Human Neuropsychiatric Disorder Research: From Bench to Population

Gene Block, PhD
Chancellor, UCLA

Jonathan Flint, MD
UCLA

Joshua Gordon, MD, PhD
National Institute of Mental Health

Alicia Martin, PhD
Massachusetts General Hospital, Broad Institute

Jeanne Miranda, PhD
UCLA

Sergiu Pasca, MD
Stanford University

Garen Staglin
One Mind/Healthy Brains Global Initiative

William Vega, PhD
University of Southern California

Date: March 22, 2021
Time: 1:00 - 3:00 PM
Register for this free event at stemcell.ucla.edu

Organizing Committee:
Nelson Freimer, MD
Judith Gasson, PhD
S. Lawerence Zipursky, PhD

This symposium is supported by a generous endowment from the Bloomfield Family Foundation.
Recent scientific advances have generated technologies that could harness the power of stem cell science to better understand and discover new treatments for neuropsychiatric disorders. This symposium, organized by the UCLA Broad Stem Cell Research Center, the UCLA Neuroscience Theme, the Depression Grand Challenge, and the Semel Institute of Neuroscience and Human Behavior, brings together leading scientists to discuss how human genetics and stem cell research can advance our understanding of the cellular and molecular mechanisms underlying neuropsychiatric disorders, and the implications of such research for reducing disparities in mental health.

**Program:**

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<thead>
<tr>
<th>Time</th>
<th>Name</th>
<th>Institution</th>
<th>Topic/Comment</th>
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<tr>
<td>1:00 – 1:05</td>
<td>Larry Zipursky, PhD</td>
<td>UCLA</td>
<td>Welcome</td>
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<td>Nelson Freimer, MD</td>
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<td>Chancellor Gene Block</td>
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<td>1:05 – 1:15</td>
<td>Garen Staglin</td>
<td>One Mind/ Healthy Brains Global Initiative</td>
<td>Opening Comments</td>
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<td>Robert Klein, JD</td>
<td>Americans for Cures</td>
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<td>1:15 – 1:30</td>
<td>Joshua Gordon, MD, PhD</td>
<td>NIMH</td>
<td>The Four Symposium Themes are Important to NIMH</td>
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<tr>
<td>1:30 – 1:50</td>
<td>Jonathan Flint, MD</td>
<td>UCLA</td>
<td>Importance of large-scale genetics for stem cell science in mental health</td>
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<td>1:50 – 2:10</td>
<td>William Vega, PhD</td>
<td>USC</td>
<td>Impact of health disparities in mental health</td>
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<td>2:10 - 2:30</td>
<td>Alicia Martin, PhD</td>
<td>MGH/Broad Institute</td>
<td>Importance of inclusivity of diverse populations in genetics research as a means to reduce health disparities</td>
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<td>2:30 – 2:50</td>
<td>Sergiu Pasca, MD</td>
<td>Stanford</td>
<td>Stem cell science in psychiatry</td>
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<td>2:50 – 3:00</td>
<td>Jeanne Miranda, PhD</td>
<td>UCLA</td>
<td>Closing Comments</td>
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Mr. Garen Staglin and his wife, Shari, founded the International Mental Health Research organization in 1995 and have raised over $200M to find the causes and cures for mental illness. He is co-chair of the Healthy Brains Global Initiative (HBGI), a multi-billion dollar global organization to address neurological conditions and mental illness. In 2009, he co-founded BringChange2Mind.org to raise awareness and decrease stigma for people who suffer from mental illness. Mr. Staglin and former Congressman Patrick Kennedy created and founded the One Mind Research Campaign dedicated to accelerating collaborative research and advocacy to enable all individuals facing brain health challenges to build healthy, productive lives.

Robert Klein, JD is the founder and Chairman of Americans for Cures, an advocacy group for stem cell research and therapy development aimed to improve the lives of patients and their families. Mr. Klein was the author and Chairman of California's Proposition 71, the landmark $3B California Stem Cell Research and Cures ballot initiative. He served as the first Chairman of the Governing Board of the California Institute of Regenerative Medicine (CIRM) established by Proposition 71 to manage the stem cell research funding authorized by the Initiative. Most recently, Mr. Klein authored Proposition 14, the successful $5.5B Stem Cell Research Institute Bond Initiative, to continue the successful work of CIRM.

