



Icahn  
School of  
Medicine at  
Mount  
Sinai

Exploring **ME**chanisms **Of** disease tra**N**smission In **U**tero through the **M**icrobiome

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# MECONIUM *News*



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## MECONIUM STUDY **The Journey Continues.**

Season's greetings from the MECONIUM (Exploring MECHANisms Of disease traNsmission In Utero through the Microbiome) Study! As another year nears its end, we are excited to report our progress with the study this year. Also featured in this second annual newsletter are pictures of some of the adorable babies born in the study. We truly appreciate the efforts of all study participants who make up the MECONIUM research cohort, as well as our dedicated research staff.



The MECONIUM Study Team: (L-R) Ivan Carreon, Dr. Amélie Barre, Dr. Ron Porat, Caroline Eisele, Dr. Inga Peter, Dr. Jean-Frederic Colombel, Dr. Brian Hu, Nile Nair, Dr. Qixing Mao

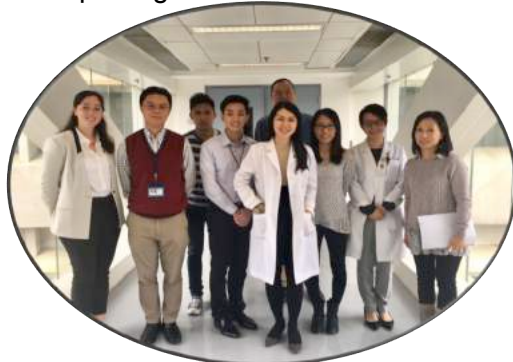


## Research Presentations

This was an exciting year for the team as we traveled far and wide to present our research and forge new collaborations. Dr. Joana Torres of the MECONIUM Study Team presented the latest results of the MECONIUM Study in a talk titled "Infants Born to Mothers with Inflammatory Bowel Disease Exhibit Distinct Microbiome Features That Persist up to 3 Months of Life" at the European Crohn's and Colitis Organisation 12th Annual Congress on February 18th in Barcelona and at Digestive Disease Week (DDW) on May 9<sup>th</sup> in Chicago.

## New Collaborations

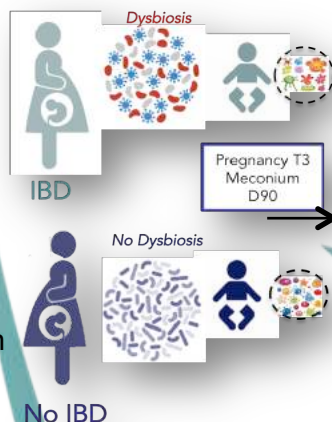
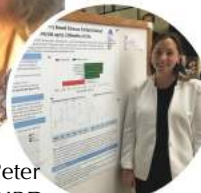
The MECONIUM Study has started an exciting new collaboration with the research team led by Dr. Siew C. Ng, MD of the Department of Medicine and Therapeutics at the Chinese University of Hong Kong. Recent increases in the incidence of IBD across Asia have been attributed to changes in environmental factors, including westernization of lifestyle and industrialization. With this collaborative endeavour, the MECONIUM study's expansion into Hong Kong can help us better understand both genetic and environmental risk factors that contribute to the pathogenesis of IBD.



Caroline Eisele (L) and Dr. Hu (back) visiting with Dr. Ng's (center) team in Hong Kong.



Top 2: Drs. Inga Peter and Siew Ng at IOIBD. Caroline at Child Health Research Day  
Left 3 – Dr. Joana Torres presenting the MECONIUM Study at DDW and ECCO



Senior Research Associate Dr. Leonid Tarassishin

## Research Results

The MECONIUM Study was represented at Mount Sinai's Child Health Research Day. Caroline Eisele presented our most recent abstract. Our Principal Investigator Dr. Inga Peter presented an update on the Study's progress at the 2017 International Organization for the Study of IBD (IOIBD) in Stresa, Italy.

