MedicalXpress

Ob/gyn researchers studying genetic factors in premature births

March 24 2014

Researchers at UT Southwestern Medical Center received grants totaling $600,000 from the March of Dimes Foundation to advance their work in the prevention of premature birth, which affects about one out of nine babies born annually in the U.S. and is the leading cause of newborn death.

Among just five researchers in the U.S. and Canada selected for their work were Dr. Carole R. Mendelson, Professor of Biochemistry and of Obstetrics and Gynecology and Director of the North Texas March of Dimes Birth Defects Center, and Dr. Mala Mahendroo, Associate Professor of Obstetrics and Gynecology.

Dr. Mendelson is identifying proteins and lipids produced by the maturing fetal lungs that enhance contractility of the mother's uterus and signal that the baby is ready to be born. A previous study from her laboratory found that the major lung surfactant protein, surfactant protein-A, acts as a hormonal signal for labor. Ongoing studies funded by the March of Dimes grant explore the regulation and roles of unique surfactant lipids as signals for the initiation of labor.

"The March of Dimes Foundation has been an amazing supporter of research on preterm birth and birth defects. This has been incredibly important at a time when National Institutes of Health funding of basic research in female reproductive biology has been declining," said Dr. Mendelson, who chairs the Reproductive Scientist Development Program Selection Committee for the National Institute of Child Health

and Human Development, part of the National Institutes of Health.

Dr. Mahendroo is working to understand cervical changes and how they trigger labor. She is working to identify key steps in normal cervical ripening, as well as distinct molecular pathways that drive infection-mediated cervical ripening.

"Because cervical changes precede the onset of preterm birth, a better understanding of the diverse pathways that achieve cervical remodeling will be critical for the development of clinical tools for early detection of preterm birth risk, as well as for preventive therapies. The March of Dimes has been instrumental in support of research to advance understanding of term and preterm birth and I am greatly appreciative of their support for our work," said Dr. Mahendroo, a member of the Cecil H. and Ida Green Center for Reproductive Biology Sciences.

The grants are part of the 2014 March of Dimes Prematurity Research Initiative (PRI), which is seeking to understand the causes of premature birth with the goal of identifying women at risk of preterm labor and developing new treatments to prevent it. The selected researchers are investigating what role genetic variations, infection, inflammation, fetal lung development, and changes in cervical ripening may play in triggering preterm labor.

More than 450,000 babies are born too soon each year in the U.S., costing more than $26 billion annually, according to the Institutes of Medicine. Babies who survive an early birth are at an increased risk for breathing problems, cerebral palsy, intellectual and developmental disabilities, vision and hearing loss, and other lifelong health problems. U.S. preterm births dropped to an 11.5 percent rate in 2012, the lowest in 15 years, but still above the March of Dimes goal of 9.6 percent.

"Prevention is the way to save babies from the death and disability

caused by preterm birth," said Dr. Jennifer L. Howse, president of the March of Dimes. "Research is the key that will provide new insights into the many unknown causes of preterm labor, and help doctors recognize the women and babies most at risk."

UT Southwestern's Department of Obstetrics and Gynecology is one of the largest in the United States, with more than 100 faculty members. UT Southwestern trains about one out of every 50 Ob/Gyn residents in the U.S. UT Southwestern's Ob/Gyn clinical care is nationally recognized by U.S. News & World Report's 2013-2014 annual report on the nation's best hospitals, and its research efforts include three NIH Multi-Center Network Grants.

Provided by UT Southwestern Medical Center