



**Lunenfeld-Tanenbaum
Research Institute**

Sinai Health System

NEWS RELEASE

Blood test identifies women at risk of preterm delivery as early as 17 weeks of pregnancy

June 22, 2016 (Toronto) –

A blood test developed by a team at the Lunenfeld-Tanenbaum Research Institute, part of Sinai Health System, and the University of Calgary has been shown to predict if a pregnant woman is at risk of delivering her baby prematurely, before full 37 weeks of gestation. The test is the most accurate one to date and provides the earliest detection of premature birth, with 86 per cent accuracy in determining mothers at risk of early delivery.

Mitigating risk for preterm birth is important because premature birth remains the main cause of child-related mortality in the developed world. Preterm birth occurs in five to 10 per cent of all pregnancies, but is associated with 70% of all newborn deaths (excluding genetic anomalies) and up to 75% of newborn disease including cerebral palsy, blindness, deafness, respiratory illness and complications of neonatal intensive care.

The study was published today, June 22, 2016 in [PLOS one](#) , and was led by **Dr. Jan Heng** (former post-doc at Lunenfeld-Tanenbaum Research Institute and currently at Harvard Medical School), and recently named **Scotiabank Scientist in Child and Adolescent Development Health Research, Professor Stephen Lye** (Senior Investigator, Lunenfeld-Tanenbaum Research Institute and University of Toronto) as well as **Professor Suzanne Tough** (University of Calgary).

“The earlier we can identify risk of a premature birth the better for the women and baby as it buys time for clinicians to develop and implement personalized measures to prevent preterm delivery. One way to achieve that is to develop a reliable screening tool that can be easily integrated with routine antenatal care, like this blood test which we specifically developed to synchronize with blood work during standard antenatal care,” says Dr. Jan Heng.

“There are treatments that can prevent preterm birth,” says Dr. Stephen Lye. “But these treatments are only useful in a subset of women. This blood test could improve identification of women who will benefit from existing therapies. Moreover, it may also help drug studies to focus on women who are at highest risk of delivering preterm when evaluating new treatments.”

The study population is a subset of women who participated in the All Our Babies study, a community based longitudinal pregnancy cohort in Calgary, Alberta. The researchers collected paired maternal blood from pregnant women at two clinically relevant time points: approximately 17 weeks when fetal ultrasound is conducted and at approximately 27 weeks of gestation when gestational diabetes screening is performed. The international team, consisting of clinicians, scientists and biostatisticians, used gene expression profiling and bioinformatics to develop



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gene sets, coupled with a patient's clinical information such as history of preterm birth, history of abortion or anaemia, to predict whether or not a woman will deliver prematurely.

The Lunenfeld-Tanenbaum Research Institute has the largest perinatal research program in Canada - based on activity, volume of research and funding. With close to 7,000 births a year, Mount Sinai Hospital, also part of Sinai Health System, is one of the largest perinatal centres in North America that cares for pregnant women and newborn babies. The hospital treats some of the most complicated pregnancies in Canada and has the largest program of its kind in this country.

About the Lunenfeld-Tanenbaum Research Institute

The Lunenfeld-Tanenbaum Research Institute, part of Sinai Health System, is a leading biomedical research centre, ranking amongst the top biomedical research institutes in the world. Established in 1985, the institute is profoundly advancing understanding of human biology in health and disease. Many of the breakthroughs that began as fundamental research have resulted in new and better ways to prevent, diagnose and treat prevalent conditions. The institute is affiliated with the University of Toronto and is focused on women's and infants' health, cancer biology, stem cell biology, neurobiology, diabetes, arthritis, health systems research, population health services and solutions, and systems biology. www.lunenfeld.ca.

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