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Seaver Autism Center Welcomes New Fellows and Scholars

The Seaver Foundation supports the core programs of the Seaver Autism Center and, in addition, sponsors several fellowships and faculty scholar awards each year. These research-based fellowships are awarded to graduate students, postdoctoral fellows, and junior faculty in such areas as genetic analysis, development of model systems for autism spectrum disorder (ASD), neuroimaging studies, and development and assessment of behavioral and pharmacological interventions.

With the early career support provided by the Seaver Foundation, fellows and scholars go on to obtain further funding from several different sources. Research conducted with funding from the Seaver Foundation has served as pilot data for several successful applications for federal funding from the National Institutes of Health. In addition, fellows and scholars receive funding from foundations such as Autism

Speaks, Autism Science Foundation, Phelan-McDermid Syndrome Foundation, Simons Foundation, and others.

A new round of Seaver Fellows and Seaver Scholars begin each year, and awards range in length from two to three years. This year, six fellows and scholars joined the Seaver Fellowship Program, the most yet to join in a single year.

SEAVER FACULTY SCHOLARS

This year we are joined by two new Seaver Faculty Scholars: Reymundo Lozano, MD, and Sven Sandin, PhD. Dr. Lozano is a child



Reymundo Lozano, MD

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Recent Events

► SPECIAL SEMINAR WITH DAVID HANSEL, PHD

David Hansel visited this past summer to give a special seminar titled, "A minimal neural mechanism for explorative behaviors: balanced of excitation and inhibition in topographically organized networks." Dr. Hansel is the Co-head of the Cerebral Dynamics, Learning and Memory Center of Neurophysics, Physiology and Pathologies at Paris Descartes University.



David Hansel presents "A minimal neural mechanism for explorative behaviors: balanced of excitation and inhibition in topographically organized networks."

In his talk, Dr. Hansel discussed the explorative nature of motor behavior during early development, and he presented one of his group's recent works, which combined data analysis and modeling to study the neural mechanism underlying explorative behaviors, while focusing on babbling-like behaviors.

Dr. Hansel is a collaborator and a Co-Principal Investigator on the Human Frontier Science Program grant (see "New Grant Awards" section).

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New Grant Awards

“SUPPLEMENT – 1/4-THE AUTISM SEQUENCING CONSORTIUM: AUTISM GENE DISCOVERY IN >20,000 EXOMES” FROM THE NATIONAL INSTITUTE OF MENTAL HEALTH

Founded in 2010 by Joseph D. Buxbaum, PhD, Director of the Seaver Autism Center, the Autism Sequencing Consortium (ASC) is an international group of scientists who share ASD samples and genetic data. All shared data and analysis is hosted at the Icahn School of Medicine at Mount Sinai on a supercomputer called Minerva designed by Mount Sinai faculty, which enables joint analysis of large-scale data from many groups. The ASC is supported by a cooperative agreement grant to four lead sites funded by the National Institute of Mental Health (NIMH), with additional support from the National Human Genome Research Institute. The ASC recently received supplemental funding from the (NIMH) for targeted resequencing of genes implicated in ASD.

“SUPPLEMENT – POPULATION-BASED AUTISM GENETICS & ENVIRONMENT STUDY” FROM THE NATIONAL INSTITUTE OF MENTAL HEALTH

Led by Dr. Buxbaum, this study uses a population-based epidemiological sample with detailed demographic and environmental information to assess the role of inherited and *de novo*, or genetic, variants in autism. The researchers also evaluate rare standing variation in autism, while integrating key environmental variables. This award is in addition to the original funding received to support this study.

“DECIPHERING BRAIN OXYTOCIN CIRCUITS CONTROLLING SOCIAL BEHAVIOR” FROM THE INTERNATIONAL HUMAN FRONTIER SCIENCE PROGRAM ORGANIZATION

Led by the Max Planck Institute for Medical Research, this award is a collaboration across multiple institutions. The other participating sites are the Seaver Autism Center at Mount Sinai led by Dr. Buxbaum, as well as the University of Haifa, the University of Heidelberg, and Paris Descartes University. This project aims to decode the oxytocin circuits in the brain that control social behavior. The study uses a comprehensive multidisciplinary approach aiming to identify, analyze, and mathematically model specific populations of nerve cells in the brain, which are differentially activated during various forms of behavior. Specifically, it will study the subpopulations of oxytocinergic cells that produce and secrete the oxytocin hormone, which has been implicated in social behavior.

