CCR – IMPROMPTU

Friday, December 4th, 2026 at 11:00 AM

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Microbiome through life - lessons from population cohorts

The gut microbiome is highly variable between individuals and is closely linked to health throughout life. In my group, we study how the gut microbiome develops from pregnancy to old age, and how different factors shape the gut ecosystem in health and disease.

In this lecture, I will first present our analyses of the large adult population cohort LifeLines, focusing on the roles of host genetics and environmental exposures in shaping the gut microbiome, and on how microbiome variation relates to disease. I will then discuss our major early-life project, the parent–infant cohort LLNEXT. LLNEXT includes 1,450 mother–infant pairs followed longitudinally from pregnancy through the first 12 months of life, with extensive multi-omics profiling. Our analyses show that early-life bacterial and viral communities are highly dynamic and are shaped primarily by delivery mode, feeding practices, parity, pre-pregnancy smoking, and duration of delivery. We find that infants share a substantial proportion of bacterial and viral strains with their mothers' gut microbiota, while a smaller number of strains originate from maternal milk and the vaginal microbiome. We also identified associations between maternal and early-life microbial signatures and the development of eczema in infants.

Together, these findings provide new insights into the determinants of early-life microbiome development and its links to health during the first year of life.

Venue: CCR Lecture Hall, Borschkegasse 8a
Time: December 4th, 2026 at 11:00 AM
Host: Thomas Vogl

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