**The Need**

» **Support** basic research on ASD

» **Translate** ASD research results into better diagnostic techniques and treatments

» **Encourage** multidisciplinary research collaborations among scientists, engineers, and clinicians to jump-start technology transfer from bench to bedside

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**Inside the Simons Center for the Social Brain**

**Toward Understanding—and Treating—Autism**

One in 88 children in the US today has been diagnosed with autism spectrum disorder (ASD), a 23% increase over three years, according to a 2012 study from the Centers for Disease Control and Prevention. Yet scientists have a limited understanding of the root causes for ASD, which receives less than 5% of the research funding of many less prevalent childhood diseases. There are no diagnostic tests or effective therapies for these disorders, which cause social, communication, and behavioral impairments in children and adults.

Enter the Simons Center for the Social Brain (SCSB) at MIT, which brings together scientists and engineers at MIT with physicians and researchers from Boston-area hospitals to not only understand the neural mechanisms underlying social cognition and behavior, but also to quickly translate that knowledge into clinical applications—such as potential treatments for ASD.

Jim ’58 and Marilyn Simons, together with the Simons Foundation, began supporting autism research at MIT in 2005. The results—including the discovery of new genes that contribute to autism risk—have been so promising that the family and its foundation established the Simons Center in January 2012 to further accelerate progress by engaging more researchers, integrating multiple levels of analysis, and involving multiple institutions. Projects range from high risk, high pay-off, to grand but solvable challenges.
A researcher scans a subject at the Martinos Imaging Center at MIT.

“The projects funded by the SCSB involve researchers who are expert in diverse areas, including human brain imaging, visual psychophysics, brain development, neuronal plasticity, cortical physiology, and mouse genetics. This is a novel and unique combination of strengths to be brought to bear on a single devastating brain disorder.”

Professor Sur

BUILDING A BASE

The SCSB is building the infrastructure for its mission through four interlocking research programs in genetics and gene discovery; mechanisms and models; cognitive neuroscience; and translation and therapeutics. With tools and technologies, computation and theory, and by collaborating with area hospitals and foundations, MIT can generate meaningful advances in these areas. The SCSB supports these programs through:

- **SEED GRANTS:** A one-year, $100,000 grant supports early stage ASD research in at least two MIT labs, or one MIT lab and a partner lab. The aim is to generate pilot data that could attract follow-on funding. In 2012, 13 grants were awarded.

- **SIMONS POSTDOCTORAL FELLOWSHIPS:** This two-year fellowship consists of a stipend and expenses for autism-related research bridging at least two MIT labs, or one MIT lab and a partner lab. In 2012, nine fellowships were awarded.

- **STUDENTS:** The SCSB also funds undergraduates through MIT’s Undergraduate Research Opportunities Program (UROP). In 2012, 15 UROPs were established.

- **TECHNOLOGY INNOVATION HUB:** The advancement of neuroscience research depends heavily on technology development. The goal of the Technology Innovation Hub at the SCSB is to attract a cross-functional group of scientists and engineers to create the technologies that can be applied to autism research. The researchers are currently working on systems for improving mouse behavioral tests, technologies for studying tissue derived from patients’ stem cells, and infant brain-imaging techniques.

TOWARD AN IMPACT

Two large-scale, multilevel projects involving researchers from multiple institutions are now underway at the SCSB to identify the genetic conditions underlying subsets of ASD. The hope is that results will be applicable to a broader group of ASD patients. The ultimate goal is to connect basic research to patient care.

“We expect the SCSB to be the next-generation model of a partnership between universities, foundations, and industry around basic and applied research dedicated to brain disorders,” said Mriganka Sur, director of the SCSB and the Paul E. and Lilah Newton Professor of Neuroscience.

Sur is excited about the SCSB and what it can do for ASDs and other brain disorders. “A deeply rooted disorder such as autism requires many levels of analysis, and new tools, for a fundamental understanding and new treatments. I am confident that we will have a profound impact.”

For More Information or Giving Opportunities
Elizabeth Chadis
Assistant Dean for Development
MIT School of Science
echadis@mit.edu | 617.253.8903