

Special Issue on Role of Archaeal Component of Gut Microbes in Maintaining Human Health

CALL FOR PAPERS

Human gut harbors trillions of microbes and the balance between the populations of these microbes affects the health of an individual. Short chain fatty acids (SCFA) are produced as primary end-products of fermentation of nondigestible carbohydrates that become available to the gut microbiota. During this fermentative process, the excess of produced hydrogen gas should be removed, so here the archaeal component of gut microbial population comes into play.

Metabolic activity of methanogens in the human gut depends only on a limited number of substrates which are generated by a range of hydrolytic and fermentative bacteria there. Till now, only two classes of methanogens were found to reside in human gut, that is, hydrogenotrophic and methylotrophic. It is quite evident that the hydrogen accumulation in the gut shifts the balance towards propionate and lactate production. So methanogens will act as a hydrogen sink and shift the balance of short chain fatty acid production especially butyrate production. Butyrate is known to have several useful properties like anti-inflammatory and anticarcinogenic which ultimately promotes health. There is also a need to emphasize the study of archaea animal relationships in different animal habitats and their relationship with different diseased conditions.

Till now, most of the research about methanogens in human gut associates with different disease conditions and mostly negative impacts of methanogens have been shown but due to their ability to utilize hydrogen and convert that into methane really provide a hint for their beneficial role, which needs further elucidation. Similarly members of the order Methanomassilicoccales have unique ability to utilize trimethylamine which further acts as a proarthrogenic agent and leads to cardiovascular disease. Keeping these beneficial roles in mind we propose this special issue to consider beneficial impact of methanogens on human health. Further there is also scope in understanding the relationship between diet intake and distribution of archaeal populations. The strong scientific endeavours are seriously required to unravel the true archaeal diversity and its comparison with bacterial populations to decipher this missing link in our microbiome studies.

This special issue draws attention to the role of archaea or methanogens in human gut towards shifting the SCFAs profile and thus promoting the health of an individual as well as their role in promoting healthy or unhealthy state of an individual. We invite researchers specialized in human gut microbial ecology, archaeal diversity, and microbiome studies, to submit high-quality original research articles as well as reviews that explore any aspects of the biology of role of archaea in human health.

Potential topics include but are not limited to the following:

- ▶ Studies dealing with quantification of methanogens in gut
- ▶ Influence of methanogens on short chain fatty acid production in the gut
- ▶ Metabolism of methanogens and its effect on human health
- ▶ Methanogens and their correlation with other microbes in the gut
- ▶ Correlations of methanogen populations with several diseased conditions
- ▶ Studies on the composition of archaeal communities, using next generation sequencing approaches

Authors can submit their manuscripts through the Manuscript Tracking System at <https://mts.hindawi.com/submit/journals/archaea/racg/>.

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