

DBT funds THSTI's work to develop multi-omics biomarkers for preterm birth

India has a very high percentage of babies born preterm and is a reason why DBT's Translational Health Science and Technology Institute (DBT-THSTI), Faridabad prioritized the problem during its initial years and has evolved into GARBH- INI, an Atal Jai Anusandhan Mission of the Government of India. The Department of Biotechnology (DBT) recently funded a project titled 'Multi-Omics signatures of Human Placenta: Real Time assessment of underlying mechanisms for prediction of birth outcomes and development' – which is a step towards development of early prediction of preterm birth in pregnant women.



Development of effective biomarkers can predict increased risk of a preterm birth. Multi-omics includes genomics, epigenomics, transcriptomics, proteomics and metabolomics signatures – in other words accounting for genetic, and environmental factors that determine preterm birth.

GARBH-INI was invited to join the Multi Omics of Maternal & Infants Global (MOMI) Consortium where multi omics signatures will be identified in over 1500 mother infant dyads pooled across five global cohorts. Interesting questions are being addressed within the cohort framework using AI based applications for developing prediction models based on clinical & epi factors, image features from fetal biometric & transvaginal cervical images and doppler parameters. The Data Management Centre and Aryabhata Data science & AI Program at THSTI

(ADAPT) are enabling the collaboration. The clinical variables collected in large international cohorts in Africa and Asia have been harmonized in order to enable pooling of data to address questions of global health significance.

Every year about 15 million babies are born too soon across the world. Why should that be a reason for us to worry? The babies born soon fail to be nourished in their mother's womb for a necessary duration. This, in turn, leads them to have both short-term and long-term impact on their health; restricted physical growth, weak immune system and others. Complications related to preterm births (the medical term for babies-born-too-soon), are the leading cause of death among children less than five years of age. The good news is 75% of these deaths can be prevented through early interventions.

Link: <http://dbtindia.gov.in/sites/default/files/uploadfiles/Mission%20Programmes.pdf>

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