



Maternal-Fetal Crosstalk: Harmony vs. Conflict

October 4–8, 2017 | Westin Washington, DC City Center | Washington, DC | USA

Scientific Organizers:

Jeff Murray, Bill & Melinda Gates Foundation

Louis J. Muglia, Cincinnati Children's Hospital Medical Center, USA

Yoel Sadovsky, Magee-Womens Research Institute, USA

Part of the Keystone Symposia Global Health Series, supported by the Bill & Melinda Gates Foundation

The interactions between the mother and the fetus during the progression of normal pregnancy involve trade-offs, or even conflicts, between factors that improve maternal health and those that support fetal development and growth. These may lead to selective evolutionary pressures that differ among species, and result in intriguing differences in reproductive strategies that enhance maternal-fetal biological harmony, and mitigate conflict. Intriguing strategies to balance these pressures include imprinting, coincident with placentation. Adverse pregnancy outcomes, such as miscarriage, preterm birth, preeclampsia and intrauterine growth restriction, are heterogeneous, and gaps remain in understanding how imbalances between maternal and fetal adaptations contribute to these disorders. The goal of this conference is to bring together investigators from diverse disciplines who investigate maternal and fetal factors that shape pregnancy outcomes by exploring how these systems work together or are at odds. The conference will aim to develop these concepts, illuminating developmental, genomic/epigenomic, immune, microbial and metabolic factors, as well as consider how acute exposures during pregnancy, such as infection, shape maternal-fetal outcomes. Understanding the biology underpinning these considerations will contribute to better diagnosis, treatment and disease prevention during pregnancy. The presentations will address critical gaps in our knowledge of maternal/fetal harmony and conflict, and target paths to improve understanding of issues related to social, economic and geographic inequality that predispose some groups to enhanced risk during pregnancy. A better understanding of the biology, and development of new collaborative possibilities and paths to improved clinical outcomes are primary goals of the conference.

Session Topics:

- The Placenta – Cells to Tissues
- The Rapidly Evolving Placenta
- The Establishment of Pregnancy – Tolerance and Rejection
- Crosstalk between the Maternal and Fetal Microbial Communities
- Epigenetics and Imprinting in Feto-Placental Harmony and Conflict
- Genomic Communication during Pregnancy
- From Uterine Quiescence to Parturition
- Epidemiology of Pregnancy Health and Outcomes

Global Health Travel Award Application Deadline: May 9, 2017

Scholarship Application & Discounted Abstract Deadline: June 6, 2017

Abstract Deadline: July 11, 2017

Discounted Registration Deadline: August 10, 2017



Note: Scholarships are available for graduate students and postdoctoral fellows and are awarded based on the abstract submitted. Submitting an abstract is an excellent opportunity to gain exposure for your work. Abstracts submitted by the abstract deadline will also be considered for short talks on the program.

Meeting Hashtag: #KSserotonin

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KEYSTONE SYMPOSIA

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WEDNESDAY, OCTOBER 4

Arrival and Registration

Joint Session with Grand Challenges and Keystone Symposia

THURSDAY, OCTOBER 5

Welcome and Keynote Address

David Haig, Harvard University, USA
Maternal-Fetal Crosstalk: Why all the Noise?

The Placenta – Cells to Tissues

Julie C. Baker, Stanford University, USA
Transposable Elements, Noncoding RNAs and Placental Function

James C. Cross, University of Calgary, Canada
Adaptability of Placental Function and Resiliency of Fetal Growth

Susan J. Fisher, University of California, San Francisco, USA
Genome-Scale Fluctuations in the Cytotrophoblast Epigenome Over Gestation and in Placental Pathologies

Short Talk(s) Chosen from Abstracts

Workshop 1

Short Talks Chosen from Abstracts

The Rapidly Evolving Placenta

Derek Wildman, University of Illinois at Urbana-Champaign, USA
The Placenta Is at the Crossroads of Maternal-Fetal Conflict and Cooperation

