



# Maternal Microbiome Legacy Project

PARTICIPANT NEWSLETTER #2 - DECEMBER 2023

## A message from the Legacy Team

Welcome to the second Legacy Newsletter! Through these newsletters, we will continue to share our latest study results with you, our participants. In this edition, we highlight two papers describing our findings on the relationship between the vaginal and infant gut microbiomes, published in 2023.

**To all our participants, thank you for participating in Legacy!** We are most grateful to all of you who took the time and effort to participate, this research would not have been possible without you!

## Babies' gut microbiome not influenced by vaginal microbiome

Read this [paper](#) published in *Frontiers in Cellular and Infection Microbiology*



### Goal:

It has been a longstanding assumption that delivery mode (vaginal delivery or C-section) and the associated exposure or lack of exposure babies have to the vaginal microbiome during delivery affects the development of their gut microbiomes. We wanted to examine if this was the case.



### Samples analyzed:

We profiled the microbiomes of 621 vaginal swab samples, and stool samples from 570 10-day old infants and 460 3-month old infants, which is one of the largest studies to date.

### Findings:

While there were differences in infant stool microbiome profiles based on delivery mode at 10 days postpartum, this effect was not explained by the maternal vaginal microbiome and was significantly reduced by 3 months postpartum. The differences in early life instead seem to be influenced by exposure to antibiotics at the time of birth.

### What this means:

It doesn't appear that exposure to the vaginal microbiome at birth establishes the infant gut microbiome.

"We were able to show that the vaginal microbiome is not a large contributor to the bacterial community that develops in a baby's gut after birth", said Scott Dos Santos, PhD student who conducted the lab work and data analysis.

This study has been featured in press releases from the [journal](#) and from [UBC](#)!

## Birth mode doesn't impact maternal-infant shared bacteria

Read this [paper](#) published in *Microbiology Spectrum*

### Findings:

We demonstrated that transfer of maternal vaginal microbes to the infant gut is likely limited, even in vaginal deliveries. This suggests that maternal vaginal microbes might not be the primary source of the baby's early gut bacteria. The presence of some identical bacterial strains between mothers and babies suggests other sources need examination, such as the mother's gut and breast milk,

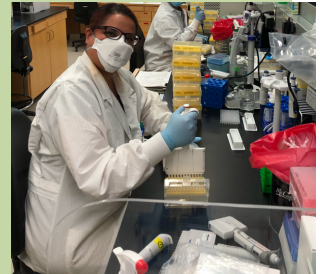
### What's Next?

We are now looking at how the breast milk and skin microbiomes influence the gut microbiome. UBC PhD student Zahra Pakzad (who you might remember conducted home study visits with many of you!) is working on understanding how the breast milk microbiome changes during lactation, where does the breast milk microbiome come from, and whether the breast milk microbiome is helping to colonize the infant gut in the first three months of life.



Click [here](#) to watch a video about this work, or click [here](#) to read a feature by UBC.

Zahra spent 3.5 months at the lab of Legacy co-investigator Dr. Janet Hill at the University of Saskatchewan analyzing almost 2000 breast milk and areola skin swabs samples.

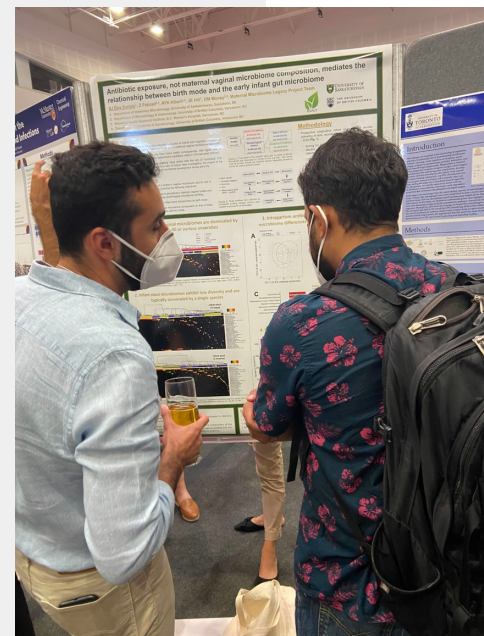


## Congratulations to Scott Dos Santos!

Scott, who conducted the work featured in this newsletter has completed his PhD!

A message from Scott to all Legacy participants:

"For the last four years or so, I've been a PhD student at the University of Saskatchewan, working in the lab of Dr. Janet Hill as part of the Maternal Microbiome LEGACY Project Team. All the samples collected by the clinical team eventually ended up on my lab bench for microbiome profiling. I'm approaching the end of my programme so I just wanted to take up a bit of space in this newsletter to say a really big thank you to all of you and your little ones - this project would quite literally not have been possible without your involvement. I count myself incredibly lucky to have worked with a brilliant and supportive team of people on such a fascinating project. It's been a privilege to work on LEGACY and I wish you all the best for the future!"



Scott presenting at the Canadian Society of Microbiologists 2022

Stay tuned for more results from the Maternal Microbiome Legacy Project!  
Please contact us with any questions or feedback at [zahra.pakzad@cw.bc.ca](mailto:zahra.pakzad@cw.bc.ca)

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