

**The Human Placenta Project (HPP):  
Understanding Human Placental Structure and Function in Real Time  
3<sup>rd</sup> Annual Meeting**

***Incorporating Novel Technology into the HPP***

**National Institutes of Health  
Natcher Conference Center (Building 45)  
Bethesda, MD  
April 14–15, 2016**

**Meeting Goals:** To bring together a group of broad thinkers that includes technical subject matter experts, placental biologists, and clinicians to:

- Identify scientific processes that with noninvasive monitoring will allow understanding of placental development and function
- Identify new and emerging technologies and imaging methods to achieve HPP goals
- Develop partnerships between subject matter and technology experts
- Leverage this breadth of expertise to inform the broader project roadmap and prioritize next steps

**Thursday, April 14, 2016**

7:30 – 8:00 am	Registration/Sign-in	
8:00 – 8:15	Welcome, Introductions, and General Orientation	Catherine Spong, <i>Eunice Kennedy Shriver</i> National Institute of Child Health and Development (NICHD), and Roderic Pettigrew, National Institute of Biomedical Imaging and Bioengineering
8:15 – 8:25	Outline of the Day	David Weinberg NICHD
8:25 – 9:10	<i>The Human Placenta Project – Towards an Understanding of This Most Unique of Human Organs</i>	Catherine Spong NICHD
9:10 – 9:20	<i>Oxygenation and Perfusion in Placental Development and Function</i>	Antonio Frias Oregon Health and Sciences University
9:20 – 9:40	<i>Novel Technology for Studying Placental Oxygenation and Perfusion - Near Infrared Spectroscopy</i>	Arjun Yodh University of Pennsylvania
9:40 – 10:00	<i>Novel Technology for Studying Placental Perfusion – Nanoparticle Contrast Reagents</i>	Ananth Annapragada Baylor College of Medicine
10:00 – 10:20	Break	
10:20 – 10:40	<i>Electrical Impedance Tomography – A Novel Method for Imaging</i>	Jennifer Mueller Colorado State University

10:40 – 10:50	<i>Placentally Derived Substances as Windows Into Placental Development and Function</i>	Yoel Sadovsky University of Pittsburgh
10:50 – 11:10	<i>Acoustic Tweezers: Manipulating Circulating Factors and Other Tiny Objects Using Sound Waves</i>	Tony Jun Huang Pennsylvania State University
11:10 – 11:30	<i>New Methods for Non-invasive Measurement of Placental Metabolism</i>	Charles McKenzie University of Western Ontario
11:30 – 11:50	<i>Understanding Normal and Pathological Placental Invasion</i>	Nick Illsley Hackensack University Medical Center
11:50 am – 12:10 pm	<i>Blue Sky Technology – Nanobots</i>	Shaochen Chen University of California, San Diego
12:10 – 1:15	Picture and Lunch	
1:15 – 3:30	Breakout Sessions (held in parallel) <ul style="list-style-type: none"> <li>1. Oxygenation and Perfusion</li> <li>2. Circulating Factors</li> <li>3. Metabolism</li> <li>4. Invasion</li> </ul>	
3:30 – 3:45	Break	
3:45 – 4:30	<i>Managing and Viewing Complex Data – Laboratory of Neuro Imaging (LONI)</i>	Arthur Toga University of Southern California
4:30 – 6:00	Posters, Technology Demonstrations, and Networking	

### Friday, April 15, 2016

8:30 – 8:40 am	Day 2 Welcome and Outline of the Day	David Weinberg NICHD
8:40 – 9:20	<i>Successful Synergy of Science and Technology – Enigma</i>	Paul Thompson University of Southern California
9:20 – 9:40	Oxygenation and Perfusion Report	Group Leaders
9:40 – 10:00	Circulating Factors Report	Group Leaders
10:00 – 10:20	Break	
10:20 – 10:40	Metabolism Report	Group Leaders
10:40 – 11:00	Invasion Report	Group Leaders
11:00 am – 12:00 pm	Large Group Discussion and Roadmap	
12:00	Meeting Adjourns	