

# The MothersBabies Study

## Evolution of the microbiome from preconception, pregnancy and related outcomes

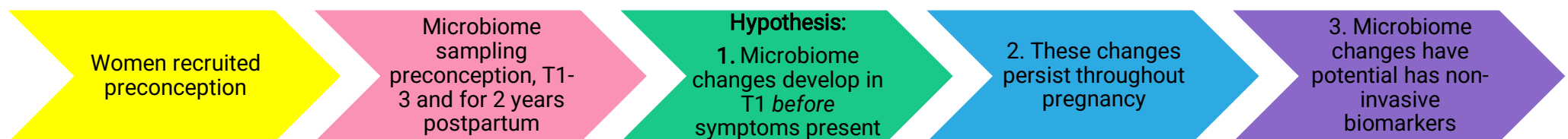
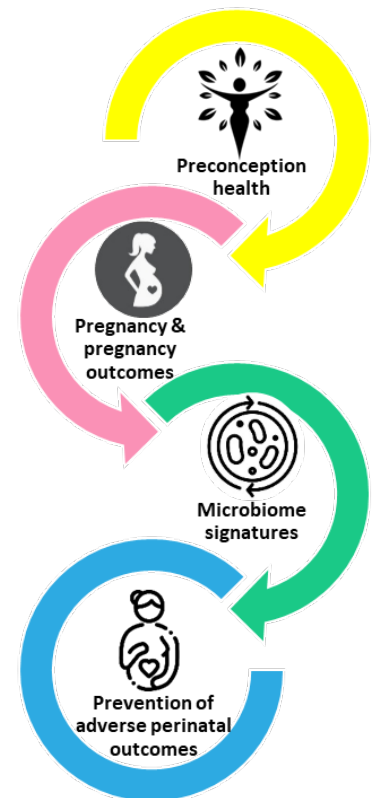
Prof Emad El-Omar & The MothersBabies Study Team

### What is known about the microbiome in preconception and perinatal health?

- Over the last decade the human microbiome has become established as a key contributor to human health, and it is important that the microbiome is examined not only during pregnancy, but in the preconception period too (1, 2).
- Microbiome development starts well before birth
- Emerging research demonstrates inheritance of the microbiome across intergenerational and matrilineal lines, its association with adverse pregnancy outcomes, and its potential to impact on the health of the next generation (3-5).
- A person's preconception health is a critical indicator to pregnancy outcomes, with the consequences of one's preconception health impacting on many future generations (6).

### What is novel about this study?

- The MothersBabies Study follows on from the successful pilot study, The Microbiome Understanding in Maternity Study (MUMS) (7), which used multi-omic technology to examine longitudinally and comprehensively the microbiomes of 100 pregnant women throughout pregnancy.
- Current research demonstrates there are significant links with the microbiome in pregnancy, and links between adverse pregnancy states, however it is far from definitive (8-12).
- Surprisingly, no existing perinatal microbiome research has included the critical preconception period, which has been a notable gap and key recommendation (1, 2, 8).
- First project of its kind in the world to prospectively follow the preconception and pregnancy journey.



### Student engagement

- Laboratory work with MothersBabies samples
- Data collection with project team and clinical staff
- Data analysis with UNSW MRC Bioinformatics Unit
- Defining signatures of adverse pregnancy outcomes such as preeclampsia, gestational diabetes, excessive gestational weight gain, and early pregnancy loss.
- Linking preconception health to infant developmental outcomes in first 12 months of life

**We have 1 – 2 Honours projects available**

This project is being conducted at the St George Clinical Campus in Kogarah. If you are interested in this project please email the Project Manager, Naomi Strout on [n.strout@unsw.edu.au](mailto:n.strout@unsw.edu.au)

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