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## ONGOING CLINICAL TRIALS

A paper published by the Seaver Autism Center in 2014 entitled “A pilot controlled trial of insulin-like growth factor-1 (IGF-1) in children with Phelan-McDermid syndrome” (Kolevzon et al., *Molecular Autism*, 2014) revealed initial positive results of IGF-1 in children with Phelan-McDermid syndrome (PMS). The study, led by Dr. Alex Kolevzon (Professor and Clinical Director), enrolled nine individuals ages five to 15 in a placebo-controlled, double-blind, crossover design study, with three months of IGF-1 treatment and three months of placebo in random order, separated by a four week “wash-out” period. The study concluded that while on IGF-1, individuals with PMS showed significant improvement in both



social impairment and restrictive behaviors. The promising results and success of this pilot study have led to a continuation of the IGF-1 program to replicate the findings in additional participants, embed biomarkers in our design, and explore additional outcome measures.

Another important clinical trial being conducted at the Seaver Center involves intranasal

oxytocin in PMS. Similar to the IGF-1 program, preclinical studies in animal models of PMS have demonstrated improvements in attention and social recognition memory with oxytocin. While several decades of literature support the potential of oxytocin for the treatment of autism spectrum disorder (ASD), results from an animal model published by the Seaver Center’s Dr. Harony-Nicolas (Assistant Professor) suggest the promise of oxytocin specifically in PMS. The Seaver Center clinical team is now conducting a study of intranasal oxytocin in children with PMS to assess the safety and efficacy in this population.

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## NEW PAPER PUBLISHED IN JAMA

Identifying genetic and environmental factors that contribute to the development of autism spectrum disorders (ASD) is a long-term initiative of the Seaver Autism Center. Researchers from the Seaver Center have recently published a study titled “Association of Maternal Use of Folic Acid and Multivitamin Supplements in the Periods Before and During Pregnancy With the Risk of Autism Spectrum Disorder in Offspring” (*JAMA Psychiatry* Published online January 3, 2018. doi:10.1001/jamapsychiatry.2017.4050)

Working with collaborators in Israel, and using data from a national health care provider, our team examined the correlation between intake of folic acid and multivitamin supplements with the risk for ASD in the offspring.

Of the 45,300 children in the study, 572 (1.3%) received a diagnosis of ASD. Maternal use of folic acid and multivitamin supplements before pregnancy was associated with a 61% lower risk for ASD in

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## ONGOING CLINICAL TRIALS *Continued*

In a third new clinical trial, Dr. Kolevzon and his team are exploring the use of another experimental therapeutic, AMO-01. AMO-01 is an inhibitor of the RAS-ERK signaling pathway and this study will assess its safety, tolerability, and efficacy to treat seizures in PMS. Originally developed as a chemotherapeutic, AMO-01 has been shown to reduce seizures and other behavioral abnormalities in animal models, including mouse models of PMS. Enrollment has begun and the study is expected to conclude in one year.

Finally, the Seaver Autism Center is conducting a new study entitled “Developing Personalized Approaches to the Treatment of Autism.” The study, funded by the New York Community Trust, seeks to leverage the success of IGF-1 in PMS to treat ASD more broadly.

Science is now shifting towards precision medicine and the Seaver Center is at the forefront. Not only are researchers working to identify genes which cause ASD, ongoing studies like the ones above are using biomarkers to help predict which patients are likely to respond to targeted treatments. Specifically, our team is using electrophysiological profiles based on the balance between excitatory and inhibitory brain activity to establish which patients with idiopathic ASD share profiles with PMS and may likewise respond to similar treatments. By understanding similarities between PMS, where the underlying biology is well understood, and iASD, which is biologically heterogeneous, we may begin to subtype iASD in order to develop precision medicine approaches.



## INTRODUCING NEW FACULTY AND STAFF

### BEHRANG MAHJANI, PHD

Behrang Mahjani, PhD, joined the Seaver Center in September 2017 as a postdoctoral fellow. He was formerly a postdoctoral fellow at the Karolinska Institutet in Sweden. His research is focused on the role of maternal effects in the etiology of pediatric psychiatric disorders, including autism, OCD, and chronic tic disorder. He brings his expertise in solving large-scale problems through statistical and computational methods.



### SYLVIA GUILLORY, PHD

Sylvia Guillory, PhD, joined the Seaver Center in October 2017 as a postdoctoral fellow. She was formally a graduate student at the University of Massachusetts Boston working in the Baby Lab. Her research focus can broadly be defined as investigating the interaction between attention, memory, and perception during childhood. This will help us understand how interactions between the brain and behavior change over time, how they might be disrupted in clinical populations such as ASD, and what new treatment strategies might be successful.



