

Special Issue

The Interplay of Microbiome and Immune Response in Health and Diseases

Message from the Guest Editors

Increasing evidence suggests that microbiota plays a key role in human physiology, spanning from intestinal to brain activities and directly influencing several molecular pathways. Recent findings indicate how dysbiosis, a disproportion in the composition and organization of microbial populations, could severely impact in the development of different medical conditions (from metabolic to mood disorders), providing new insight for the comprehension of diverse diseases, such as IBD, obesity, asthma, autism spectrum disorders, stroke, diabetes, and cancer. Given that microbial cells in the gut outnumber cells of the host, microbiota influences human physiology functionally and structurally. Microbial metabolites bridge various, even distant, areas of the organism, by way of the immune and hormone system. For instance, it is now clear that the mutual interaction between the gastrointestinal tract and the brain, the so called gut-brain axis, often involves gut microbiota, indicating that the crosstalk between the organism and its microbial residents represents a fundamental aspect of both establishment and maintenance of healthy conditions.

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