

11th Annual Life Sciences Institute Scientific Symposium

Development and Diseases of the Nervous System

Thursday, May 24, 2012

8:45 Welcome

Alan Saltiel, PhD
Mary Sue Coleman Director of the Life Sciences Institute

9:00 Keynote Introduction

Mary Sue Coleman, PhD
President of the University of Michigan

Mary Sue and Kenneth Coleman Life Sciences Lecture

9:10 "Can Simple Cells Help Solve Complex Neurodegenerative Diseases?"

Susan Lindquist, PhD
Professor, Massachusetts Institute of Technology, Whitehead Institute for Biomedical Research
Member, Howard Hughes Medical Institute Investigator

10:10 to 10:30 break

10:30 "Axon Regeneration: Insights from *C. elegans*"

Yishi Jin, PhD
Professor, Neurobiology Section, Division of Biological Sciences, University of California, San Diego, Howard Hughes Medical Institute Investigator

11:15 "Cell Recognition and the Assembly of Neural Circuits in *Drosophila*"

Larry Zipursky, PhD
Professor of Biological Chemistry, David Geffen School of Medicine, University of California, Los Angeles, Howard Hughes Medical Institute Investigator

12:00 to 1:00 break

1:15 "From Peppers to Pit Vipers: Probing Molecular Mechanisms of Thermosensation and Pain"

David Julius, PhD
Morris Herzstein Chair in Molecular Biology and Medicine, University of California, San Francisco

2:00 "TrkB and P13Kinase: Modeling Neurogenesis, Mood and Autism in Mice"

Luis F. Parada, PhD
Professor and Chair, Department of Developmental Biology, University of Texas Southwestern Medical Center

2:45 to 3:10 break

3:15 "Defining the Path to Neurodegeneration in Parkinson's Disease"

Ted M. Dawson, MD, PhD
Director, Institute for Cell Engineering, Leonard and Madlyn Abramson Professor in Neurodegenerative Diseases, Johns Hopkins University School of Medicine

4:00 "Mechanisms and Treatment of Synaptic, Network and Cognitive Dysfunction in Alzheimer's Disease"

Lennart Mucke, MD
Director, Gladstone Institute of Neurological Disease, Joseph B. Martin Distinguished Professor of Neuroscience and Professor of Neurology, University of California, San Francisco

4:50 Closing Remarks

Alan Saltiel, PhD
Mary Sue Coleman Director of the Life Sciences Institute

This event is free and open to the public



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University of Michigan Biomedical Science Research Building, Kahn Auditorium, 109 Zina Pitcher Place, Ann Arbor, MI 48109



Diseases and Development of the Nervous System



Keynote Speaker

Susan Lindquist is a Member and former Director of the Whitehead Institute. A winner of the 2009 National Medal of Science, Dr. Lindquist is a pioneer in the study of protein folding. She has also found that the molecular chaperone Hsp90 potentiates and buffers the effects of genetic variation, fueling evolutionary mechanisms as diverse as malignant transformation and the emergence of drug resistance. Her work established the molecular basis for protein-based mechanisms of inheritance. She has a PhD in biology from Harvard University and was a postdoctoral fellow of the American Cancer Society, is a Member of the National Academy of Sciences and the Institute of Medicine, and received the Dickson Prize in Medicine, Otto-Warburg Prize, Genetics Society of America Medal, FASEB Excellence in Science Award and the Max Delbrück and Mendel medals. She is a member of the Board of Directors of Johnson & Johnson, and a co-founder of FoldRx, a biotech company.



Ted M. Dawson is the Leonard and Madlyn Abramson Professor in Neurodegenerative Diseases and Director of the Institute for Cell Engineering at the Johns Hopkins University School of Medicine. His honors include the Derek Denny-Brown Young Neurological Scholar Award, the Paul Beeson Physician Faculty Scholar Award and the Santiago Grisolia Medal. He was elected to the Association of American Physicians and is a Fellow of the American Association for the Advancement of Science. He elucidated the molecular mechanisms by which NO kills neurons through activation of poly [ADP-ribose] (PAR) polymerase (PARP) and release of apoptosis inducing factor (AIF) via PAR polymer and discovered Parthanatos. Dr. Dawson has been at the forefront of research into the biology and pathobiology of mutant proteins linked to familial Parkinson's disease. These studies are providing novel opportunities for therapies aimed at preventing the degenerative process of Parkinson's disease and other neurodegenerative disorders.



Yishi Jin is a Professor in the Section of Neurobiology and Department of Cellular and Molecular Medicine and an Investigator of the Howard Hughes Medical Institute at the University of California, San Diego. Dr. Jin studies neurodevelopment and axon regeneration using *C. elegans*. Using integrated approaches, the Jin lab has discovered multiple components that play important roles in synapse formation. In recent years, the researchers have also completed the first large-scale functional screen for genetic factors that influence adult neuron regenerative ability in responses to injury. The studies have identified a novel axon regeneration inhibitor that functions through regulating microtubule dynamics in injured axons. Dr. Jin holds a BS in cell biology from Beijing University and a PhD in molecular biology from University of California, Berkeley.



