

Using pregnancy urine samples and untargeted metabolomics profiling for gestational age prediction

Stanford scientists have invented a method that can determine the gestational age of a fetus by testing the mother's urine using metabolomics profiling and machine learning.

Knowing the age of the fetus is fundamental to tracking the progress of a pregnancy, including both maternal and fetal health. However, methods like using the time from last menstruation can be inaccurate while ultrasound methods require the patient be examined by a trained medical professional to assess gestational age. A technique to determine the gestational age that is both accurate and easy would be a valuable option for many patients.

With this invention, Stanford scientists have developed a new paradigm in gestational age prediction. Using cutting-edge metabolomics profiling and machine learning to analyze samples from 339 normal pregnant women in Denmark, they have developed a method to determine gestational age from an untargeted metabolomic profile of the mother's urine. This new approach provides a non-invasive and effective method for precisely determining gestational age from a broad metabolomic profiling of the mother's urine.

Applications

- Using the mother's urine to determine the gestational age of the fetus

Advantages

- **Cutting-edge Technique:** Uses the broad range of metabolomic information available in the mother's urine to determine gestational age with machine learning methodology
- **Easy Patient Sample Collection:** Urine test makes sample collection safe & painless for patient and enables potential for a home test kit
- **No Sonography Required:** Sample can be collected and gestational age determined without the requirement for an ultrasound examination

Patents

- Published Application: [WO2022099319](#)
- Published Application: [20230298758](#)

Innovators

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