LOMA LINDA UNIVERSITY

School of Medicine

THE LAWRENCE D. LONGO, MD CENTER FOR PERINATAL BIOLOGY 8TH ANNUAL LONGO SYMPOSIUM

February 3, 2026
9:00 am – 4:30 pm

Welcome

Lubo Zhang, PhD, Director

It is my great pleasure to welcome you to the 8th Annual Longo Symposium. We are very grateful to the speakers and the organizing committee for their contributions to this exciting and first-rate program.

The Lawrence D. Longo, MD Center for Perinatal Biology was established by Drs. Lawrence D. Longo, Gordon G. Power and Raymond G. Gilbert in 1973. Over the past five decades, the Center has become a world-renowned research center in maternal health and developmental biology. Today, our Center consists of fourteen biomedical scientist faculty and two associate faculty from clinical departments, devoted to the investigation of maternal health, fetal and newborn well-being, and developmental programming of health and disease.

This annual symposium honors Dr. Longo's legacy in our Center and Loma Linda University. The goal of the symposium is to share exciting basic science and translational research from maternal, fetal and neonatal health, as well as to understand mechanisms underlying developmental programming of health and disease. Dr. Longo's research career was guided by his fascination for how the developing organs of the fetus receive the oxygen and nutrients they need to develop, how these organs adapt when supplies are inadequate, and how these adaptations affect outcomes extending into adult life. The 2026 Longo Symposium features scientists whose research explores a common theme: how developing organ systems regulate oxygen, nutrient, and signal exchange to sustain life and shape long-term health. Spanning placental biology, pulmonary vascular disease, lung development, and microvascular adaptation, the work of the invited speakers reveals how vascular and respiratory networks form, remodel, and respond to environmental and molecular cues. Together, these investigators advance the integrative physiological vision championed by Dr. Lawrence Longo.

Another goal of this symposium is to identify a recipient of the Longo/Power New Investigator Award, which acknowledges the tireless efforts of Drs. Longo and Power to inspire the scientific careers of numerous young investigators, many of whom are leaders in their fields today. Congratulations to this year's recipient, Dr. Kaela Varberg from the Children's Mercy Research Institute

We are grateful to our guest speakers for edifying us on various aspects of their research, and we hope that this symposium will create an opportunity and inspire attendees in pursuit of basic and translational research.

Thank you for joining us.

Symposium Program

9:00 – 9:05 am	Introduction Lubo Zhang, PhD, Director, Lawrence D. Longo, MD Center for Perinatal Biology, Loma Linda University
9:05 – 9:15 am	Welcome and Opening Remarks Paul Herrmann, MD, PhD, Vice Dean, Academic Affairs, School of Medicine, Loma Linda University
9:15 – 9:35 am	Foundations and Legacy of the Center Hobe J. Schröder, MD, PhD, Professor of Physiology
9:35 – 10:35 am	Keynote Address *Harnessing Genetics to Find New Treatments for Pulmonary Arterial Hypertension* Marlene Rabinovitch, MD, Stanford University
10:35 – 10:45 am	Break
10:45 – 11:30 am	*Consider the Lung as a Sensory Organ* Xin Sun, PhD, University of California San Diego
11:30 – 12:15 pm	*Puffs and Consequences: The Hidden Toll of Maternal Vaping* Mark Olfert, PhD, West Virginia University
12:15 – 1:45 pm	Lunch/Poster Viewing
1:45 – 2:30 pm	*Adiponectin: An Adipose to Placenta Signal Directing Pregnancy Outcomes and Life-Long Health* Theresa Powell, PhD, University of Colorado
2:30 – 3:15 pm	*The Social Life of Mitochondria within the Cell – Exclusive Clubs and Dynamic Networks* Orian Shirihai, MD, PhD, University of California Los Angeles
3:15 – 3:25 pm	Break
3:25 – 3:30 pm	Introduction: Longo/Power New Investigator Presentation Eugenia Mata-Greenwood, PhD, Lawrence D. Longo, MD Center for Perinatal Biology, Loma Linda University
3:30 – 4:15 pm	*Mapping Term Placental Signatures in Cases of Congenital Heart Disease* Kaela Varberg, PhD, Children's Mercy Research Institute
4:15 – 4:30 pm	Closing Remarks William J. Pearce, PhD, Lawrence D. Longo, MD Center for Perinatal Biology, Loma Linda University

Keynote Speaker

Marlene Rabinovitch, MD

Dr. Rabinovitch is the Dwight and Vera Dunlevie Professor of Pediatric Cardiology, and the Director of the Basic Science and Engineering Initiative of the Children's Heart Center at Stanford University. Her research focuses on uncovering fundamental genetic, metabolic, and inflammatory mechanisms causing pulmonary hypertension that can be translated to the clinic.