Joshua Gordon, MD, PhD is the Director of the National Institute of Mental Health (NIMH), the lead federal agency for research on mental disorders. He oversees an extensive research portfolio of basic and clinical research that seeks to transform the understanding and treatment of mental illnesses, paving the way for prevention, recovery, and cure. Dr. Gordon's research focuses on the analysis of neural activity in mice carrying mutations of relevance to psychiatric disease. His lab studied genetic models of these diseases from an integrative neuroscience perspective, focused on understanding how a given disease mutation leads to a behavioral phenotype across multiple levels of analysis. His research has direct relevance to schizophrenia, anxiety disorders, and depression.

Jonathan Flint, MD (UCLA) is a pioneer in the genetics of behavior. He showed that behavior and psychiatric diseases are genetically tractable targets and he has made key advances in identifying their molecular underpinnings, particularly with his work on structural variants. His genome-wide analyses of behavior in rodents, precursors to GWAS in humans, revealed the polygenic architecture of behavior, arising from the joint action of many loci of small effect, a key insight for the design and interpretation of genetic studies in psychiatry. Dr. Flint’s work has had clinical relevance with benefits for patients and families, such as the development of probes that are now part of standard screening protocols for intellectual disability across the world, and the discovery of a cause of a human genetic disorder (neuronal migration defects) by determining the causal pathway from mutation to behavioral phenotype. Dr. Flint is Professor of Psychiatry and Biobehavioral Sciences at UCLA.
William Vega, PhD is an elected member of the National Academy of Medicine. He has conducted community and clinical research projects on health, mental health and substance abuse in diverse regions of the United States and Latin America. Dr. Vega's specialty is multi-cultural epidemiologic and services research with adolescents and adults, supported by multiple public and private agencies and foundations. He has published more than 190 articles and chapters, in addition to several books. Dr. Vega was formerly Executive Director of the USC Roybal Institute and Provost Professor at USC.

Alicia Martin, PhD is a population and statistical geneticist. Her research examines the role of human history in shaping global genetic and phenotypic diversity. Given vast Eurocentric study biases, she investigates the generalizability of knowledge gained from large-scale genetic studies across globally diverse populations. Dr. Martin is particularly focused on ensuring that the translation of genetic technologies via polygenic risk does not exacerbate health disparities induced by study biases. Towards this end, she is also developing statistical methods and resources for multi-ethnic studies and underrepresented populations. Dr. Martin is Instructor in Investigation at the Analytic & Translational Genetics Unit, Massachusetts General Hospital and Associate Scientist at the Broad Institute.

Sergiu Pasca, MD (Stanford University) uses human pluripotent stem cells to generate specific regions of the human brain in a functional 3D preparation, known as brain region-specific organoids or spheroids, to understand human brain development, including how neurons find their final position in the brain, how they mature functionally and connect to form neural circuits. Dr. Pasca's lab also uses stem cell biology, genome engineering, live imaging and neurobiology approaches with high-throughput in vitro assays to identify dynamical processes that go awry in neural cells derived from patients with neuropsychiatric disorders, such as autism or schizophrenia, in order to identify therapeutic targets for these conditions. Dr. Pasca is Associate Professor of Psychiatry and Behavioral Sciences at Stanford University.

Jeanne Miranda, PhD is an elected member of the National Academy of Medicine. She is a mental health services researcher with a focus on the provision and evaluation of mental health care to low-income and minority communities. She is currently working with two community partners to evaluate an intervention her team developed to provide care for families adopting older children from foster care. Dr. Miranda is an investigator in two Centers focused on improving disparities in health care for ethnic minorities. She is also working to develop appropriate depression interventions for young women in Uganda and evaluating a government micro-finance program in Uganda. Dr. Miranda is Professor of Psychiatry and Biobehavioral Sciences at UCLA.