genomic imprinting

when a woman is pregnant both her and her baby are exposed to her environment

can affect the developing offspring

SOPHIE STORRAR

what could a woman be exposed to during pregnancy?

pollution

poor diet

low protein diet

high sugar

general cost of living

medication

It has been shown that the grandchildren can feel the effects of what happened to the grandmother during the pregnancy...

my research aims to understand the potential negative effects of these exposures & whether they can be reversed prior to birth?

I do this by focusing on

imprinted genes

which are sensitive to an expectant mother's enviroment

When do these imprinted genes show themselves?

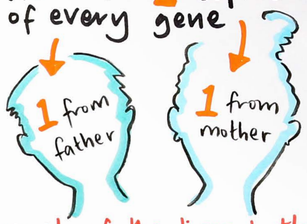
you could in one of the early prenatal scans

lots of these exposures we can't avoid

that's why I'm interested in this area

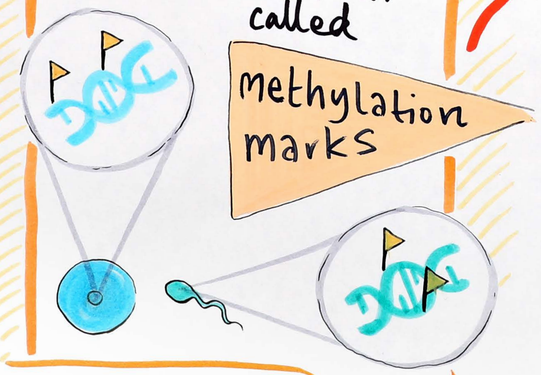
Contains the information required to perform key roles during pregnancy

we have 2 copies of every gene



most of the time both copies are activated, but imprinted genes only 1 copy needs to be switched on to perform function

this relies on tags added to our DNA called



for development to go according to plan, the correct imprinted genes need to be switched ON

how are these marks exposed to environmental factors

some drugs bind the proteins that add these marks, thus prevent them from doing their job

do these imprinted genes ever show in mother's DNA?

there is research now into whether it changes mammary gland development

the more we understand about the effects, the more we understand about how to combat it...