Gut–microbiota–brain axis

The symbiotic intestinal microbiome modulates the host's health via several regulatory routes, so-called axes, all of which constitute immune-related pathways. One of such is the gut–microbiota–brain axis (GMBA). The GMBA is the physical and functional connection between the central nervous system (CNS) and the gastrointestinal tract. Structurally and chemically, the GMBA includes the vagus nerve, spinal dorsal root ganglia, the autonomic nervous system of the gut, and numerous biochemical and immune pathways. Bidirectional signaling in the axis takes place through hormones, cytokines, and bacterial metabolites secreted in the intestinal lumen. The enteric nervous system regulates, among other things, intestinal peristalsis and ensures adequate digestion and fermentation of food. This system also plays an important role in regulating hunger and satiety as well as the perception of pain in the abdominal cavity. On the other hand, it has been proven that neuroactive and immunocompetent metabolites of the microbiota are essential for shaping the structure and function of key areas of the brain, especially the limbic system, involved in emotions [1)]

1)

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