



## Microbiota: Internal Homeostasis Maintained in Gut Mucosa

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### Description

Microbiota consists of a list of microbes living in a particular habitat. Identifying, naming and classifying microorganisms that activity is called taxonomy are important foundations on which scientists base their observations. Microbes are named at different taxonomical levels.

The first step in human microbiome is characterization of microbes in human population of course it is tough but this is the only way. Some people assume that due to acidic environment in stomach is because of microbes but evidence demonstrates that the human stomach houses a microbial ecosystem irrespective of the sites. Firmicutes, Proteobacteria, bacteroidetes and fusobacteria dominates the stomach microbial ecosystem. All these organisms will live in the vestigial part called appendix in humans which is a narrow sac hanging off the colon which serves as a storage place for lymph cells – identifies that it is protective niche for beneficial gut bacterial species. The appendix of a healthy individual harbors a microbiota distinct from feces.

The gut microbiota and mucosal adaptive immune system possess unique specializations that have enabled their coadaptation. There has been an explosion of interest in defining the membership and function of the gut microbiota in large part driven by the accessibility of sequencing technology and new computational pipelines. As a result, there have been a number of studies identifying provocative associations between patterns in and members of the gut microbiota and human diseases states. There has been a growing appreciation for how diet and metabolism impact the function of both systemic and mucosal immune cell populations. Unraveling how nutrition and microbiota contribute to immune system development and disease will require great effort and leveraging such knowledge to design diagnostics and therapeutics remains a formidable challenge.

Some cases gut microbial antigens may stimulate and activate CD4 T cells in the gut. The difficulties include the polyclonal and mitogenic stimulants that accompany bacterial extracts and sonicates. The complex microbiota is sequentially developed dynamically maintained throughout life. At front the line of interactions are the mucosal surfaces which are in direct contact with varieties of members of microbiota. In gastrointestinal tract the cross talk between mucosa and microbiota epithelial cells is physiologically significant in maintaining the homeostasis of the microecosystem. The complexity of microbiota the majority of which are obligate anaerobes. The members of microbiota may be responsible for certain effects on the host cells such as underlying diseases sometimes. Intestinal microbiota are required for the production of fucosylated glyco conjugation. Those conjugates are associated with accumulation of alpha genes. Here the interesting point is the production of fucosylated glyco conjugates depended on density of the bacterial population and the ability of the colonizer to use fucose as carbon source as isogenic strains of some bacteria had disrupted this mechanism. Helpful microbiota that we can use in our daily life includes probiotics.

The microbiota also influences neuronal activation means during digestion gut lining cells gather information about activities in the digestive tract and convey messages to other cells in the gut wall. The messages travel to nearby sensory neurons especially the vagus nerve such as gastric, heart burn, infection in the stomach too in some cases. and continue upward to the brain which is activated by different signals in the middle way from gut to brain. Through this brain receives information about digestive activities because of this we feel symptoms like digestion, indigestion, belchings, fartings and all. My personal experience is removal appendix leads to digestion problems