Bernard J. Crespi, Simon Fraser University, Canada
Placental Invasiveness and Maternal-Fetal Conflicts in Evolution, Health and Disease

Jean-François Lemaitre[†], Université de Lyon, France
Diversification of the Eutherian Placenta Is Associated with Changes in the Pace of Life

Short Talk Chosen from Abstracts

Poster Session 1

FRIDAY, OCTOBER 6

The Establishment of Pregnancy – Tolerance and Rejection

Sing Sing Way, Cincinnati Children's Hospital, USA
Maternal-Fetal Immunology during Pregnancy and After Parturition

Sarah Robertson, Robinson Research Institute, University of Adelaide, Australia
Talk Title to be Announced

Ofer Mandelboim, Hebrew University, Israel
Human Natural Killer Cells Remember Pregnancy and Enhance Placental Bed Development

Ashley Moffett, University of Cambridge, UK
Maternal Allo-Recognition of the Fetus: For Better, For Worse?

Short Talk(s) Chosen from Abstracts

Crosstalk between the Maternal and Fetal Microbial Communities

Speaker to be Announced

Daniel DiGiulio, Stanford University, USA
The Vaginal Microbiome Signature of At-Risk Pregnancy

Lenore P. Pereira, University of California, San Francisco, USA
Persistent Cytomegalovirus and Zika Virus Infection in Human Placentas Modulated by Host Antiviral Responses

Short Talk Chosen from Abstracts

Poster Session 2

SATURDAY, OCTOBER 7

Epigenetics and Imprinting in Feto-Placental Harmony and Conflict

Marika Charalambous, Queen Mary University of London, UK
Communication between Mother and Fetus Mediated by Imprinted Genes

Jon F. Wilkins, Ronin Institute, USA
Canalization, Phenotype Variation and Imprinting in Complex Disease

Marisa S. Bartolomei, University of Pennsylvania Perelman School of Medicine, USA
The Effects of Assisted Reproductive Technologies on Placental Development and Epigenetic Regulation in a Mouse Model

Richard Saffery, University of Melbourne, Australia
Epigenetic Regulation of Human Placental Function and Pregnancy Outcome

Short Talk(s) Chosen from Abstracts

Genomic Communication during Pregnancy

Steve Quake, Stanford University, USA
Cell-Free Circulating RNA as a Window to Feto-Placental Biology

Yoel Sadovsky, Magee-Womens Research Institute, USA
The Biology of Placental Exosomes and their miRNA Cargo

Nathan D. Price, Institute for Systems Biology, USA
Systems Biology Analysis of Pregnancy Conditions

Short Talk Chosen from Abstracts

Poster Session 3

SUNDAY, OCTOBER 8

From Uterine Quiescence to Parturition

Roger Smith, University of Newcastle, Australia
Understanding the Terminal Events in Pregnancy

Sam A. Mesiano, Case Western Reserve University, USA
Progesterone Signaling in Human Parturition: Role of Progesterone Receptor Modifications

Carole R. Mendelson, University of Texas Southwestern Medical Center, USA
Fetal Signals that Control the Timing of Parturition

Roberto Romero, National Institutes of Health / Wayne State University, USA
Infection, Inflammation and the Transition to Labor

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Short Talk(s) Chosen from Abstracts

Workshop 2

Short Talks Chosen from Abstracts

Epidemiology of Pregnancy Health and Outcomes

Louis J. Muglia, Cincinnati Children's Hospital Medical Center, USA
Populations as Laboratories for Biological and Social Discovery in Pregnancy Outcomes

Jane Norman, University of Edinburgh, UK
Pregnancy Stressors and Influences on Parturition

Rachel Freathy, University of Exeter, UK
Genetic and Environmental Determinants of Birth Weight and Links with Later Life Disease

Meeting Wrap-Up: Outcomes and Future Directions (Organizers)

MONDAY, OCTOBER 9

Departure