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Common Medications Taken During Pregnancy ARE NOT ASSOCIATED WITH RISK FOR AUTISM

Babies exposed in the womb to the majority of medications that target neurotransmitter systems, including antidepressants and antipsychotic drugs, are not any more likely to develop autism than non-exposed babies, according to research conducted by Magdalena Janecka, PhD, a postdoctoral fellow at the Seaver Autism Center and published in *JAMA Psychiatry*.

However, the rates of autism were higher among children of mothers with worse general health before pregnancy, suggesting that the mother's health plays a more critical role in a child's development than the medications she takes.

A multidisciplinary team led by researchers at the Seaver Center developed a new method that enabled them to systematically evaluate the effects of a wide range of drugs on the fetus in a sample of nearly 100,000 children born between 1997 and 2007 and followed up for autism until January 2016.

This new method allowed the team to systematically evaluate the actions of more than 180 drugs, sorting them into 55 groups within which the medications were similar in terms of their function but were prescribed for different conditions.

This biology-first method acknowledges shared biological properties of medications in the analytical procedures and aims to understand the effects of prenatal exposure to medications and, therefore, could be pertinent to studies of other conditions that originate in utero. Our researchers are currently further investigating how maternal health could affect a child's risk of autism.

For more information about this study supported by the Seaver Foundation's Seaver Postdoctoral Fellowship, visit: <http://bit.ly/PrenatalExposureASD>

Seaver Center Recipients of Prestigious Young Investigator Grant

Assistant Professor, Eva Velthorst, PhD, and Postdoctoral Research Fellow, Michael Sean Breen, PhD have been awarded 2018 NARSAD Young Investigator Grants.

Each year, the Brain & Behavior Research Foundation awards promising early-career scientists with NARSAD Young Investigator Grants. This program helps researchers launch careers in neuroscience and psychiatry by providing each recipient with up to \$35,000 per year for two years to either extend research fellowship training or begin careers as independent research faculty.

Dr. Velthorst will use her grant support to leverage the unique Avon Longitudinal Study of Parents and Children (ALSPAC) to integrate genetic and developmental data on 3,000+ individuals followed from birth up to age 24, and their parents. This will provide the opportunity to examine the effect of non-transmitted genes and environment.

Dr. Breen will use his grant support to examine samples of newborns' umbilical cord blood and analyze the patterns of gene expression in babies born to mothers with and without Post-Traumatic Stress Disorder.



NARSAD Young Investigator Grant awardees - Eva Velthorst, PhD, and Michael Sean Breen, PhD

Data from these studies can help inform autism research with information about how environment and the mental health of mothers are potentially related to autism diagnoses.

Stay tuned for project updates in 2019.

CELEBRATING 25 YEARS

In 2018, the Seaver Autism Center reached a milestone of 25 years of ground-breaking work conducting progressive research studies to establish advances for individuals and families affected by autism.

To celebrate, our Associates Board hosted an Anniversary Luncheon on Thursday, November 1st at the Roosevelt Hotel in Manhattan.

A special award was presented to John Cohen and Hirschell Levine, trustees of The Beatrice & Samuel A. Seaver Foundation, for their leadership and commitment to Seaver Autism Center and the children and families who take part in and benefit from our work.

The event brought together the Center's supporters, families who have participated in research, as well as, faculty and staff to reflect on all we have accomplished together and look forward to the promise of precision medicine in autism. The sponsorships

and donations in honor of the celebration helped us raise over \$470,000 for the Center.

The program included special remarks from event co-chairs and longtime supporters, Harvey Eisenberg and Alison Singer, and Seaver Autism Center, Director, Joseph D. Buxbaum, PhD, and Clinical Director, Alex Kolevzon, MD.

Two videos were also premiered at the event. The first video showcased the progression of the Center throughout the past 25 years and the second highlighted the positive impact the Center has made on the Buchanans; whose son Ben has Phelan-McDermid Syndrome.

Thank you to all of our sponsors and donors. A special thank you to event co-chairs, Carol & Harvey Eisenberg and Alison & Dan Singer, and our Associates Board and Host Committee who were integral to the success of the event.



Honorees, Hirsch Levine and John Cohen, alongside their wives Deanna Levine and Ann Cohen, accepting awards from daughters Terri Rosenblum and Steph Goldman



Event co-chair and founding member of the Associates Board, Harvey Eisenberg, delivering opening remarks



Event co-chair and Associates Board chair, Alison Singer, giving remarks to the full room of attendees



Associates Board member, Genie Egerton-Warburton with guests at the ADNP Kids Research Foundation table

The mission of the Seaver Center is to enhance the diagnosis of autism and related disorders, discover the biological causes of those disorders, and develop and disseminate breakthrough treatments. To join the year-long celebration by making a gift to help us reach our goals, please visit: <http://giving.mountsinai.org/goto/Seaver25>

Highlights from the 22nd Annual Advances in Autism Conference

On Thursday, October 4, the Seaver Autism Center hosted the 22nd annual Advances in Autism Conference at the New York Academy of Medicine. The conference brought together academic experts in the field of autism, healthcare professionals, parent and community groups.

This year, we provided an overview of advances in several rare genetic disorders related to autism and discussed how we can translate our current knowledge into precision medicine treatments.