### NATALIE BURLANT

Natalie Burlant joined the Seaver Center in November 2017 as an Associate Researcher. She graduated from Middlebury College in May 2017 with a degree in Neuroscience. She will be working with rodent models to study genetic mutations in autism spectrum disorder.



## NEW PAPER PUBLISHED IN JAMA *Continued*

their children compared with children of mothers who did not use supplements. Maternal use of supplements during pregnancy was also associated with 73% lower risk for ASD. These results should be interpreted cautiously because other factors, such as lifestyle choices, could play a role. More studies should be conducted to further validate these initial findings.

## SEAVER PROMOTIONS



**Silvia De Rubeis, PhD**

Silvia De Rubeis, PhD was promoted to Assistant Professor.



**Elodie Drapeau, PhD**

Elodie Drapeau, PhD was promoted to Assistant Professor.



**Hala Harony-Nicolas, PhD**

Hala Harony-Nicolas, PhD was promoted to Assistant Professor.



**Pilar Trelles, MD**

Pilar Trelles, MD was promoted to Assistant Professor.



**Eva Velthorst, PhD**

Eva Velthorst, PhD was promoted to Assistant Professor.

## RECENT PUBLICATIONS

**Prospective investigation of FOXP1 syndrome.** *Molecular Autism*, 2017 Oct 24;8:57.

Siper, P.M., De Rubeis, D., Trelles, M.P., Durkin, A., Di Marina, D., Muratet, F., Frank, Y., Lozano, R., Kolevzon, A., & Buxbaum, J.D.

**Audition specific temporal processing deficits relate to language functioning in children with autism spectrum disorder.** *Autism Research*, 2017 Nov;10(11):1845-1856.

Foss-Feig, J.H., Schauder, K.B., Key, A.P., Wallace, M.T., & Stone, W.L.

**Association of Maternal Use of Folic Acid and Multivitamin Supplements in the Periods Before and During Pregnancy With the Risk of Autism Spectrum Disorder in Offspring.** *JAMA Psychiatry*, 2018 Feb 1;75(2):176-184.

Levine, S.Z., Kodesh, A., Viktorin, A., Smith, L., Uher, R., Reichenberg, A., & Sandin, S.

## AWARDS AND RECOGNITIONS

**Hala Harony-Nicolas, PhD** received the Faculty Idea Prize Award at SINAINnovations this past October. The Faculty Idea Prize is designed to highlight a collaborative, innovative, research idea by young investigators that can potentially be translated into a marketable product.

**Congratulations, Dr. Harony-Nicolas!**





**Mount Sinai**

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- THE SEAVER AUTISM CENTER NEWSLETTER brings you timely updates about new developments related to research and treatment of autism spectrum disorders, as well as activities at the Seaver Autism Center. To be placed on our mailing list, please contact [SeaverCenterEditor@mssm.edu](mailto:SeaverCenterEditor@mssm.edu) or The Seaver Autism Center, Icahn School of Medicine at Mount Sinai, One Gustave L. Levy Place, Box 1668, New York, NY 10029. Our phone number is 212.241.0961 and our website is [www.SeaverAutismCenter.org](http://www.SeaverAutismCenter.org).
- **SEAVER IS CONTINUING TO GO GREEN!** Please send your email address to [seavercentereditor@mssm.edu](mailto:seavercentereditor@mssm.edu) to receive this newsletter electronically.

## EVENTS 2017

### THE TAILGATE WITH A CAUSE

On December 10, 2017, Section 16H Group held their annual “The Tailgate with a cause” event at The Ainsworth in Chelsea. Each year, Section 16H Group designates a beneficiary to which they direct the vast majority of funds raised from The Tailgate. Their goal is to bring people together in an effort to change lives and raise awareness in a positive and uplifting environment. The Seaver Autism Center was chosen as the 2017 beneficiary and presented with a \$50,000 check, recognizing the impactful work being done by our team!



### HOLIDAY TO REMEMBER

The Seaver team kicked off the holiday season together at Third Avenue Ale House on November 30th in celebration of another successful year. In 2017, the Seaver Center published over 40 publications, hosted many outreach events for the community, and embarked on a number of new research partnerships and affiliations. It was certainly a year to remember! Thank you to all of our supporters who make our work possible.

