

Predicting premature birth possible through markers in mother's blood

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Though more than one in 10 American babies are born prematurely, there have been few clues to predict whether a particular baby is going to arrive too early – until now.

A new study suggests that more than 80 percent of pre-term births can be spotted in advance with a blood test taken during the second trimester of a pregnancy.

"What's been missing is a way of assessing risk," said Steven Graves, who directs the chemistry portion of the research at Brigham Young University. "Our approach has been to look at the naturally occurring molecules that are present in women's blood to see if we can identify the peptides and small proteins that are at quantitatively different levels in women who go on to have these complications."

Graves and Dr. Sean Esplin at the University of Utah began their search for molecular clues to pregnancy complications in 2002 and now have something to show for it. Esplin is the lead author on a study that will appear in the May issue of the *American Journal of Obstetrics & Gynecology* and has been posted online by the journal.

The paper introduces three new peptide biomarkers that, in combination with a few other proteins, can signal high risk of pre-term birth. And it's done by looking at just a drop of blood from a mother who is 24 weeks into a pregnancy. In this study, the researchers tested their method on blood samples from 80 women that went full-term and 80 women whose

babies came prematurely.

Knowing she is at high risk for pre-term birth is a big advantage for the mother when it comes to decisions about travel and activity level. Esplin also notes that a new hormone treatment can help a baby stay in the womb a little longer.

"With pre-term birth, if we could even prolong a pregnancy by one or two weeks, we could make a very big impact on the number of babies that survive and make sure that those that survive are healthy," said Esplin, an associate professor of maternal-fetal medicine at the University of Utah and an obstetrician for Intermountain Healthcare. "With just one intervention, we could have a really huge impact."

"Because it identifies these patients in this way, it allows us in the future to design interventional trials," Frias said. "Right now we are almost blind in that standpoint."

The method for predicting pre-term birth is patented by BYU and the University of Utah and has been licensed to a company called Sera Prognostics. The company hopes to have a diagnostic test on the market in the first half of 2012.

"This test may dramatically improve our ability to identify moms at risk for spontaneous [preterm birth](#), which we currently cannot do adequately," said Dr. Antonio Frias, a professor of maternal-fetal medicine at Oregon Health & Science University. Frias was not involved with the research.

If follow-up studies also show positive results, Graves is hopeful that the diagnostic test will earn the support of medical care providers, the FDA and insurers.

"I'm optimistic," Graves said. "My students think it's great to be involved with something that's practical and beneficial to the world around them, as well as being good science."

Provided by Brigham Young University

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