Dr. Rabinovitch graduated from McGill University Medical School and completed her pediatrics training at the University of Colorado and cardiology fellowship at Boston Children's Hospital, Harvard Medical School where she was Assistant Professor. She became Associate and Full Professor of Pediatrics, Laboratory Medicine and Pathobiology and Medicine at the University of Toronto, Director of the Cardiovascular Research Program at the Hospital for Sick Children and the Robert M. Freedom/Heart and Stroke Foundation Chair.

Dr. Rabinovitch received numerous awards for research including the Stanford Cardiovascular Institute Faculty Recognition Award (2024), the Research Achievement Award from the American Heart Association (2023), ATVB Distinguished Lectureship (2021), the Robert Beamish Leadership Award from the University of Manitoba (2019), the AHA Distinguished Scientist Lecturer (2017); the main ATS J. Burns Amberson Lecturer and was awarded the Robert F. Grover Prize (2016); the AAWS Judith Pool Mentorship Award (2012); the McGill University Louis and Artur Lucian Award for Cardiovascular Research (2010), AHA's Basic Research Prize and the CIHR Lectureship and Prize (2004); the Gill Heart Institute Award (2003). Her numerous named lectureships include the AHA Paul Dudley White and Dickinson Richards Lectures and the APS Julius Comroe Lecture. She has 237 peer-reviewed publications and 137 invited reviews and book chapters.

Dr. Rabinovitch served on the Executive Committee of the Stanford Cardiovascular Institute and International PVRI, the Scientific Advisory Councils of NHLBI, the Max Planck Institute for Heart and Lung Research and many Academic, Biotechnology and Private Research Foundation Boards. She is a member of the ASCI and AAP.

Guest Speakers

Mark Olfert, PhD, FAHA, FAPS

Dr. Olfert is a professor in the School of Medicine at West Virginia University with a joint appointment in the Department of Human Performance, Division of Exercise Physiology, and the Department of Physiology, Pharmacology & Toxicology. He serves as the Graduate Program Director of the Clinical & Translational Science PhD Program in the Robert C Byrd Health Sciences Center. Dr. Olfert is a member of the executive committee for the Center for Inhalation Toxicology.

He received his Doctor of Philosophy degree in Physiology & Pharmacology from Loma Linda University, Loma Linda, California, in 2000. His post-doctoral training in pulmonary physiology and vascular biology was performed at the School of Medicine Division of Physiology, University of California, San Diego. Dr. Olfert was named Fellow of the American Heart Association (FAHA) by the Council on Basic Cardiovascular Sciences in 2014, and Fellow of the American Physiology Society (FAPS) in 2017.

Prior to his graduate education, Dr. Olfert was trained as a Registered Respiratory Therapist (RRT) and worked in adult, pediatric, and neonatal intensive care settings for over 7 years. In addition, he is also a Certified Pulmonary Function Technologist (CPFT) and Perinatal/Pediatric Respiratory Care Specialist by the National Board of Respiratory Care.

Theresa L. Powell, PhD

Dr. Powell is a professor in the Departments of Pediatrics, Obstetrics and Gynecology, and Co-Director of the T32 Training Program in Perinatal Medicine and Biology at the University of Colorado Anschutz Medical Campus.

Dr. Powell is internationally recognized for her work in determining the molecular mechanisms regulating nutrient transport in the human placenta and characterizing changes in placental function associated with important pregnancy complications. Dr. Powell's

primary research focus is to better understand how the abnormal maternal metabolic environment of obesity and/or gestational diabetes affects placental function and the long-term health of the next generation. Specifically, Dr. Powell is interested in identifying endocrine signals linking maternal adipose tissue to placental function and fetal growth. Dr. Powell has been continuously funded by NIH since returning to the USA in 2005. She is currently investigating the placental lipid metabolism and transport which is critical for normal brain development. She has a strong interest in developing novel intervention paradigms for improving the maternal metabolic environment and pregnancy outcomes that will improve the life-long health of the next generation.