President and Chief Executive Officer of Mount Sinai Health System, Kenneth L. Davis, MD, welcomed attendees to the day-long educational event to learn about how to better serve individuals with autism and their families.

Joseph D. Buxbaum, PhD, Director of the Seaver Autism Center, began the presentation session with a talk about the Center's strategic focus on a precision medicine approach to autism treatment.

Faculty members from the Center provided overviews of the research advances we have made in the study of rare genetic disorders, including: DDX3X, FOXP1 and ADNP syndromes. Dr. Kolevzon gave a presentation about defining biomarkers, which advocated the importance of their use to measure outcomes and stratify clinical trials.

We were honored to have guest speakers from the Rett Syndrome Research Trust (RSRT). RSRT Chief Medical Officer, Randall L. Carpenter, MD, spoke about the process of translating basic science discoveries into therapeutics for autism. Founder and



Speaker Panel moderated by Joseph D. Buxbaum, PhD, Director of the Seaver Autism Center

Annual Advances in Autism Conference



Members of the Associates Board attending VIP luncheon

Executive Director of RSRT, Monica Coenraads, delivered a powerful keynote, "Rett Syndrome: Roadmap to a Cure". Under her leadership, over \$66 million has been raised to support research and develop treatments for Rett Syndrome. As a result, the first global reversal of symptoms in pre-clinical models of the disorder was developed and expanded to curative approaches for individuals with the disorder. The Seaver Center is employing a similar research strategy, including: gene discovery, model systems, pathophysiology and drug discovery with the goal of developing therapeutics.

We closed out the conference with a panel of the day's speakers, moderated by Dr. Buxbaum, who answered questions from the audience.

Thank you to all of this year's sponsors and attendees. Your support helps our Center educate the community about the latest advances in research and care for individuals with autism.



Monica Coenraads presenting "Rett Syndrome: Roadmap to a Cure"



Kenneth L. Davis, MD and Joseph D. Buxbaum, PhD with Beatrice & Samuel A Seaver Foundation Trustees, John & Ann Cohen, Hirsch & Deanna Levine

Generous Gift Enables Enhanced Research Capabilities with New Equipment

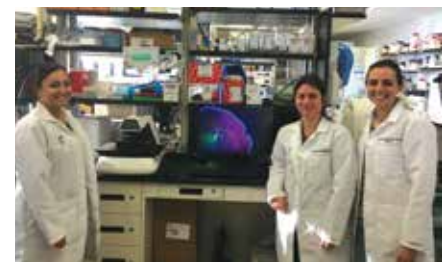
This fall, our Center received a new piece of equipment to help make our pre-clinical research more efficient. The EVOS FL Auto 2 Cell Imaging System is a fluorescent microscope that is particularly flexible and powerful. It is equipped with both a high-sensitivity monochrome camera optimized for fluorescence imaging and quantitation and a dedicated high-resolution color camera.

The EVOS System is fully automatized and motorized in three directions, which means it can be used for automatic tiling and z-stacking of multiple areas and data analysis. For example, it is possible to define one or several zones of interest at low magnification and then use automatic routines to capture high-resolution pictures at a higher magnification.

This fluorescent microscope can also be used for brightfield and fluorescent slide immunohistochemistry imaging and time-lapse imaging of live cell cultures. By fitting the microscope with an onstage incubator that precisely controls temperature, humidity and oxygen levels, it can continuously record live cells over long periods of time.

Thanks to a generous donation from MindWorks Charitable Trust and matching support from the Department of Psychiatry, we are finally able to take the EVOS system off our wish list and put it to work in our lab.

Seaver Center Research currently underway using the EVOS System:



Seaver senior preclinical research team with new EVOS System

Phelan-McDermid Syndrome

- Imaging fluorescently-labeled tissue that are stained for oxytocin in Shank3[±] animals
- Imaging tissue from Shank3[±] animals for neuronal activation differences

DDX3X syndrome

- Studying the cortical development in DDX3X mutant mice, by assessing the migration and specification of cortical projection neurons through layer-specific markers
- Studying the cortical development in DDX3X mutant mice, by looking at the whole brain morphology using Nissl staining
- Investigating the morphology and density of dendritic spines in DDX3X-deficient neurons

Stem Cells

- Tracking and recording the progression of neuronal differentiation and identifying differences between stem cells from patients and healthy controls.

The speed and ease of use of the EVOS System allows us to do, in a few hours, what we could previously do in several days. In addition, the system will also enable new experiments that were previously unattainable, generate high throughput and data quality, and improve experimental reproducibility.



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- SEAVER IS CONTINUING TO GO GREEN! Please send your email address to seavercentereditor@mssm.edu to receive this newsletter electronically.

NEW STAFF

IVY GISERMAN-KISS, PHD



Ivy Giserman-Kiss, PhD, joined the Seaver Center in September 2018 as a postdoctoral fellow. Dr. Giserman-Kiss was a Pediatric Neuropsychology Intern at Rusk Rehabilitation at NYU Langone Health and received her graduate degree in Clinical

Psychology from the University of Massachusetts Boston. Her research interests focus on screening and early detection of autism. Dr. Giserman-Kiss's work at the Seaver Center includes the administration and interpretation of diagnostic and neuropsychological measures to individuals with developmental disabilities, across several different projects.

*Wishing you
a happy holiday season
and a joyful New Year.*



The Seaver Autism Center Team