

Gut microbiota at 1 month associated with infant colic and constipation symptoms

David Barnett^{1,6}, Carel Thijs², Monique Mommers², Martha Endika³, Cynthia Klostermann⁴, Henk Schols⁴, Hauke Smidt³, Arjen Nauta⁵, Ilja Arts⁶, John Penders¹

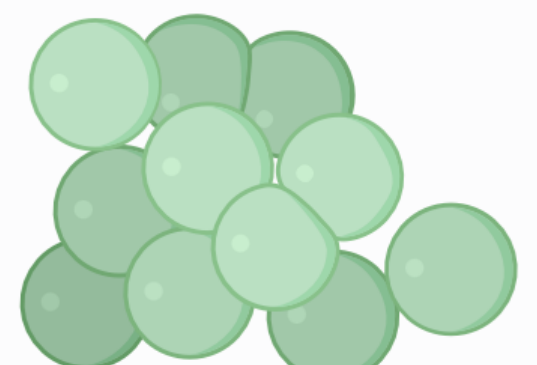
1) Summary



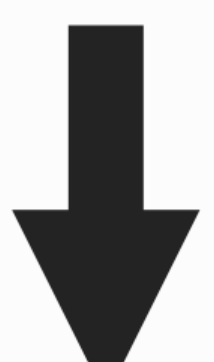
KOALA - STUDY

>1000 x

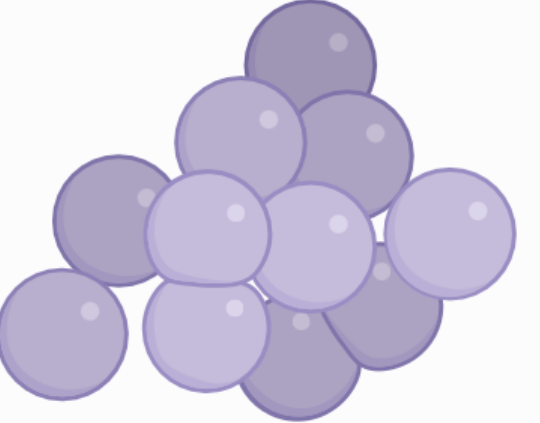




Staphylococcus



Constipation symptoms



R. gnavus group

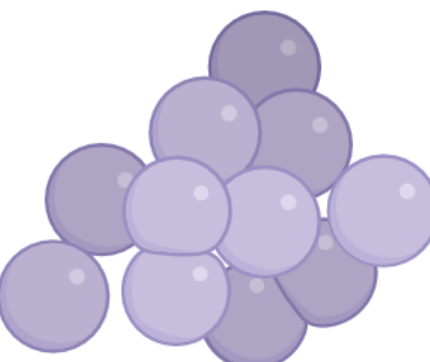


Colicky symptoms

Associations: confounder-adjusted and FDR-corrected



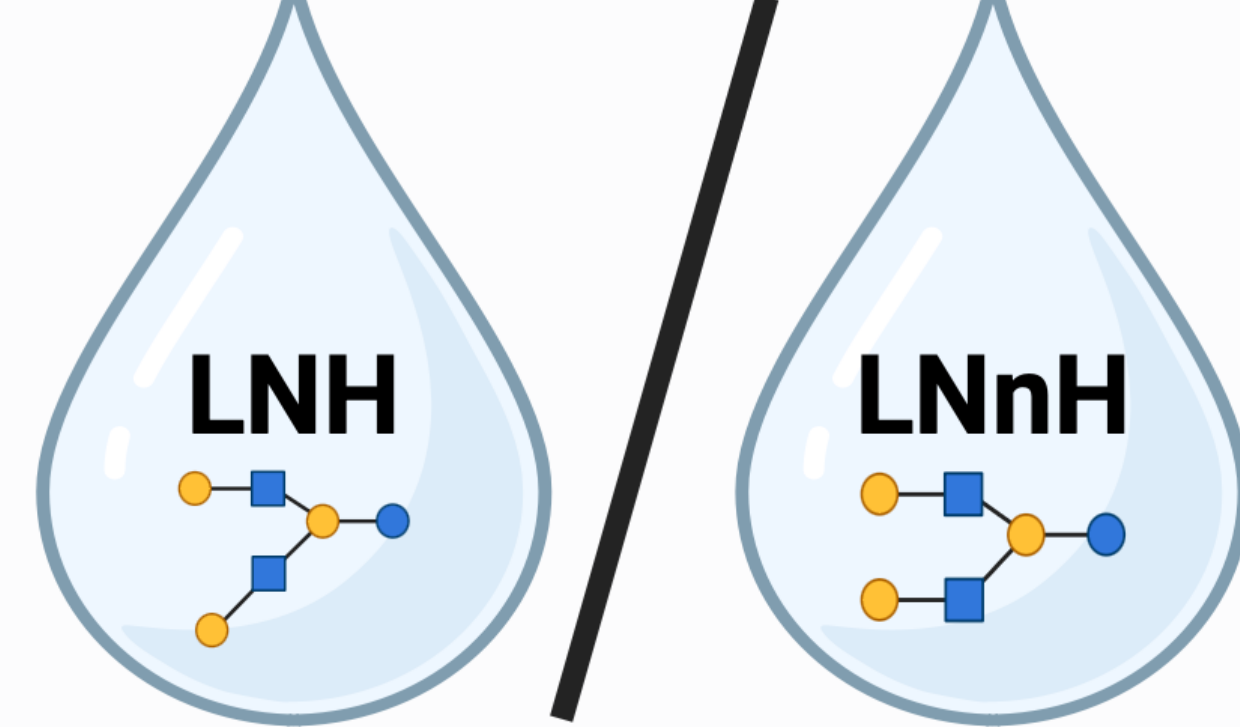
Ruminococcus gnavus



previously associated with IBS & IBD in adults



x 250

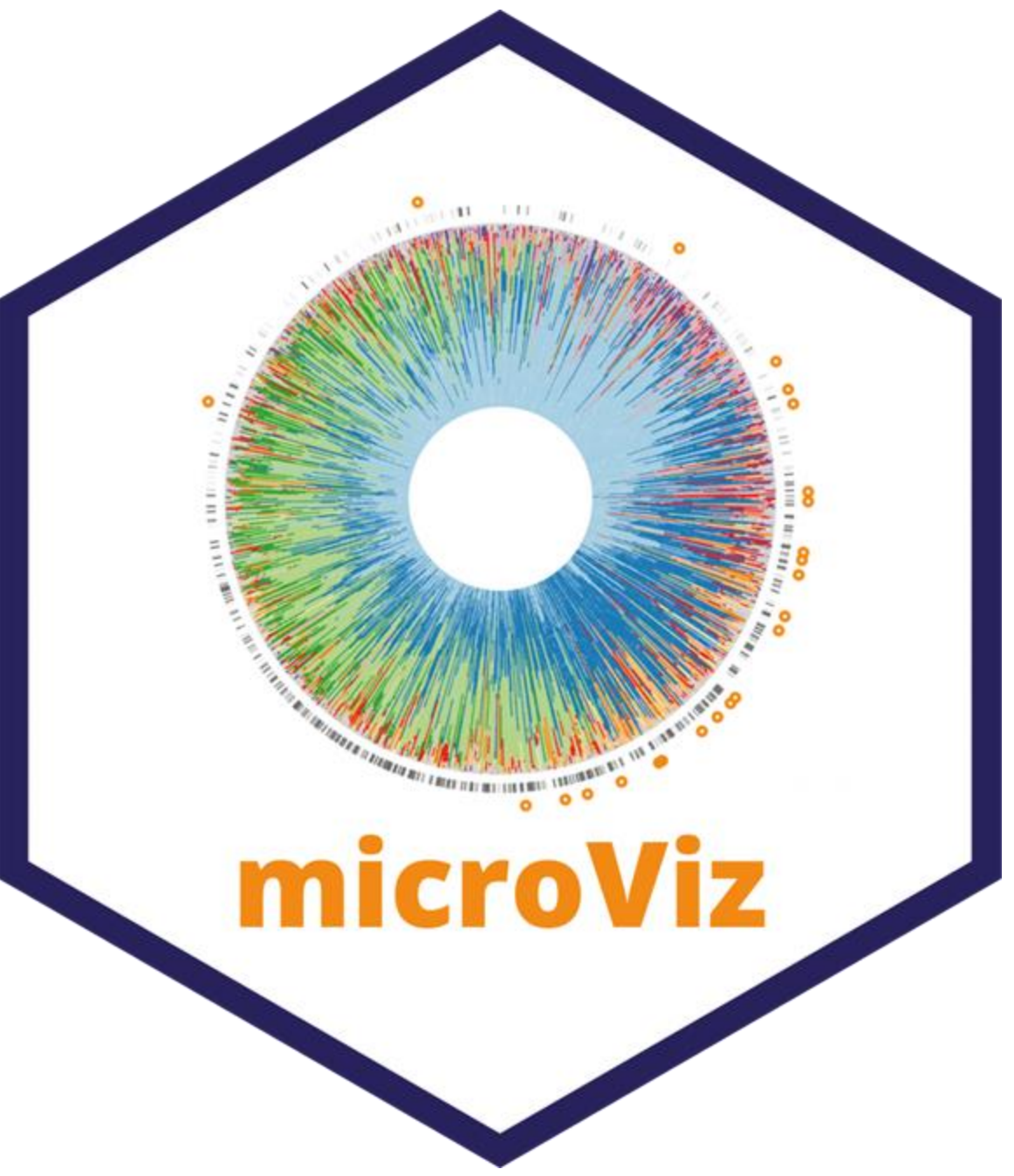


Constipation symptoms

2) Details

- INTRO:** Gastrointestinal symptoms are common during infancy, including infantile colic. Colic can be loosely defined as prolonged and recurrent crying without obvious cause. Recently, several small studies have described associations between gut microbiota and colic. We used a larger cohort to examine the role of the microbiota in infant gastrointestinal health, while also accounting for other biopsychosocial factors.
