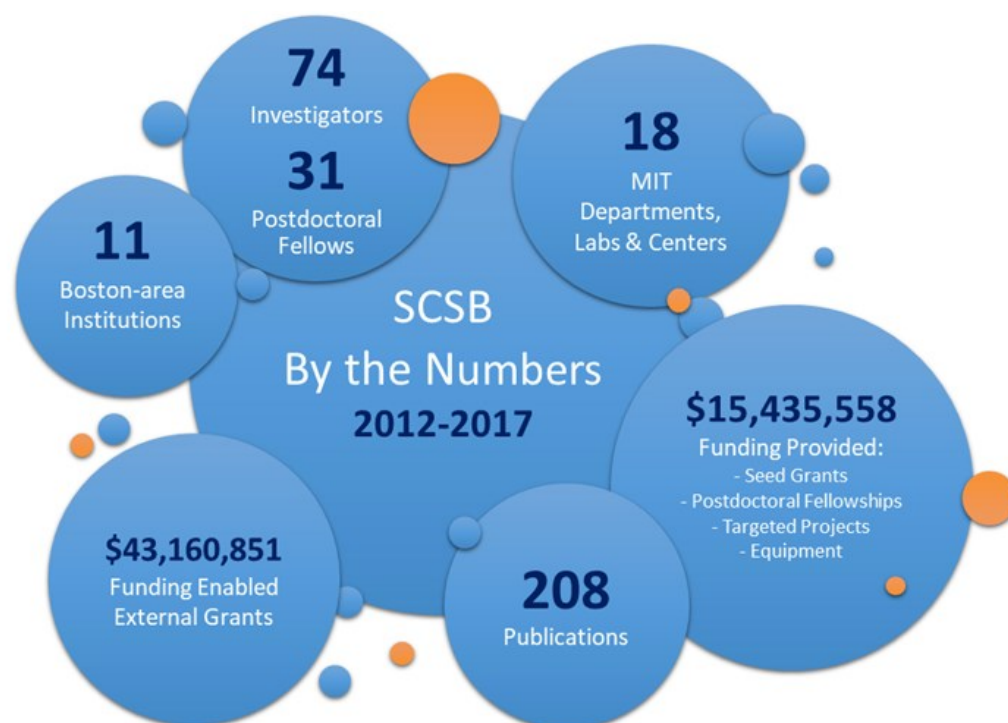


THE SIMONS CENTER FOR THE SOCIAL BRAIN (SCSB) NEWSLETTER | Winter 2018



The mission of the Simons Center for the Social Brain (SCSB) at MIT, now in its sixth year, is to understand the neural mechanisms underlying social cognition and behavior, and to translate this knowledge into better diagnosis and treatment of autism spectrum disorders (ASD). SCSB was founded in January 2012 with support from the Simons Foundation Autism Research Initiative (SFARI), and completed its first five-year phase of funding in December 2016. In January 2017, it was renewed for a second phase.

The impact of SCSB is manifest in many ways:



INSIDE THIS ISSUE

| | |
|--|---|
| Overview | 1 |
| Recent Publications..... | 1 |
| Targeted Project Update..... | 2 |
| Spring 2018 Events..... | 3 |
| Postdoctoral Fellows: In Their Own Words..... | 4 |

RECENT PUBLICATIONS

From Limor Freifeld and Ed Boyden, in PNAS:

[Expansion microscopy of zebrafish for neuroscience and developmental biology studies.](#)

From Yeong Shin Yim, Jun Huh, and Gloria Choi, in Nature:

[Reversing behavioral abnormalities in mouse offspring exposed to maternal inflammation.](#)

From Gloria Choi and Jun Huh, in Nature:

[Maternal gut bacteria promote neurodevelopmental abnormalities in mouse offspring.](#)

From Ev Fedorenko, in Journal of Neuroscience:

[Domain-general brain regions do not track linguistic input as closely as language-selective regions.](#)

TARGETED PROJECT UPDATE: THE LANGUAGE PRAGMATICS PROJECT

UNDERSTANDING AUTISM FROM EVERY ANGLE

Understanding language entails more than simply decoding the literal meaning of each sentence: our interpretation is powerfully shaped by our guesses about the intent of the speaker, the linguistic and social context of the utterance, and our general world knowledge. This ability to go beyond the literal meaning is called “pragmatics”, and it is at the core of the communication deficit in autism.

| | CRITICAL | LITERAL CONTROL |
|------------------------------------|----------|-----------------|
| Experiment 3: Sarcasm | | |
| Experiment 4: Indirect Requests | | |
| Experiment 5: White Lies | | |

Sample stimuli from a battery of tasks developed by former postdoc Olessia Jouravlev to tap different aspects of pragmatic reasoning. Participants were shown pictures like this and asked to decide why the character says what he/she says, to test whether they understand the intention of the character in the critical cases of non-literal communication (e.g., that the girl wants water when she says "I am thirsty").