“DEVELOPING SCALABLE MEASURES OF BEHAVIOR CHANGE FOR ASD TREATMENTS” FROM THE SIMONS FOUNDATION AUTISM RESEARCH INITIATIVE

This study is a collaboration across four university-based centers in New York City, led by the Center for Autism and the Developing Brain (CADB) at Weill Cornell Medical College. In addition to the Seaver Autism Center at Mount Sinai, the other sites are New York University and Albert Einstein College of Medicine. Led by Dr. Kolevzon at the Mount Sinai site, the purpose of this study is to determine the sensitivity of a new instrument, the Brief Observation of Social Communication-Change (BOSCC), in measuring change in social-communication behaviors in verbally fluent children with ASD.

Recent Publications

▶ ALTERED TACTILE PROCESSING IN CHILDREN WITH AUTISM SPECTRUM DISORDER.

Tavassoli T, Bellesheim K, Tommerdahl M, Holden JM, Kolevzon A, Buxbaum JD.

▶ INSIGHTS INTO AUTISM SPECTRUM DISORDER GENOMIC ARCHITECTURE AND BIOLOGY FROM 71 RISK LOCI.

Sanders SJ, He X, Willsey AJ, Ercan-Sencicek AG, Samocha KE, Cicek AE, Murtha MT, Bal VH, Bishop SL, Dong S, Goldberg AP, Jinlu C, Keaney JF 3rd, Klei L, Mandell JD, Moreno-De-Luca D, Poultney CS, Robinson EB, Smith L, Solli-Nowlan T, Su MY, Teran NA, Walker MF, Werling DM, Beaudet AL, Cantor RM, Fombonne E, Geschwind DH, Grice DE, Lord C, Lowe JK, Mane SM, Martin DM, Morrow EM, Talkowski ME, Sutcliffe JS, Walsh CA, Yu TW; Autism Sequencing Consortium, Ledbetter DH, Martin CL, Cook EH, Buxbaum JD, Daly MJ, Devlin B, Roeder K, State MW.

▶ PHELAN MCDERMID SYNDROME: FROM GENETIC DISCOVERIES TO ANIMAL MODELS AND TREATMENT.

Harony-Nicolas H, De Rubeis S, Kolevzon A, Buxbaum JD.

▶ MEASURING SENSORY REACTIVITY IN AUTISM SPECTRUM DISORDER: APPLICATION AND SIMPLIFICATION OF A CLINICIAN-ADMINISTERED SENSORY OBSERVATION SCALE.

Tavassoli T, Bellesheim K, Siper PM, Wang AT, Halpern D, Gorenstein M, Grodberg D, Kolevzon A, Buxbaum JD.

▶ ULTRASTRUCTURAL ANALYSES IN THE HIPPOCAMPUS CA1 FIELD IN SHANK3-DEFICIENT MICE.

Uppal N, Puri R, Yuk F, Janssen WG, Bozdagi-Gunal O, Harony-Nicolas H, Dickstein DL, Buxbaum JD, Hof PR.

▶ PHENOTYPIC AND FUNCTIONAL ANALYSIS OF SHANK3 STOP MUTATIONS IDENTIFIED IN INDIVIDUALS WITH ASD AND/OR ID.

Cochoy DM, Kolevzon A, Kajiwara Y, Schoen M, Pascual-Lucas M, Lurie S, Buxbaum JD, Boeckers TM, Schmeisser MJ.

▶ RECENT ADVANCES IN THE GENETICS OF AUTISM SPECTRUM DISORDER.

De Rubeis S, Buxbaum JD.

