

THE
Flexner
DISCOVERY
LECTURE SERIES

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MRIGANKA SUR, PH.D

MECHANISMS AND EMERGING THERAPEUTICS
FOR AUTISM SPECTRUM DISORDERS

NOVEMBER 29, 2012
4:00 P.M.
208 LIGHT HALL

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Upcoming Discovery Lecture:

LYNNE E. MAQUAT, PH.D.
University of Rochester

December 6, 2012
208 Light Hall / 4:00 P.M.

VANDERBILT  UNIVERSITY
MEDICAL CENTER

MECHANISMS AND EMERGING THERAPEUTICS FOR AUTISM SPECTRUM DISORDERS

A major challenge for understanding autism spectrum disorders is to advance findings from gene discovery to an exposition of neurobiological mechanisms that underlie these disorders, and subsequently translate this knowledge into mechanism-based therapeutics. A promising way to proceed is revealed by recent studies of rare subsets of neurodevelopmental disorders. Rett syndrome is caused by mutations in the gene coding for methyl CpG-binding protein 2 (MECP2). While MeCP2 has diverse functions, examination of MeCP2 mutant mice and of human fibroblast-derived neurons suggests the hypothesis that MeCP2 deficiency leads to a deficit in maturation and maintenance of synapses and circuits in multiple brain systems. Some of the deficits arise from alterations in intracellular signaling pathways and epigenetic mechanisms that underlie synaptic plasticity. These deficits can be at least partially restored in MeCP2 mutant mice by treatment with therapeutic agents, which are now in clinical trials for treating Rett syndrome.



MRIGANKA SUR, PH.D.

NEWTON PROFESSOR OF NEUROSCIENCE

**DIRECTOR, SIMONS CENTER FOR THE SOCIAL BRAIN
MASSACHUSETTS INSTITUTE OF TECHNOLOGY**

MEMBER, INSTITUTE OF MEDICINE

Dr. Mriganka Sur is the Paul E. and Lilah Newton Professor of Neuroscience and Director of the Simons Center for the Social Brain at MIT, which he founded after 15 years as head of the MIT Department of Brain and Cognitive Sciences. Dr. Sur studies the organization, development and plasticity of the cerebral cortex of the brain using experimental and theoretical approaches. He has discovered fundamental principles by which networks of the cerebral cortex are wired during development and change dynamically during learning. His laboratory has identified gene networks underlying cortical plasticity, and pioneered high resolution imaging methods to study cells, synapses and circuits of the intact brain. Recently, his group has demonstrated novel mechanisms underlying disorders of brain development, and proposed innovative strategies for treating such disorders.

Dr. Sur received the B. Tech. degree in Electrical Engineering from the Indian Institute of Technology, Kanpur, and the PhD degree in Electrical Engineering from Vanderbilt University, Nashville. He has received numerous awards and honors, including the Charles Judson Herrick Award of the American Association of Anatomists, the A.P. Sloan Fellowship, the McKnight Development Award, the Hans-Lukas Teuber Scholar Award, the Distinguished Alumnus Award of the Indian Institute of Technology, Kanpur, the Sigma Xi Lectureship, and the Foundation Day Medal of the National Brain Research Center, India. At MIT, he has received awards for outstanding teaching and been recognized with the Sherman Fairchild and Newton Chairs. He is an elected Fellow of the Royal Society of the UK, the Institute of Medicine of the National Academies, the American Academy of Arts and Sciences, the American Association for the Advancement of Science, the Neuroscience Research Program, the National Academy of Sciences, India, the Rodin Academy, Sweden, and the Third World Academy of Sciences.
