



LOMA LINDA
UNIVERSITY

School of Medicine

**THE LAWRENCE D. LONGO, MD
CENTER FOR PERINATAL BIOLOGY
6TH ANNUAL LONGO SYMPOSIUM**

***PRECISION MEDICINE, PLACENTAL HEALTH, AND
IMPROVING PREGNANCY OUTCOMES***

February 13, 2024

9:00 am – 4:30 pm

Welcome



Lubo Zhang, PhD, Director

It is my great pleasure to welcome you to the 6th 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. In addition, the Center is dedicated to training of basic and physician scientists. The major funding of research in the Center is from the National Institutes of Health, as well as other agencies. The faculty of the Center are national and international leaders in perinatal biology, physiology, endocrinology and neurobiology, and are experts in their individual disciplines.

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. In addition, the *Longo/Power New Investigator Award* was established as a tribute to Drs. Longo and Power's contributions in inspiring the scientific careers of so many young investigators, many of whom are leaders in their fields today. Congratulations to this year's recipient, Dr. Jessica Faulkner from Medical College of Georgia at Augusta University.

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.

Welcome to the 6th Annual Longo Symposium, and 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
Tamara Thomas, MD, Dean, School of Medicine,
Loma Linda University
- 9:15 – 9:25 am *Lawrence D. Longo, MD and his legacy at Loma Linda University*
Kevin Balli, MD, Chair, Gynecology and Obstetrics, Loma Linda University
- 9:25 – 10:15 am Keynote Address
From a Laboratory Fly Experiment to an Experiment in Nature in Humans at High Altitude
Gabriel G. Haddad, MD, University of California, San Diego
- 10:15 – 10:30 am Break
- 10:30 – 11:15 am *Novel Approaches to Preterm Birth Prevention*
Sandra E. Reznik, MD, PhD, St. John's University
- 11:15 am – 12:00 pm *Deciphering Maternal-Fetal Crosstalk in the Human Placenta During Parturition Using Single-Cell RNA Sequencing*
Nardhy Gomez-Lopez, PhD, Washington University in St. Louis
- 12:00 – 1:30 pm Lunch
- 1:30 – 2:15 pm *How Infertility and Treatments can Affect Human Placenta Function*
Margareta D. Pisarska, MD, Cedars-Sinai Medical Center
- 2:15 – 3:00 pm *The Fetoplacental Vasculature: An Underestimated Yet Potential Target of Intervention in Severe Fetal Growth Restriction?*
Emily J. Su, MD, MSCI, University of Colorado
- 3:00 – 3:15 pm Break
- 3:15 – 3:30 pm Introduction: Longo/Power New Investigator Presentation
Eugenia Mata-Greenwood, PhD, PharmD
Lawrence D. Longo, MD Center for Perinatal Biology, Loma Linda University
- 3:30 – 4:15 pm *Mechanisms of Vascular Dysfunction in Hypertensive Pregnancy*
Jessica L. Faulkner, PhD, Medical College of Georgia at Augusta University
- 4:15 – 4:30 pm Closing Remarks
Steven M. Yellon, PhD, Associate Director
Lawrence D. Longo, MD Center for Perinatal Biology, Loma Linda University

Keynote Speaker



Gabriel G. Haddad, MD

Dr. Haddad is Distinguished Professor of Pediatrics and Neuroscience, Vice Dean for Children's Academic Programs and Chairman of the Department of Pediatrics at the University of California, San Diego. He is also the Physician-in-Chief and Chief Scientific Officer at Rady Children's Hospital-San Diego.

Dr. Haddad received his medical education and initial medical training at the American University of Beirut in Lebanon, followed by additional training at the University of Texas in Houston. He then moved to Columbia University in New York to do his fellowship and joined the faculty. At Columbia University, he was the director of the Sleep Laboratory in the Division and trained many fellows. He started his faculty career there and advanced the field of the Sudden Infant Death Syndrome and the understanding of its pathophysiology. He was also the first to describe a disease that is now known as Haddad's syndrome, involving poor drive to breathe (secondary to central pathology), Hirschsprung's disease and abnormally low variability in heart rate.

After 13 years at Columbia, he was recruited to Yale University to direct the Respiratory Medicine Section and serve as Chief of Clinical Service in Respiratory Medicine, and shortly thereafter he became Professor of Cellular & Molecular Physiology at the same institution. He was appointed Chairman of the Department of Pediatrics at Albert Einstein College of Medicine in 2002, and subsequently moved to UCSD and Rady Children's in 2005.