David Julius is Professor and Chair of Physiology at University of California, San Francisco, where his research is focused on understanding the molecular basis of pain sensation. He received his undergraduate degree from Massachusetts Institute of Technology, studying mechanisms of tRNA aminoacylation with Alexander Rich, holds a PhD from University of California, Berkeley, where he worked with Jeremy Thorner and Randy Schekman to elucidate mechanisms of peptide hormone processing and secretion in yeast; and he did postdoctoral work with Richard Axel's group at Columbia University, where his focus turned to neuropharmacology and receptor function. His work has been recognized by numerous awards, including the Passano Award, the Prince of Asturias Prize, and the Shaw Prize in Life Sciences and Medicine. He is a Member of the National Academy of Sciences, The American Academy of Arts and Sciences, and the Hungarian Academy of Sciences (Honorary Member).

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Lennart Mucke is Director of the Gladstone Institute of Neurological Disease, Joseph B. Martin Distinguished Professor of Neuroscience and Professor of Neurology at University of California, San Francisco. His research focuses on processes that result in memory loss and other major neurological deficits, with an emphasis on Alzheimer's disease and related disorders. He has generated informative experimental models of these conditions and identified novel strategies to prevent neurological decline. His honors include the Potamkin Prize from the American Academy of Neurology, the Zenith Award from the Alzheimer's Association and the MetLife Foundation Award for Medical Research. He serves on the National Advisory Council on Aging for the NIH and the Senate of the German Center for Neurodegenerative Diseases. He trained at the Georg-August University and the Max Planck Institute for Biophysical Chemistry in Göttingen, Germany, the Cleveland Clinic, the Massachusetts General Hospital and Harvard Medical School, and The Scripps Research Institute.



Luis F. Parada is Chairman of the Department of Developmental Biology, holds the Diana and Richard C. Strauss Distinguished Chair in Developmental Biology and is Director of the Kent Waldrep Foundation Center for Basic Neuroscience Research, and is an American Cancer Society Professor. He has a BS from the University of Wisconsin and a PhD in biology from Massachusetts Institute of Technology, and was a Damon Runyon and Helen Hay Whitney Postdoctoral Fellow at the Pasteur Institute. In 1994, Dr. Parada moved to the University of Texas Southwestern Medical Center at Dallas as Director of the Center for Developmental Biology and continued his studies on nerve cell survival and regeneration, while renewing his attention on cancer biology. His laboratory uses genetic mouse models to study human disease including nervous system cancers, neurofibromatosis and autism. He is a Fellow of the American Academy of Arts and Sciences, The Institute of Medicine and The American Association for the Advancement of Science and a Member of The National Academy of Sciences.



Larry Zipursky is Professor of Biological Chemistry at the David Geffen School of Medicine at University of California, Los Angeles, and a Howard Hughes Medical Institute Investigator. He received his AB in chemistry from Oberlin College and his PhD at Albert Einstein College of Medicine, where he studied DNA replication enzymology with Jerard Hurwitz. After postdoctoral studies with Seymour Benzer studying neurogenetics in *Drosophila*, Dr. Zipursky joined the UCLA faculty. Dr. Zipursky's work has focused on the molecular mechanisms regulating the assembly of neural circuits, and in particular, in uncovering the cellular recognition molecules mediating interactions between neurons. He is a Member of the American Academy of Arts and Sciences and the National Academy of Sciences.



Director of the Life Sciences Institute

Alan R. Saltiel is the Mary Sue Coleman Director of the Life Sciences Institute, Professor, Division of Molecular Medicine and Genetics, Department of Internal Medicine, and John Jacob Abel Professor in the Life Sciences, Department of Molecular and Integrative Physiology, University of Michigan Medical School. During his doctorate studies in biochemistry at the University of North Carolina, Dr. Saltiel worked on thyroid-stimulating hormone and its relationship to thyroid cancer. As a postdoctoral fellow under Pedro Cuatrecasas in the Wellcome Research Labs, he began investigating insulin. He was Distinguished Research Fellow and Senior Director of the Department of Cell Biology at Parke-Davis Pharmaceutical Research Division (now Pfizer Global Research) in Ann Arbor. He is a Member of the Institute of Medicine and Fellow of the American Association for the Advancement of Science.

About the Life Sciences Institute Scientific Symposium

The annual LSI symposium invites leading scientists from different disciplines to converge around a single topic.

Past symposia

- 2011** Autophagy in Health and Disease
- 2010** Macromolecular Complexes in Cell Biology
- 2009** Evolutionary Biology: 150 Years After The Origin
- 2008** Focus on Chemical Biology
- 2007** Frontiers in Stem Cell Biology
- 2006** Molecular Insights into Metabolic Disease
- 2005** Cancer Insights: Molecules to Medicine
- 2004** Exploring the Complexity of Life
- 2003** Genetic Insights into Biology and Disease
- 2002** The Structural Biology of Cell Signaling

About the Life Sciences Institute

The Life Sciences Institute at the University of Michigan brings together leading scientists from a variety of life science disciplines to accelerate discoveries that will improve human health. Through its collaborative centers and scientific initiatives, the LSI forges links between the health sciences, basic sciences, engineering, the social sciences and the humanities, engaging across fields and academic boundaries. The LSI will celebrate its 10th anniversary in 2014.

www.lsi.umich.edu



Regents of the University of Michigan: Julia Donovan Darlow, Laurence B. Deitch, Denise Ilitch, Olivia P. Maynard, Andrea Fischer Newman, Andrew C. Richner, S. Martin Taylor, Katherine E. White, Mary Sue Coleman *ex officio*.



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