

Special Issue

The Microbiota-Gut-Brain Axis in Relation to Non-communicable Diseases

Message from the Guest Editors

The discovery of the gut-brain axis as the crucial connection between gut microbiota and the nervous system, and the growing body of evidence on the connections between gut microbiota and nervous system physiology and pathology is increasing awareness around bidirectional communication along the microbiota-gut-brain axis (MGBA) mediated by biologically active molecules and metabolites. The appearance of intestinal dysbiosis leads to changes in the bidirectional relationship of the MGBA. It can also impact the brain, as well as the aging and the deterioration of the nervous system, driving towards pathological conditions such as Alzheimer's disease and stroke. Comparatively, the MGBA can be influenced by nutrients and bioactive molecules, inducing the secretion of specific hormones, which can then lead to changes in the energy metabolism and expenditure. The design of drugs, functional foods, and ingredients based on bioactive molecules exploiting the involved mechanisms may offer interesting alternatives for the treatment of non-communicable and high-prevalence diseases.

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