Early introduction of solid foods: ingestion level matters more than prebiotics supplementation for shaping the gut microbiota

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EARLY INTRODUCTION OF SOLID FOODS: INGESTION LEVEL MATTERS MORE THAN PREBIOTICS SUPPLEMENTATION FOR SHAPING THE GUT MICROBIOTA

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Introduction: In mammals, the shift from an exclusive milk diet to a solid feeding strongly modifies gut communities (1). **Materiel & Methods:** In an attempt to engineer rabbit gut microbial ecological succession, solid food was provided to suckling pups from 3 to 18 days in the form of a soft food without additive, or supplemented with fructo-oligosaccharide or mannan-oligosaccharide (4% in dry matter). Solid food was only provided after 18 days in an additional control group. Cæcal bacterial communities were analyzed by sequencing 16S rRNA genes at 18 and 29 days (*n*=80). **Results:** Discriminant analyses performed on OTU relative abundances (PLS-DA) failed to properly cluster the experimental groups but could discriminate rabbits according to their ingestion level of soft foods. At 18 days, rabbits with high ingestion of soft foods exhibited greatest proportions of *Ruminiclostridium, Tyzzerella* and unknown member of *Lachnospiraceae* family ($P<0.05$). Besides, *Ruminococcus* was already installed in the cæcum of those 29 days old rabbits while it was undetected in other rabbits cæcal ecosystems. **Conclusion:** During early suckling period, the amount of solids ingested seems to matter more than prebiotics supplementation for shaping the gut microbiota. Additional prebiotics inputs should be tested to confirm these preliminary results.

References

1. *Koenig JE, Spor A, Scalfone N, Fricker AD, Stombaugh J, Knight R, Angenent LT and Ley RE 2011. Succession of microbial consortia in the developing infant gut microbiome. Proceedings of the National Academy of Sciences of the United States of America 108 Suppl 1, 4578–4585.*