

Topical Collection

Gut Microbiota-Derived Metabolites and Host Gut-Brain Communication

Message from the Collection Editors

The complex bidirectional communication system existing between the gastrointestinal tract and the brain, termed the “microbiota-gut-brain axis”. The large community of microorganisms embedding the gut and the host organism are now considered as composite and co-evolved organisms. Among microbial metabolites, bile acids, short-chain fatty acids and tryptophan are detectable in different biological compartments, including feces and cerebrospinal fluid and exert important and diverse effects on host physiology, influencing the immune response, the integrity of the epithelial barrier to pathogen invasion, endocrine and neuronal functions giving rise to a microbiota-mediated bottom-up control of the central nervous system. Research in this area opens the exciting possibility to target microbial metabolites to clarify the role of the bacterial microbial flora in the pathogenesis of both gastrointestinal and brain disorders, as well as to discover new therapeutic strategies based on the administration of these “postbiotic” agents.

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