

Fermentation of indigestible carbohydrates by the gut microbiota

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Propositions

1. There is a remarkable functional overlap in microbiotas from different individuals. Preparing a pooled microbiota reflects such overlap. However, when the characteristics of the donors used to prepare the pool is as similar as possible, the overlapping of metabolic functions from the microbiota does not mask the functional differences of the microbiota from lean and obese subjects (this thesis).
2. Fermentation of fibers by lean or obese microbiota, and consequently their health effects, are substrate dependent (this thesis).
3. The identification of dietary compounds for the re-establishment of the disturbed balance of the microbiota from obese subjects suggests a potential alternative to treat obesity (this thesis).
4. The development of physiological relevant *in vitro* models for studying the role of the human gut microbiota in obesity could accelerate the development of strategies to tackle the elevated incidence of cases of obesity in the worldwide population as well as the potential reduction of animal testing (this thesis).
5. The human gut witnesses an evolutionary conflict between host and microbes in which the microbiota exerts a selective pressure on the host in order to increase their fitness at the expense of the host's fitness. *Alcock et al. BioEssays. 2014*
6. Fields related with the study of microbiota, microbiota manipulation, metabolic modification and weight change are of high importance. Yet, besides standardization, they also require different methodological approaches in order to potentially use findings in public health. *Raoult, Microb Pathog, 2016.*
7. Knowledge is the death of research (Walther Hermann Nernst).
8. We are not individuals, we are ecosystems (Sven Petterson, Keystone symposium, 2016).

Propositions belonging to doctoral thesis:

**“Fermentation of indigestible carbohydrates by the gut microbiota
one small step for a microbe, a giant leap for mankind?”**

Marisol Aguirre
4th of July 2016