Docket #: S19-384

Prediction of gestational age using urine metabolites

Stanford scientists have invented a method that can determine the gestational age of a fetus by testing the mother's urine for a set of metabolites.

Precise determination of gestational age is key to accurate tracking of a variety of other fetal and maternal health indicators. However, without an ultrasound examination from a medical professional, there is currently no accurate way to determine fetal age. Given this limitation, an alternative and more accessible method for accurately determining the gestational age is necessary, especially for women in either poorly-resourced communities or remote locations to have trouble getting access to an ultrasound exam.

With this innovation, Stanford inventors have developed such an alternate method. Using metabolomics methods to analyze urine samples of 99 pregnant women, they have identified a handful of key metabolites in the mother's urine which are able to accurately predict the gestational age of the fetus. From this analysis, they have enabled an inexpensive, non-invasive, and effective method for precisely determining gestational age.

Applications

- Test of metabolites in mother's urine to determine gestational age of fetus

Advantages

- **Non-invasive**: Urine test makes sample collection safe & painless for patient
- **Inexpensive**: Handful of most predictive metabolites could be used to make a simple and cheap test

- **Accessible**: No ultrasound examination necessary, making this method accessible in poorly resourced or remote locations
- **Accurate**: More precise gestational age determination than using last menstruation period

Publications

- Jehan, Fyezah et al. "Multiomics Characterization of Preterm Birth in Low- and Middle-Income Countries." JAMA network open vol. 3,12 e2029655. 1 Dec. 2020, doi:10.1001/jamanetworkopen.2020.29655

Patents

- Published Application: WO2022099320
- Published Application: 20230288398

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