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## **New Insight into What a Mother Gives to her Baby in the Womb besides Genes**

### ***Maternal Contributions to the Health of her Child the Focus of Special Teratology Society Journal Issue***

RESTON, VIRGINIA—Beginning in the womb, a mother transmits a slew of molecules, microbes and cells to her baby. New insight underscores the importance of their transmission in regulating the development of organs like the brain, heart and immune system. Their dysregulation can increase the risk of birth defects and diseases as diverse as food allergy and schizophrenia. These topics are examined in a new special issue of [\*Birth Defects Research: Maternal Contributions to the Development and Health of the Child\*](#) (DOI: 10.1002/bdr2.v110.20) published by the Teratology Society with [John Wiley & Sons](#).

“The interactions between the maternal environment and offspring genes are hyper-complex, but studying them may suggest incredible opportunities to prevent diseases that are notoriously hard to treat after the fact,” explained Patrick Jay, MD, PhD, professor of pediatrics at the Washington University in St. Louis School of Medicine and co-editor of the special *Birth Defects Research* issue. “The reviews in the issue present the latest about what scientists and physicians have learned about maternal influences on the baby *in utero* (See Editorial “*Molecules and Microbes and Cells, Oh My! What Mothers Give to Us besides Genes*,” DOI:10.1002/bdr2.1440).

The scientific journal issue released today includes the following articles:

- “Inherited Nongenetic Influences on the Gut Microbiome and Immune System,” by Knoop et al. of the Washington University in St. Louis School of Medicine (DOI: 10.1002/bdr2.1436).
- “Maternal Hyperglycemia and Fetal Cardiac Development: Clinical Impact and Underlying Mechanisms,” by Basu and Garg of Ohio State University, Columbus (DOI: 10.1002/bdr2.1435).
- “Maternal Immune Activation, Central Nervous System Development and Behavioral Phenotypes,” by Minakova and Warner of the Washington University in St. Louis School of Medicine (DOI: 10.1002/bdr2.1416).
- “Oxygen and Lack of Oxygen in Fetal and Placental Development, Feto-placental Coupling and Congenital Heart Defects,” by Olive et al. of the Universitat Autònoma de Barcelona, Barcelona, Spain (DOI: 10.1002/bdr2.1430).
- “Uterine Natural Killer Cells: To Protect and to Nurture,” by Sojka et al. of the Washington University in St. Louis School of Medicine (DOI: 10.1002/bdr2.1419).
- “Adverse Maternal Environment Leads to Cardiac Fibrosis in Adult Male Mice,” by Spearman et al. of the Children’s Hospital of Wisconsin (DOI: 10.1002/bdr2.1428).

“Simply put – we’re at the tip of the iceberg in understanding how the gestational environment established by the mother affects her child’s health from birth to adulthood,” said Michiko Watanabe,

PhD, professor of pediatrics at Case Western Reserve University School of Medicine and co-editor of the special *Birth Defects Research* issue. “If an ounce of prevention is worth a pound of cure for one disease, targeting adverse maternal effects in the womb could be worth a ton for future public health.”

### **About the Teratology Society**

[The Teratology Society](http://www.teratology.org) is an international and multidisciplinary group of scientists including researchers, clinicians, epidemiologists, and public health professionals from academia, government and industry who study birth defects, reproduction, and disorders of developmental origin. The Teratology Society is made up of nearly 700 members worldwide specializing in a variety of disciplines, including developmental biology and toxicology, reproduction and endocrinology, epidemiology, cell and molecular biology, nutritional biochemistry, and genetics as well as the clinical disciplines of prenatal medicine, pediatrics, obstetrics, neonatology, medical genetics, and teratogen risk counseling. Scientists interested in membership in the Teratology Society are encouraged to visit [www.teratology.org](http://www.teratology.org).

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