

**The Institute of Medicine and National Research Council
Food and Nutrition Board and Board on Children, Youth, and Families**

**Examining a Developmental Approach to Childhood Obesity: The
Fetal and Early Childhood Years**

**Planning Committee on Understanding the Dynamic Relationship between
Biology, Environment, and Early Childhood Development on Risk of Obesity**

**February 26-27, 2015
Keck Building, Room 100
The National Academies
500 Fifth Street, NW
Washington, DC**

Workshop Objectives

- Identify epigenetic-mediated relationships between exposure to risk factors during sensitive periods of development (gestation through age 3) and subsequent obesity-related health outcomes.
- Explore the science around periods of plasticity and potential reversibility of obesity risk in the context of early childhood development.
- Examine the translation of epigenetic science to guide early childhood obesity prevention and intervention to reduce obesity risk.

Day 1

8:00–8:45 a.m. Registration

INTRODUCTION AND OPENING REMARKS

8:50

Welcome

Shari Barkin, William K. Warren Family Foundation Chair in Medicine and Professor of Pediatrics, Monroe Carell, Jr. Children’s Hospital at Vanderbilt University

9:00

Opening Remarks

David M. Klurfeld, National Program Leader, Human Nutrition, Agricultural Research Service, U.S. Department of Agriculture

Sandra Hassink, Medical Director, Institute for Healthy Childhood Weight, American Academy of Pediatrics

Jamie Bussel, Program Officer, Robert Wood Johnson Foundation

SESSION 1: THE ROLE OF EPIGENETICS IN PEDIATRIC OBESITY- CONCEPTUAL OVERVIEW

Moderated by TBD Committee Member

- 9:30** **Fundamentals of Epigenetics**
Robert Waterland, Baylor College of Medicine
- 9:50** **Conceptual Model of Epigenetic Influence on Obesity Risk**
Andrea Baccarelli, Harvard School of Public Health

SESSION 2: ETIOLOGY AND CAUSAL INFERENCE

Moderated by TBD Committee Member

- 10:10** **Epigenetic Mechanisms for Obesity Risk**
Jacob Friedman, University of Colorado, Denver
- 10:30** **The Role of Disparity in the Origins of Obesity Risk**
Linda Adair, University of North Carolina
- 10:50** **Fathers' Early Contribution to the Birth of the Child: the Role of Paternal RNAs**
Stephen Krawetz, Wayne State University
- 11:10** **Maternal Influences on Offspring's Epigenetics and Later Body Composition**
Caroline Relton, Newcastle University
- 11:30** **Q & A with Participants**
- 12:00 p.m.** **Break for Lunch**

SESSION 3: OPPORTUNITIES FOR INTERVENTION AND PREVENTION

Moderated by TBD Committee Member

- 1:00** **Developmental Plasticity – Sensitive Periods and Risk of Obesity**
Karen Lillycrop, University of Southampton
- 1:20** **Maternal Health and Diet's Effect on Offspring's Metabolic Functioning**
Kevin Grove, Novo Nordisk
- 1:40** **Early Infant Rapid Weight Gain and the Epigenetics of Leptin**
Marie-France Hivert, Harvard University
- 2:00** **Therapies to Reverse Metabolic Disturbances Arising as a Consequence of Developmental Programming**
Mark Vickers, University of Auckland
- 2:20** **Panel Discussion with Speakers**
Moderated by TBD Committee Member
- 2 :40** **Break**
- 3 :00** **The Microbiome and our Genome**
Karen E. Nelson, J. Craig Venter Institute
- 3 :20** **The Epigenetics of the Microbiome**
Meredith Hullar, Fred Hutchinson Cancer Research Center

3 :40 **Toxic Stress and Its Role in Childhood Obesity**
Antonio Convit, Nathan Kline Institute for Psychiatric Research

4:00 **Panel Discussion with Speakers**

4:30 pm **Concluding Remarks**
Shari Barkin

Day 2

8:50 am **Welcome and Summary from Day 1**
Shari Barkin

SESSION 4: REAL WORLD APPLICATION

Moderated by TBD Committee Member

9:00 **Early Exposure Events and Obesity-Related Outcomes**
Aryeh Stein, Emory University

9:20 **Messages to Women about Epigenetics and Childhood Obesity**
Sarah Richardson, Harvard University

9:40 **Theory to Policy**
Matthew Gillman, Harvard University

10:00 **Theory to Clinical Practice**
Shari Barkin, Vanderbilt University

10:20 **Panel Discussion with Speakers**

SESSION 5: DATA GAPS AND FUTURE DIRECTIONS

Moderated by TBD Committee Member

10:40 **Facilitated Discussion on Data Gaps and Future Research**
Invited Speakers from Days 1 and 2

11:00 **Facilitated Discussion on Opportunities and Challenges in Epigenetics Research**
Judith Hall, University of British Columbia

11:30 **Chair's Summary and Final Thoughts**
Shari Barkin

12:00 pm **Adjourn Meeting**