Dr. Haddad has published over 389 peer-reviewed articles and chapters, and authored numerous medical texts including the landmark Basic Mechanisms of Pediatric Respiratory Disease. He has been on the Long Term Planning Committee, as well as Chair of the Respiratory Neurobiology and Sleep Assembly of the American Thoracic Society and Chair at the NIH for a number of conferences on SIDS and Sleep. He sits on numerous national committees such as the National Heart, Lung, and Blood Institute and March of Dimes, and is a member of 19 distinguished medical societies, many in a leadership role. He has held numerous editorial appointments; is a reviewer for 38 respected medical journals; is the recipient of numerous awards and honors; and has been invited to speak at over 160 national and international conferences. He was elected to the Association of American Physicians in 2008. He has been a member of the Board of St. Jude Children's Research Hospital since 2011 and currently is Vice Chair of the Board of Trustees.

<https://pediatrics.ucsd.edu/research/faculty-labs/haddad-lab/index.html>

Guest Speakers



Jessica L. Faulkner, PhD

Dr. Faulkner is Assistant Professor in the Dept. of Physiology and Dept. of OBGYN at the Medical College of Georgia at Augusta University in Augusta, GA, USA. Dr. Faulkner graduated in 2015 from the Univ. of Mississippi Medical Center with a PhD in Medical Pharmacology under Dr. Babbette LaMarca. She then did her postdoctoral fellowship under Dr. Eric Belin de Chantemele in the Vascular Biology Center at Augusta University. Dr. Faulkner became an Assistant Professor in June 2021 and began her research program, which focuses on mechanisms whereby pregnant women develop endothelial dysfunction, hypertension, fetal growth restriction and other adverse events in pregnancy. Her primary disease focuses are acute kidney injury and preeclampsia of pregnancy and she studies these disease outcomes using a combination of clinical studies, animal models and molecular investigation. Dr. Faulkner has published 42 peer-reviewed manuscripts in prominent journals such as *Hypertension* and *AJP Heart and Circulatory*. Dr. Faulkner is very active in service, currently serving on AHA and NIH study sections, is a consulting editor for *AJP Heart and Circulatory*, and is a member of the Trainee Advisory Committee of the AHA Council on Hypertension as well as the Nominations Committee for the APS CV section. Dr. Faulkner's research is currently supported by numerous extramural grants including an NIH-NHLBI R01 as a PI, an NIH NIDDK R01 as a co-I, an AHA CDA and an NIH-NHLBI R00. She has also won numerous awards at the institutional and national level, most recently the AHA Council on Hypertension Harry Goldblatt Award.

https://www.augusta.edu/mcg/phy/faculty/phys_faculty_faulkner.php



Nardhy Gomez-Lopez, PhD

Dr. Gomez-Lopez is Professor in the Department of Obstetrics & Gynecology, Department of Pathology and Immunology, Center for Reproductive Health Sciences at Washington University School of Medicine. Her research focuses on maternal-fetal immunobiology relevant to obstetrical disorders. Dr. Gomez-Lopez uses her expertise in both cellular immunology and reproductive immunology and biology to improve our understanding of disease mechanisms and develop strategies for early diagnosis, monitoring, treatment, and prevention of pregnancy complications, specifically preterm birth. She established her independent laboratory in the Wayne State University's Perinatal Initiative, which was created to foster the translational portion of the Perinatology Research Branch (PRB), an intramural branch of the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD), NIH. Within PRB, Dr. Gomez-Lopez also established the Maternal-Fetal Immunobiology Unit, which was later integrated into her laboratory, and she was the Deputy Project Site Manager for Translational Research, overseeing all translational research operations of the PRB for over a decade. Her laboratory takes a team science approach by combining conventional and cutting-edge immunology methodologies with single-cell omics, microbiome analysis, systems biology, and biomarker discovery. During her tenure at the PRB, collaborating with leaders in the fields of maternal-fetal medicine and placenta pathology not only strengthened her research portfolio but also equips her to pose research questions with translational value, advancing the field of maternal-fetal immunology. In addition to intramural funding from the NICHD, she received extramural funding from the National Institute of Biomedical Imaging and Bioengineering, NIH, and Ferring Pharmaceuticals. Her work has been published in over 200 peer-reviewed manuscripts. Recently, she joined the faculty in Obstetrics and Gynecology at Washington University in St. Louis School of Medicine. Given the strong department, her integration into the Department of Pathology and Immunology, research resources at Washington University, productive collaborations with co-investigators, a successful track record, and expertise in maternal-fetal immunobiology, she looks forward to advancing the field.

<https://reproductivesciences.wustl.edu/people/nardhy-gomez-lopez-phd/>



Margareta D. Pisarska, MD

Dr. Pisarska is the Director, Division of Reproductive Endocrinology and Infertility, Department of Obstetrics and Gynecology, Cedars Sinai Medical Center. She is the Reproductive Endocrinology and Infertility Fellowship Director at Cedars Sinai Medical Center. She is a Professor, Department of Obstetrics and Gynecology and Biomedical Sciences at Cedars Sinai Medical Center and Professor at the David Geffen School of Medicine at UCLA.