## Mouse Studies

Accumulating evidence suggests that early life bacterial colonization plays a major role in shaping the infant's immune system. To further explore the functional consequences of dysbiosis, we colonized germ-free mice with the 3<sup>rd</sup> trimester stool from pregnant women with IBD and with the stool from their 3-month old babies.



Investigations are on-going to help elucidate the immunological consequences of IBD-associated dysbiosis during pregnancy and in the offspring.

## Stress, IBD & Pregnancy

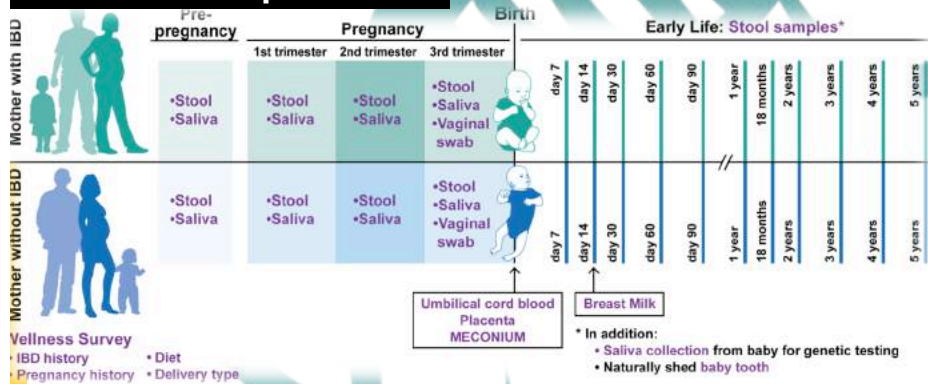
Many thanks to all who completed the questionnaires to participate in our pilot study to examine the interplay of psycho-emotional stress and the microbiome during pregnancy and early childhood! Our survey results showed differences in the uplifts score that indicates positive feelings about pregnancy depending on a mothers IBD status and Pregnancy Status. We also saw strong crosstalk between the microbiome and reported experience of stress. We will continue analysis to examine how the baby's microbiome and development can be affected by mother's experience of stress during pregnancy. Look out for more results in the future!



## Biomarkers

A biomarker is any measurable substance in an organism that can be indicative of disease or environmental exposure. The MECONIUM study investigated the levels of fecal calprotectin (FC), a protein detected in stool, of pregnant women with and without IBD and in their babies for indications of inflammation. This is of particular significance due to the difficulty in monitoring IBD activity during pregnancy, as conventional biomarkers of inflammation may be altered due to the pregnancy. Our results indicate that FC is a reliable biomarker of IBD during pregnancy and that babies born to mothers with active IBD during the third trimester display higher FC levels in their stools at 1 year of life, compared to those babies born to mothers without IBD. We will further investigate the implications of this inflammatory marker in assessing the disease risk of the infant.

## Research Updates



The MECONIUM Study has extended the child's follow-up collection to 5 years! We have also included the optional collection of deciduous teeth (milk teeth), toenails and hair for additional compensation. Please reach out to the research coordinators for more details.

## MUNCHKIN' CORNER



## Exposomes

The MECONIUM study also launched a groundbreaking and completely novel investigation into the 'exposome' for markers of IBD. Exposomes give us an idea about the environmental exposures sustained by an individual and any link that might have to the pathogenesis of a disease. We are currently exploring any capacity for indication of disease in deciduous (milk) teeth of infants with later diagnosis of IBD.

## Future of the Study

This has indeed been an exciting year for the MECONIUM Study. With our expansion overseas and new research staff and collaborators, we are seeing an unprecedented integration of clinical and epidemiological research. The host of topics that we are exploring with the microbiome and IBD will surely lead to novel findings that will help advocate for people with IBD, setting a new direction for patient care, education, and elucidation of the causes of this disease. We will further our investigations into the biomarkers of IBD, mouse immunology studies and stress and IBD. We are hoping to piece together these crucial links and help complete the bigger picture. Thank you to each and every one of our participants; none of this would be possible without you! We wish you all a happy and safe holiday season and New Year!



# Baby Wall of Fame



## CONTACT US

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