- METHODS:** Using fecal 16S rRNA gene amplicon sequencing data from 1,012 infants in the KOALA birth cohort, we examined associations between the 1-month gut microbiota and parent-reported functional gastrointestinal symptoms throughout infancy, including colic, constipation, and cramps. These analyses were adjusted for biopsychosocial factors that were associated with symptoms in a broader analysis involving 2,665 participants. In 257 infants, we also explored associations between breastmilk human milk oligosaccharides (HMOs) and gastrointestinal symptoms.
- RESULTS:** Higher relative abundance of *Staphylococcus* at one month was associated with less constipation in the first three months of life. Conversely, *Ruminococcus gnavus* group abundance was associated with more colicky symptoms, particularly between four and seven months. Breastmilk concentrations of the HMOs lacto-N-hexaose (LNH) and lacto-N-neohexaose (LNnH) were associated with less constipation in the first three months.
- CONCLUSIONS:** Our results support the conclusion that gut microbiota are relevant in infantile colic and constipation. However, more work is needed to elucidate the underlying mechanisms and explore their interplay with other relevant biopsychosocial factors such as maternal mental health.

4) Resources



An R package for microbiome data analysis and visualization

3) Contact

 david.barnett@maastrichtuniversity.nl
 www.linkedin.com/in/-david-barnett-

1. Maastricht University Medical Center+, Medical Microbiology, Infectious Diseases and Infection Prevention (MMI), Institute of Nutrition and Translational Research in Metabolism (NUTRIM);
2. Maastricht University Department of Epidemiology, Care and Public Health Research Institute (CAPHRI);
3. Wageningen University & Research, Laboratory of Microbiology;
4. Wageningen University & Research, Department of Food Chemistry;
5. FrieslandCampina Research;
6. Maastricht Centre for Systems Biology (MaCSBio);



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- **Bioinformatics** - data processing and QC
- **Statistical Analyses** - tailored planning and execution
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Gianluca Galazzo, PhD



Lars Maassen



David Barnett, PhD



Prof. John Penders