New Seaver Fellows and Scholars

Continued

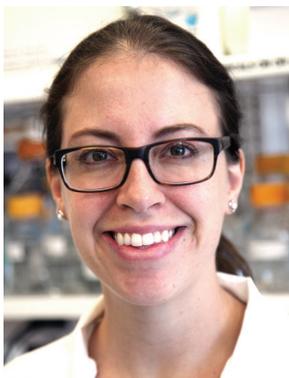


Sven Sandin, PhD

psychiatrist and clinical geneticist who will develop a research program on genetic findings in ASD while carrying out clinical genetic assessments as part of the Seaver Autism Center assessment and clinical team which is led by Alex Kolevzon, MD. Dr. Sandin, a statistician and epidemiologist, will work closely with Avi Reichenberg, PhD, and others in the Seaver Center, where he will focus on epidemiological risk for autism and other neurodevelopmental disorders, as well as clinical trials management and analysis. Dr. Sandin was already a key collaborator on two large autism grants that are based at Mount Sinai.

SEAVER POSTDOCTORAL FELLOWS

We are excited to be joined by Molly Heyer, PhD, who works in the laboratory of Paul Kenny, PhD, in the Department of Pharmacology and Systems Therapeutics. The laboratory focuses on microRNA (miRNA), and Dr. Heyer's research aims to uncover the role of miRNAs in psychiatric disorders by studying autism and schizophrenia-related behaviors in mice containing mutations of miRNAs previously associated with these disorders.



Molly Heyer, PhD

In addition, the Seaver Foundation has awarded two one-year extensions to the Postdoctoral Fellowships for Paige Siper, PhD, and Silvia De Rubeis, PhD. Drs. Siper and De Rubeis have been very successful during the initial phase of their awards, and we look forward to seeing their continued success as Seaver Fellows.

SEAVER CLINICAL FELLOWS

In addition to our traditional research fellowships, we have also added a new category of fellowships this year: the Seaver Clinical Fellows. This is an opportunity for clinicians to work with in the Seaver Autism Center assessment



Pilar Trelles, MD

and clinical team, gain exposure to all aspects of autism diagnosis, treatment, and evaluation, and contribute to ongoing research studies and plan for future independent projects.

In this inaugural year, we are pleased to bring on Pilar Trelles, MD, a child psychiatrist, and Lauren Donnelly, PhD, a clinical psychologist. Dr. Trelles was previously a Child and Adolescent



Lauren Donnelly, PhD

Psychiatry Fellow at Mount Sinai St. Luke's Hospital, and she served as Chief Resident from 2014-2015.

Dr. Donnelly's clinical internship at the University of North Carolina School of Medicine focused on work with children and their families at the UNC TEACCH Program. She previously worked as a research coordinator and clinical extern at the Seaver Autism Center. She returns to Mount Sinai to focus on the assessment and treatment of children with ASD through group and individual treatments.

SEAVER GRADUATE FELLOW

This year's new Seaver Graduate Fellow is Andrew Browne. Mr. Browne currently works on induced pluripotent stem cells in the laboratory of Joseph Buxbaum, PhD, and as a fellow he will continue his work to systematically identify drugs for patients with Phelan-McDermid syndrome as he completes his PhD.

The Seaver Fellowship Program enhances all areas of research at the Seaver Autism Center, and has proven to be a successful launch pad for young scientists. We are grateful to the Seaver Foundation for this ongoing support and contribution to the research and treatment of ASD.



Andrew Browne



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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 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.

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

Recent Events *Continued*

▶ **SEAVER AUTISM CENTER DISTINGUISHED LECTURER SERIES**

Earlier this year, Helen Tager-Flusberg, PhD, visited the Seaver Autism Center as part of the Distinguished Lecturer Series, which features a renowned ASD researcher from an outside institution and is aimed at educating both professionals and caregivers. It is a two-day event in which the speaker gives one presentation that is open to the public and geared towards parents and families, and one presentation aimed at professionals.



Dr. Tager-Flusberg presents to professional.

Dr. Tager-Flusberg is a Professor of Psychological & Brain Sciences at Boston University, and a Professor of Anatomy & Neurobiology and Pediatrics at Boston University School of Medicine. Her public presentation was titled, “Foundations of language in autism spectrum disorder,” and her scientific presentation was titled, “Early behavioral and neural predictors of language in infants at risk for autism spectrum disorder.” Dr. Tager-Flusberg is a longtime collaborator, and we were very excited to host her visit. All attendees enjoyed her presentations, and everyone left with a new piece of knowledge.



Drs. Joseph Buxbaum, Helen Tager-Flusberg, and Alex Kolevzon