

The Placental Barrier



Lauren Aleksunes
Associate Professor, Pharmacology & Toxicology

CURRENT RESEARCH

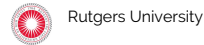
Understanding mechanisms that help protect the fetus from being exposed to harmful chemicals

Pregnancy is an exciting time for a family – picking out names, stockpiling diapers, and celebrating a new arrival. An expectant mom has many questions about how she can have a healthy pregnancy, and it is common for pregnant women to worry about the safety of chemicals found in her diet, medication, and personal care products, to which she and her baby are exposed. Dr. Lauren Aleksunes, Associate Professor of Pharmacology & Toxicology, and her team at Rutgers University are working to understand how the placenta regulates the exposure of babies to chemicals and drugs by using a wide array of scientific tools in their research. Within the placenta, there are proteins that help to create a 'barrier' for the passage of some chemicals from mom to baby, to protect the fetus from being exposed to harmful chemicals. Focusing on one such protein, the ABCG2 transporter, Dr. Aleksunes hopes to characterize the interaction of specific chemicals and drugs with the ABCG2 transporter and determine periods when the ABCG2 protein is not working optimally.

As an "export protein," the ABCG2 transporter acts as a 'barrier' in the placenta not by blocking out chemicals like a physical wall, but by quickly removing chemicals that make their entry into the placenta back into the mother's blood. Unfortunately, the ABCG2 protein can also hinder beneficial treatments from reaching the fetus, and thus it is critical to understand how harmful chemicals can be kept out while good chemicals can break through. Dr. Aleksunes is part of the Placenta Working Group at Rutgers University, which is comprised of translational and basic investigators, clinicians, and pharmaceutical scientists who have established the key technologies...

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AFFILIATION



EDUCATION

- Pharm.D. in Pharmacy 2002, University of Connecticut
- Ph.D. in Pharmaceutical Sciences 2006, University of Connecticut

AWARDS

- Scientific Achievement Award, 2015
- Achievement Award, 2016
- Mentor of the Year, 2015
- Board of Trustees Research Fellowship for Scholarly Excellence, 2014
- Presidential Fellowship for Teaching Excellence, 2014
- and 2 more...

RESEARCH AREAS

Life Science, Genomics / Congenital, Metabolic / Diabetes, Pediatric

FUNDING REQUEST

Your contributions will support Dr. Lauren Aleksunes and her team at Rutgers University as they study the mechanisms by which the ABCG2 transport protein works to keep chemicals out of the placenta. Donations will help fund \$300-350K/year required to recruit patients and conduct clinical studies, test drug transfer mechanisms in transgenic animal models, and screen for genomic, proteomic, and metabolic profiles in human placentas. Help keep babies safe by partnering with Dr. Aleksunes!