Boulting, PhD
Postdoctoral Researcher
Greenberg Lab, Harvard Medical School

Boulting studies the molecular mechanisms of how different human neuron types develop and function. She integrates information from several genome-wide analysis techniques to investigate how novel functions may have evolved in primates to impart our unique behavioral and cognitive abilities. As part of the Tan-Yang Center, she is currently investigating activity-dependent gene regulation and transcription in human GABAergic neurons.

Autism News from Elsewhere

Some autistic people report poor quality of life, but many do not.
In Spectrum News. Highlights work from the Longitudinal European Autism Project, led by Eva Loth of King's College London and colleagues.

Integrating molecular data may reveal subgroups of autism.
In Spectrum News. Highlights work from the labs of Daniel Geschwind and colleagues -- findings which could help neuroscientists understand how diverse genetic risk factors converge upon common molecular processes in ASD.

A single cell-atlas of nerve cells in the gut reveals web of connections. In Broad Institute News. Highlights a study mapping the mouse and human enteric nervous systems at single cell resolution using new methods, from the labs of Aviv Regev, Ramnik Xavier, Orit Rozenblatt-Rosen and colleagues.

Learn more about the Tan-Yang Center at Harvard on our website or by email at TanYangAutismCenter@hms.harvard.edu