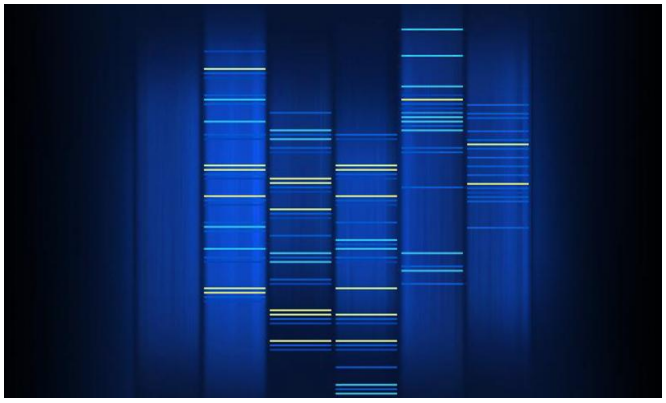
Prenatal test finds one cell in a million

18 November 2015, by Sarah Keenihan



Enduring a risky but important prenatal diagnostic procedure is one of scariest aspects of pregnancy.

Marnie Winter wants to remove that trauma through developing a safer way to analyse fetal DNA in the early months of gestation.

"I'm working on a new technique to isolate fetal cells from maternal blood so they can be used for genetic analysis," says Winter.

During pregnancy, around 1 in a million of the large cells circulating in the mother's blood originate from the fetal side of the placenta. Marnie's procedure uses a small spiral silicone chip to specifically select those cells from within a blood sample.

"Once we've isolated a fetal cell, we can then look for markers in its DNA," explains Winter.

Testing DNA from a baby during pregnancy provides parents with early indications of disease or abnormalities. Currently the standard way to access fetal DNA is to remove cells via surgical techniques.

"Procedures such as amniocentesis or chorionic villus sampling to collect fetal cells do carry a risk of inducing miscarriage," Winter says.

"We hope that our less-invasive approach can provide couples with a safe option to perform pre-natal genetic analysis."

Winter is based at the University of South Australia, and is working with collaborators from the Women's and Children's Hospital as well as the University of New South Wales to develop the chip-based technique.

With proof of principal now established, the researchers are improving the purity of the cell selection process so that a clinical tool can be developed.

They're also transitioning the same technology for isolation of tumour cells.

Provided by The Lead

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