Orian S. Shirihai, MD, PhD

Dr. Shirihai is a leading physician-scientist and biotech innovator whose work has transformed modern mitochondrial biology. He is a Professor of Medicine (Endocrinology) and Molecular Pharmacology at the David Geffen School of Medicine at UCLA, where he directs the UCLA Metabolism Theme—one of the nation's most comprehensive ecosystems for mitochondrial and metabolic research.

Dr. Shirihai received his MD and PhD from the Technion in 1996 and completed postdoctoral training at Harvard Medical School in 2000, launching his independent lab in Boston. In 2016, he was recruited to UCLA to build and lead the Metabolism Theme, now a consortium of 35 laboratories integrating advanced technologies, collaborative training, and cross-disciplinary scientific communities. Under his leadership, UCLA has become a global center for mitochondrial research. He established three cutting-edge mitochondrial core facilities—complementing existing Metabolomics and Lipidomics Cores—to support high-resolution imaging, biochemistry, and bioenergetics. These platforms enable visualization of cristae architecture in living cells, analysis of mitochondrial DNA and respiratory supercomplexes, and precise quantification of mitochondrial function. The cores provide hands-on training and experimental design support to hundreds of investigators at UCLA and worldwide.

A world authority on mitochondrial dynamics and bioenergetics, Dr. Shirihai has authored over 190 papers revealing how mitochondria fuse, divide, renew through mitophagy, select fuels, and regulate energy expenditure. His lab developed methods to image individual mitochondria and cristae in living cells,

defining the "life cycle of mitochondria" and demonstrating how structural diversity drives function. Technologies originating from his lab are now used globally. Dr. Shirihai has trained more than 30 postdoctoral fellows—nine now faculty members—and has co-founded four biotechnology companies, including the UCLA-based Senergy Bio, focused on therapeutics targeting mitochondria–lipid droplet biology. His innovations include a breakthrough method enabling functional mitochondrial analysis of frozen samples, now used by over 200 laboratories and supporting more than 150 publications. Through discovery, innovation, and mentorship, he continues to shape the future of mitochondrial science and therapeutics.

Xin Sun, PhD

Dr. Sun received her PhD in Biology from Yale University. She is currently the Nancy Olmsted Chair and Professor of Pediatrics and Professor of Cell and Developmental Biology at University of California at San Diego.

The Sun laboratory investigates lung development, stem cell in lung injury repair, single cell mapping of the human lung, body-brain crosstalk with the lung as the organ of focus. Building on their long-term focus on the lung and the finding that pulmonary neuroendocrine cells are rare sensory cell types in lung that relay signal to the nervous system, her team started the line of work to consider the lung as a sensory organ. They have systematically mapped lung innervating neurons and nerves, and their connection to the brainstem. Their current research focuses on mapping the specificity of lung-brain-lung complete circuits in response to diverse signals in both physiological and pathological settings.

Kaela M. Varberg, PhD

Dr. Varberg received her PhD in Cellular and Integrative Physiology from the Indiana University School of Medicine in 2017 under the mentorship Dr. Laura Haneline. From 2017-2023 she completed her postdoctoral training at KU Medical Center under the mentorship of Dr. Michael Soares. In 2023, Dr. Varberg became an Assistant Professor within the Children's Mercy Research Institute in Kansas City where she is now a member of the Fetal Health Center.

The Varberg lab explores how placental function and pathology contribute to pregnancy success and the developmental origins of disease. Since joining Children's Mercy, Dr. Varberg has continued to collaborate with physician scientists and biorepositories to expand the diversity of human trophoblast stem cell models from clinically available tissue sources, including from chorionic villus biopsies, products of conception from recurrent pregnancy loss, and term placental tissues. Her lab also uses rat as an in vivo model to study placental development. Overall, the Varberg lab team is working to understand how placental development contributes to pregnancy complications and fetal outcomes.

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8th Annual Longo Symposium Committee

Arlin B. Blood, PhD, Chair

Ciprian P. Gheorghe, MD, PhD

Eugenia Mata-Greenwood, PhD, PharmD

Sean M. Wilson, PhD

DaLiao Xiao, PhD

Graduate Student Representative - Desirae Escalera, BS