Faecalibacterium Gut Colonization Is Accelerated by Presence of Older Siblings - DTU Orbit (06/11/2019)

**Faecalibacterium Gut Colonization Is Accelerated by Presence of Older Siblings**

Faecalibacterium prausnitzii is a highly abundant human gut microbe in healthy individuals, but it is present at reduced levels in individuals with gastrointestinal inflammatory diseases. It has therefore been suggested to constitute a marker of a healthy gut and is associated with anti-inflammatory properties. However, factors affecting the colonization of F. prausnitzii in the human gut during early life are very poorly understood. By analysis of 16S rRNA amplicon sequencing data from three separate infant study populations, we determined the colonization dynamics of Faecalibacterium and factors affecting its establishment in the gut. We found that in particular, the presence of older siblings was consistently associated with Faecalibacterium gut colonization during late infancy and conclude that acquisition of Faecalibacterium is very likely to be accelerated through transfer between siblings. IMPORTANCEFaecalibacterium prausnitzii has been suggested to constitute a key marker of a healthy gut, yet the factors shaping the colonization of this highly oxygen-sensitive, non-spore-forming species in the intestinal environment remain poorly understood. Here, we provide evidence from three separate infant study populations that F. prausnitzii colonization in the gut happens during late infancy and is affected by the number of older siblings in the family. We conclude that Faecalibacterium acquisition is highly likely to be accelerated by contact between siblings. Bearing in mind the immunoregulatory properties of F. prausnitzii and the well-established protective effects against allergic disorders related to the presence of older siblings, early colonization of this species may have profound consequences for child health.

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