

## THSTI working towards a new biomarker to predict risk status for preterm births

By Dr. Bilqeesa Bhat

Scientists at Translational Health Science and Technology Institute (THSTI), Faridabad are studying changes in the circulating levels of placental extracellular vesicles (EVs) during pregnancy and their association with various pregnancy related complications through the Interdisciplinary Group for Advanced Research on Birth Outcomes- DBT India Initiative (GARBH-Ini).

The EVs secreted from placental cells might have an essential role in how the mother and fetus communicate during normal and pathological pregnancies. The EVs being studied here are called as exosomes which have a characteristic protein called placental alkaline phosphatase or PLAP, found in the first trimester of pregnancy. The levels of PLAP level increases with advancing pregnancy. In this study, PLAP protein and its levels are being measured in term and preterm pregnancies. This information will then be used to develop a biomarker which is a biological indicator of a physiological condition, the preterm birth.

Ultrasound does indicate health of the placenta but does not reveal any pathophysiology or mechanistic events. The ability to profile the protein content of placenta-derived EVs will provide a real time snapshot of placental physiology or pathophysiology, their normal and/or abnormal changes predictive of pregnancy outcomes.

Spontaneous preterm birth (PTB) is a major obstetrical problem around the globe and is responsible for 1 in 10 children born too soon. Mechanisms responsible for PTB are however, unclear. To address this gap, a hospital-based study on pregnant women was initiated in 2015 at a district hospital in Gurugram, Haryana, India by the maternal and child health team at Translational Health Science and Technology (THSTI), Faridabad. The study is called GARBH-Ini (Interdisciplinary Group for Advanced Research on Birth outcomes – A DBT India initiative). A unique collaborative, interdisciplinary program, the team also comprises

researchers from National Institute of Biomedical Genomics, Kalyani; Regional Centre for Biotechnology, Faridabad, Gurugram Civil Hospital (GCH), Haryana and tertiary care hospitals (Safdarjung Hospital, Maulana Azad Medical College, New Delhi).

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