Over the past three years, **a team of five researchers** have focused on understanding the nature of this deficit, its developmental trajectory, and its underlying neural mechanisms. **Laura Schulz** and **Josh Tenenbaum**, Professors of Cognitive Science in the Department of Brain and Cognitive Sciences have developed a computational model of how people infer costs of others’ actions and showed that this general ability to reason about others’ actions supports pragmatic inferences from early in life. **Ted Gibson**, Professor of Cognitive Science in the Department of Brain and Cognitive Sciences, developed and validated an extensive battery of tasks that can be used to assess pragmatic reasoning abilities, and identified specific components of pragmatics that are impaired in individuals with autism. And **Ev Fedorenko**, Assistant Professor at HMS and MGH, and **Rebecca Saxe**, Professor of Cognitive Neuroscience in the Department of Brain and Cognitive Sciences, have examined the contributions of three large-scale brain networks – the language network, the social network, and the executive-function network – to pragmatic reasoning using functional MRI.

They found that reduced lateralization of the language network is a robust neural marker of autism, present not only in individuals with autism, but also in neurotypical males and neurotypical individuals with high autistic trait load, in line with a continuum model of underlying genetic risk.

For other Targeted Projects, please visit: <http://scsb.mit.edu/research/targeted-projects/>

“We believe that the most novel research ideas and approaches come from collaborations, and even unusual collaborations, rather than within-lab research funded by usual mechanisms”

- **Mriganka Sur**, Director, Simons Center for the Social Brain.

UPCOMING EVENTS: SPRING 2018

LUNCH SERIES

- February 9, 2018 – **Ted Gibson, Ph.D.**
Professor of Cognitive Science, Dept. of Brain & Cognitive Sciences, MIT
- February 16, 2018 – **Dara Manoach, Ph.D.**
Professor of Psychology, Dept. of Psychiatry, MGH
- March 23, 2018 – **Siyuan Rao, Ph.D.**
Simons Fellow, Polina Anikeeva Laboratory, MIT
- April 27, 2018 – **Julian Jara-Ettinger, Ph.D.**
Assistant Professor, Dept. of Psychology, Yale University
- May 4, 2018 – **Sasha Krol, Ph.D.**
Simons Fellow, Guoping Feng Laboratory, MIT
- June 1, 2018 – **Jeongtae Kwon, Ph.D.**
Simons Fellow, Gloria Choi Laboratory, MIT

General Info:

Time: 12PM - 1PM

Location: SCSB Conference room, Building 46, Room 6011
43 Vassar Street
Cambridge, MA 02139



All events are open to the public, registration is not required

.....

POSTDOCTORAL APPLICATIONS: SPRING 2018

We are pleased to announce the 2018 Round 1 funding opportunities for Postdoctoral Fellowships.

Postdoctoral Fellowships are intended for outstanding candidates with very recent PhDs who wish to conduct autism-related research at MIT under the mentorship of MIT faculty researchers. Applicants currently completing their PhD outside MIT, who wish to carry out postdoctoral research at MIT, are strongly encouraged to apply.

Deadline: Wednesday, February 28, 2018.

For information on how to apply and eligibility, please visit our website at: <http://scsb.mit.edu/funding/postdoctoral-fellowship-funding/>

COLLOQUIUM SERIES

JANUARY

24 - Lauren Atlas, Ph.D.
NCCIH, NIH

FEBRUARY

21 - Joshua Kaplan, Ph.D.
Harvard Medical School,
Massachusetts General Hospital

MARCH

21 - Randy Carpenter, Ph.D.
Rett Syndrome Research Trust

28 - Peggy Mason, Ph.D.
University of Chicago

APRIL

18 - David Ginty, Ph.D.
Howard Hughes Medical
Institute, Harvard Medical School

MAY

16 - Eric Nestler, M.D., Ph.D.
Icahn School of Medicine,
Mount Sinai

General Info:

Time: 4PM - 5PM, reception to follow

Location: Singleton Auditorium,
Building 46, Room 3002
43 Vassar Street
Cambridge, MA 02139

SIMONS POSTDOCTORAL FELLOWS: IN THEIR OWN WORDS



"The Simons Fellowship has had a remarkable impact on my research and I am very grateful for the generous early stage career support it has provided. The fellowship gave me the independence to develop my own unique research program and funded my attendance at several international meetings and a workshop where I learned a new technique that has never before been applied to studying autism."

I am particularly grateful for interactions with fellow Simons postdocs, as they helped to expand my collegiate network and develop ideas outside of my primary area of expertise. As a junior scientist, these opportunities have been instrumental in fostering my scientific development and provide a strong foundation for my own independent research career"

Ashley Watson, Ph.D., Simons Postdoctoral Fellow,
Li-Huei Tsai Laboratory

"As a grad student, I gained expertise in both human neuroimaging and the study of infant behavior. The Simons Fellowship helped me to marry these two areas, providing both the equipment and the research support I needed to learn to study brain function in human infants"

Lindsey Powell, Ph.D., Simons Postdoctoral Fellow,
Rebecca Saxe Laboratory



PARTICIPATE!

Researchers in the Department of Brain and Cognitive Sciences at MIT are exploring the neuroscience behind social cognition and behavior. Individuals and families can play an important role in making these discoveries by participating in research. Several research studies are actively recruiting volunteers with and without autism spectrum disorders. The Simons Center actively supports these projects.

For more information on how to participate in these studies, please email Recruitment Coordinator [AJ Haskins](#) or visit our website: <http://scsb.mit.edu/research/participate/>.



Supporting Autism Research at MIT

Gift of alumni/ae and friends to be used for supporting collaborative research on Autism and Neurodevelopmental Disorders at MIT:

Please visit <https://giving.mit.edu/> to make a gift.

**Simons Center for the Social Brain –
Autism Research Fund 3836050**