Karen Christman, PhD
UC San Diego
Dr. Christman focuses on developing novel biomaterials for tissue engineering and regenerative medicine applications, and has a strong translational focus with the main goal of developing minimally invasive therapies for cardiovascular disease. She is a fellow of the American Heart Association and the American Institute for Medical and Biological Engineering, and has received several awards including the NIH Director’s New Innovator and Transformative Research Awards, the Wallace H. Coulter Foundation Early Career Translational Research Award, the American Heart Association Western States Innovative Sciences Award, and the Tissue Engineering and Regenerative Medicine Society’s Young Investigator Award. Dr. Christman is co-founder of Ventrilx, Inc., which is in clinical trials with a cardiac extracellular matrix hydrogel technology developed in her lab. She is a Professor in the Department of Bioengineering and Associate Dean for Students in the Jacobs School of Engineering.

Jeffrey Hubbell, PhD
University of Chicago
Dr. Hubbell uses biomaterials and protein engineering approaches to investigate topics in regenerative medicine and immunotherapeutics. In regenerative medicine, he focuses on biomaterial matrices that mimic the extracellular matrix and on growth factor - extracellular matrix interactions, working in a variety of animal models of regenerative medicine. In immunotherapeutics, he focuses on nanomaterials in vaccines that target lymphoid-resident antigen presenting cells and on protein engineering approaches to deliver antigen to the spleen and liver for inverse vaccines to induce tolerance to protein drugs and in autoimmunity. His interests are both basic and translational, having founded or co-founded five biomedical companies based on his technology, namely Focal (acquired by Genzyme); Kuros Biosciences, Anokion and Kanyos Bio; and Clostra Bio. Dr. Hubbell holds the Eugene Bell Professorship in Tissue Engineering and is an elected member to the National Academy of Engineering and the National Academy of Inventors.

Ralph Deberardinis, MD, PhD
University of Texas, Southwestern
Dr. Deberardinis’ laboratory studies the role of altered metabolic states in childhood inborn errors of metabolism and cancer. His lab has focused on the use of metabolomics and isotope tracers to understand metabolic reprogramming in diseased tissue. The lab uses these techniques to uncover novel metabolic liabilities in cancer, and was among the first to use intra-operative isotope infusions to understand fuel preferences in living human tumors in vivo. Current interests include understanding the mechanistic basis of metabolic heterogeneity in human cancer and developing new ways to assess the evolution of metabolic phenotypes during cancer progression. Dr. Deberardinis is the Joel B. Steinberg, MD Chair in Pediatrics and Robert L. Moody, Sr. Faculty Scholar at the Children’s Research Institute (CRI) of UT Southwestern. He also serves as clinical Chief of Pediatric Genetics and Metabolism and directs the Genetic and Metabolic Disease Program in the CRI, a multidisciplinary research group with the overarching goal of understanding how metabolism influences tissue health and disease and using this information to develop better ways to diagnose and treat disease.

About the Center
The Eli and Edythe Broad Center of Regenerative Medicine and Stem Cell Research is committed to a multi-disciplinary, integrated collaboration of scientific, academic, and medical disciplines for the purpose of understanding human stem cells. Launched in 2005, the Center supports innovation, excellence and the highest ethical standards focused on driving basic stem cell research from the laboratory to the clinic to treat disease. To learn more about the Center, visit our website at www.stemcell.ucla.edu.
14th Annual Stem Cell Symposium
Technology Innovation for Stem Cell Research and Therapy

Technological innovations play a critical role in advancing stem cell research and the rapid evolution of regenerative medicine. The 2018 conference brings together leading research scientists and clinicians to present novel technologies that are driving breakthrough therapies for a wide array of diseases.

Program

8:00-8:30am Check in/Registration
8:30-8:45 Welcome
Owen Witte, MD, Director, Eli and Edythe Broad Center of Regenerative Medicine and Stem Cell Research

8:45-9:25 Hydrogels to Enhance Stem Cell Therapies
David Mooney, PhD, Harvard University
Moderator: Song Li, PhD

9:25-10:05 Stem Cell Therapy for Retinal Disease
Steven Schwartz, MD, University of California, Los Angeles
Moderator: Sophie Deng, MD, PhD

10:05-10:30 Coffee Break – DeNeve Plaza Room

10:30-11:10 Molecular Engineering and Engineering of Stem Cell Fate Decisions
David Schaffer, PhD, University of California, Berkeley
Moderator: Samantha Butler, PhD

11:10-11:50 Breaking the Mold-New Drug Discovery Platforms for Progressive Fibrosis
Brigitte Gomperts, MD, University of California, Los Angeles
Moderator: Bruce Dunn, PhD

11:50-1:30 Lunch and Poster Session – DeNeve Plaza Room and Auditorium

1:30-2:10 Physical Phenotyping of Cells
Dino Di Carlo, PhD, University of California, Los Angeles
Moderator: April Pyle, PhD

