

Blood tests could be developed to help predict pregnancy complications new study suggests

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UCLA researchers say a blood test commonly used to detect fetal genetic abnormalities may help predict complications associated with pregnancy before symptoms develop. Their preliminary study, appearing in *Epigenetics*, links certain cell-free DNA signatures to adverse outcomes in pregnancy, including ischemic placental disease and gestational diabetes.

The findings are the first to show that genetic material shed from the placenta into the mother's blood (circulating cell-free nucleic acids) during the first trimester of pregnancy could potentially be used to predict these potentially serious complications.

Although the analysis of genetic material in the mother's blood has been used to screen for genetic abnormalities in a pregnancy, this is the first time these specific methods have been used as a way of a more accurate prediction.

"Our research points to a promising approach that could improve outcomes for mothers and their babies using existing technologies," said Dr. Sherin Devaskar, lead author of the study and physician-in-chief of UCLA Mattel Children's Hospital and distinguished professor of pediatrics at the David Geffen School of Medicine. "If confirmed in larger studies, cell-free DNA blood tests may help identify issues in the placenta as an indicator of a healthy mother and fetus."

Researchers followed a diverse group of pregnant women between February 2017 and January 2019, testing their [blood](#) periodically throughout gestation. By the end of the study, 160 participants had given birth, with 102 maternal and 25 cord plasma samples taken along the way. They found that during the first-to-early [second trimester](#), placenta-specific DNA increased among those

women who went on to develop gestational diabetes. They also identified several differently expressed genes and were able to create a model with a predictive value for adverse [pregnancy](#) outcomes.

"The novelty of this research is being able to break down a mother's DNA and be able to hone in on the health of the placenta—something that researchers have never been able to do before," added Devaskar. "This research warrants application of automated methodologies in multi-center trials to improve future testing and screening for all women."

More information: Giorgia Del Vecchio et al, Cell-free DNA Methylation and Transcriptomic Signature Prediction of Pregnancies with Adverse Outcomes, *Epigenetics* (2020). [DOI: 10.1080/15592294.2020.1816774](#)

Provided by Taylor & Francis

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