Contact Us

ADDRESS
Johns Hopkins Bloomberg School of Public Health
Department of Population, Family and Reproductive Health
Center on the Early Life Origins of Disease
615 N. Wolfe Street – E4132
Baltimore, MD, 21205-2179

CONTACT INFORMATION
Deanna Caruso
Email: dcaruso@jhsph.edu
Phone: 410.502.8916

Center on the Early Life Origins of Disease

Mission Statement

**Research:** The Center aims to address common and important clinical and public health problems in diverse populations, in collaboration with U.S. and international colleagues from multiple disciplines. The Center has a particular focus on dissecting the complex interplay of environment, genetic and epigenetic factors in order to understand the etiology and natural history; and to identify early life precursors of common pediatric and adult diseases. The center is actively engaged in translating scientific knowledge into clinical and public health practices that can lead to advancements in early prediction, prevention, diagnosis and treatment of diseases across the life-span and generations.

**Education:** The Center is fully committed to training a new generation of maternal and child health professionals to become leading trans-disciplinary investigators and future leaders.
Ongoing Research

- **Preterm birth:** 12% of babies
- **Obesity:** 20 to 40% of children
- **Asthma:** 10 to 20% of children
- **Food allergy:** 5 to 10% of children
- **Early life precursors of adult diseases:**
  - Cardiovascular diseases
  - Diabetes
  - Metabolic syndrome
What Can the Center Offer for Students?

- Research Assistant position
- Resources and Mentorship for Thesis
- Special Studies
- Multi-disciplinary Team Environment
  - Wet laboratory, biomarkers
  - Clinical medicine
  - Epidemiology, population cohorts
# Prospective Study Cohorts

<table>
<thead>
<tr>
<th>Boston Birth Cohort</th>
<th>Chinese Twin Cohort</th>
<th>Chicago Family Cohort</th>
</tr>
</thead>
<tbody>
<tr>
<td>8,300 mother-infant pairs (~2,500 preterm)</td>
<td>2,000 twin pairs MZ: DZ ratio 1:1 6 years and older</td>
<td>Over 1,000 families Biological parents and children 0-21 yr</td>
</tr>
<tr>
<td>Enrolled at Birth F/U at pediatric primary care visits</td>
<td>Baseline 6 yr follow-up</td>
<td>Baseline study completed</td>
</tr>
<tr>
<td>Inner city, minority (65% blacks) in Boston</td>
<td>Homogeneous Rural Chinese</td>
<td>White, suburb In Chicago</td>
</tr>
<tr>
<td>8 NIH grants 3 MOD, 1 DOD, philanthropy</td>
<td>3 NIH grants philanthropy</td>
<td>5 NIH grants 2 foundation, philanthropy</td>
</tr>
</tbody>
</table>
Comprehensive Data Collection
Gene to Society and Life Course Framework
Explore the Early Life Origins and Biological Mechanisms of Pediatric and Adult Diseases

Genetics

Environment

Epigenetics
Genome-wide Association Study (GWAS)

Q-Q plot and Manhattan Plot-Additive Model

Hong et al, Nature Genetics, in preparation
Individual variation in DNA methylation at birth and dynamic change in the first 2 years. 
Wang et al, *Epigenetics*, 2012

Effect of Maternal Pre-pregnancy Obesity on Offspring Cord Blood DNA Methylation. 
Liu et al, *Environmental and Molecular Mutagenesis*, 2013

DNA Methylation and Development of Food Allergy. 
Hong et al, in preparation
Preconception B Vitamins, Endocrine Disruptors, and Reproductive Outcomes

Ouyang et al, Lancet, in preparation
Preterm Birth and Elevated Insulin Levels

Wang et al, JAMA, under review
Preterm Birth and Chronic Diseases

The Body-Mind Connection

Clinical, Public Health, and Policy Implications

How the first nine months shape the rest of your life

The New Science of Fetal Origins

By Annie Murphy Paul

Want to Know My Future?

New genetic tests can point to risks—but not always a cure

By Bonnie Rochman