2:10-2:50 Extracellular Matrix Derived Hydrogels for Regenerative Medicine
Karen Christian, PhD, University of California, San Diego
Moderator: Arjun Deb, MD

2:50-3:15 Coffee Break – DeNeve Plaza Room

3:15-3:55 Understanding Metabolic Phenotypes in Human Cancer
Ralph Deberardinis, MD, PhD, University of Texas, Southwestern
Moderator: Michael Teitell, MD, PhD

3:55-4:35 Engineering Growth Factors and the Extracellular Matrix
Jeffrey Hubbell, PhD, University of Chicago
Moderator: Heather Maynard, PhD

4:35 Reception

Conference Committee:
Arjun Deb, MD, Associate Professor, Medicine
Song Li, PhD, Chair, Bioengineering
Heather Maynard, PhD, Professor, Chemistry and Biochemistry
Michael Teitell, MD, PhD, Director, Janssen Comprehensive Cancer Center

Speaker Biographies

David Mooney, PhD
Harvard University
Dr. Mooney is the Pinkas Family Professor of Bioengineering in the Harvard School of Engineering and Applied Sciences, and a Core Faculty Member of the Wyss Institute. His laboratory designs biomaterials to make cell and protein therapies effective and practical approaches to treat disease. Dr. Mooney has won numerous awards, including the Clemson Award from the SFB, MERIT award from the NIH, Distinguished Scientist Award from the IADR, Phi Beta Kappa Prize for Excellence in Undergraduate Teaching, and the Everett Mendelsohn Excellence in Mentoring Award from Harvard College. His inventions have been licensed by numerous companies leading to commercialized products and he is active on industrial scientific advisory boards. He is elected member to the National Academy of Engineering, the National Academy of Medicine, and the National Academy of Inventors.

Dino Di Carlo, PhD
UCLA
Dr. Di Carlo is best known for his pioneering work using inertial fluid dynamic effects for the control, separation, and analysis of cells in microfluidic devices. As a leader in technology entrepreneurship he co-founded and currently advises five companies that are commercializing inventions from his lab. Among other honors he received the Presidential Early Career Award for Scientists and Engineers (PECASE), the Pioneers of Minituarization Prize and Analytical Chemistry Young Innovator Awards. Dr. Di Carlo is an elected Fellow to the American Institute for Medical and Biological Engineering and to the Royal Society of Chemistry (FRSC). Dr. Di Carlo is Professor of Bioengineering and Vice Chair of Graduate Studies.

Brigitte Gomperts, MD
UCLA
Dr. Gomperts is an associate professor of pediatric hematology-oncology and her research focuses on the role of tissue specific stem cells in repair and regeneration of the lungs. The goal of her research is to understand the normal repair processes in the airway that recapitulate lung development. Studying these stem cells in repair and regeneration of the lungs may provide new insights into diseases such as asthma, chronic obstructive pulmonary disease, idiopathic pulmonary fibrosis and bronchiolitis obliterans. The ultimate goal is to use this knowledge to develop novel targeted therapies and prevention strategies for lung diseases. Dr. Gomperts’ work is funded by NIH, CIRM, Department of Defense, American Thoracic Society, Concern Foundation and UC Tobacco-Related Disease Research Program.

Steven Schwartz MD
UCLA
Dr. Schwartz’ research includes early diagnosis and treatment of diseases such as macular degeneration, retinopathy of prematurity (ROP), and diabetic eye disease. Additionally, he develops and evaluates novel medical device technologies, imaging technologies, surgical equipment and robots, and drug delivery systems, with an emphasis on diagnostic and treatment applications. Dr. Schwartz’ clinical research includes novel pharmaceutical agents for treatment of both wet and dry age-related macular degeneration (AMD), ROP, and diabetic retinopathy. He is the lead investigator for the human embryonic stem cell derived retinal pigment epithelium (RPE) clinical trials in patients with AMD and Stargardt’s Disease. He is also part of a UCLA cross disciplinary team developing a clinical trial that will transplant patient specific autologous induced pluripotent stem cell derived RPE for patients with maculopathies. Dr. Schwartz is a Professor of Ophthalmology and the Chief of the Retina Division in the Jules Stein Eye Institute.

David Schaffer, PhD
UC Berkeley
Dr. Schaffer is Professor of Chemical and Biomolecular Engineering, Bioengineering, and Neuroscience, as well as the Director of the Berkeley Stem Cell Center. His research applies engineering principles to enhance stem cell and gene therapies, work that includes novel approaches for molecular engineering and evolution of new viral vectors as well as new technologies to investigate and control stem cell fate decisions. Dr. Schaffer, a NSF CAREER Award recipient, was named a Technology Review Top 100 Innovator. He is also an elected fellow to the American Institute of Medical and Biological Engineering.