She has a comprehensive research program looking at adverse pregnancy outcomes associated with how the pregnancy/placenta implants, using specific genetics approaches to better understand how genetics and environmental influences, including fertility treatments, as well as fetal sex affect mother and infant, which can have long term health implications. Another area of her research focuses on oocyte development, ovarian function and dysfunction including ovarian failure and polycystic ovary syndrome. She has been continuously funded through the National Institutes of Health (NIH) since 2004. She has over 100 publications, reviews, and committee opinions. Her clinical practice reflects her research as she cares for couples with infertility due to multiple etiologies.

Dr. Pisarska was recently elected as a Director to the American Board of Obstetrics and Gynecology and currently serves as the Co-Chair of the Fellowship Committee for the Society for Reproductive Endocrinology and Infertility. She previously served as the Director for the Reproductive Endocrinology and Infertility Division of the American Board of Obstetrics and Gynecology, Chair of the Patient Education Committee and member of the Practice Committee for the American Society for Reproductive Medicine, as well as the Secretary Treasurer of the Society for Reproductive Endocrinology and Infertility and the Lead of the Reproductive Endocrinology and Infertility Team for the Endocrine Society Annual Meeting Steering Committee.

<https://www.cedars-sinai.edu/research/labs/pisarska.html>



Sandra E. Reznik, MD, PhD

Dr. Reznik is Professor in the Department of Pharmaceutical Sciences, College of Pharmacy and Health Sciences at St. John's University. After graduating from Harvard, as a Medical Scientist Training Program student at the Mount Sinai School of Medicine (1984-1991), under the direction of Dr. Marian Orlowski, who was nominated for the Nobel Prize in 2004, Dr. Reznik characterized the novel neuropeptide synthesizing enzyme Endopeptidase 24.15, aka thimet oligopeptidase, and obtained her M.D. and Ph.D. degrees from Mount Sinai. Dr. Reznik went on to complete her residency in Anatomic Pathology at New York Hospital/Cornell University Medical College in 1994 and then two fellowships at the Montefiore Medical Center/Albert Einstein College of Medicine from 1996 to 1998. During her fellowship in perinatal pathology, she received a Mentored Clinical Scientist

Development Award (K08 grant) in 1998 and remained at Einstein full-time until 2004, where she worked with Dr. Lloyd Fricker on several peptide processing enzymes in the Department of Molecular Pharmacology. She accepted a position as Associate Professor at St. John's University in 2004, while remaining on the Einstein faculty, became Director of the Perinatal Pathology Section at Einstein in 2009 and full professor at St. John's in 2016. Dr. Reznik has over 80 peer reviewed publications and has been funded by the NIH and several private sources. She was recently issued a patent, titled "Administration of N,N-Dimethylacetamide for the Treatment of Preterm Birth," which describes some of the work that lies at the center of her research program.

<https://www.stjohns.edu/academics/faculty/sandra-e-reznik>



Emily J. Su, MD, MSCI

Dr. Su is Professor in the Division of Reproductive Sciences and the Division of Maternal-Fetal Medicine within the Department of Obstetrics and Gynecology at the University of Colorado School of Medicine. A native Midwesterner, she completed her Ob/Gyn residency and Maternal-Fetal Medicine fellowship at Northwestern University in Chicago. She stayed at Northwestern as faculty for several years before moving to Colorado about 9 years ago. She has been grant-funded since completion of her fellowship, including an AAOGF/SMFM Career Development Award and an NIH K08 Mentored Clinical Scientist Research Career Development Award that ultimately transitioned into an R01 award that is now in its ninth year. Her research primarily focuses on mechanisms of impaired placental angiogenesis in severe fetal growth restriction. She is also an active participant in various multi-center clinical trials including the Chronic

Hypertension and Pregnancy (CHAP) trial that has shifted obstetric practice in proactively treating mild-to-moderate hypertension in pregnancy. She served as the Scientific Program Director for the 2015 Society for Reproductive Investigation (SRI) Annual Meeting, when she was also an awardee of the SRI President's Achievement Award. She is an inducted fellow of the American Gynecological and Obstetrical Society (AGOS) and is the current Secretary-Treasurer for SRI.

<https://medschool.cuanschutz.edu/ob-gyn/divisions/division-of-reproductive-sciences/research-labs/su-lab>

6th Annual Longo Symposium Committee:

Steven M. Yellon, PhD, Chair

DaLiao Xiao, PhD, Co-Chair

Eugenia Mata-Greenwood, PhD, PharmD

Sean M. Wilson, PhD

Christopher G. Wilson, PhD