



Microbiome and Human Health: From Dysbiosis to Therapeutic Interventions

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Abstract

Human body is a complex system housing multiple biomes such as virome, microbiome, and eukaryome which governs human health. Unicellular archaea, bacteria, virus, and multicellular eukaryotes together regulate the physiological functions along with the internal homeostatic mechanisms. With the next-generation sequencing technology, the composition of the “internal biome” and its role in health and disease has become much clearer. Joshua Lederberg coined the term “microbiome” in 2001, which defines the full complement of microbes (bacteria, viruses, fungi, and protozoa), their genes, and genomes in or on the human body. Human Microbiome Project was launched in 2007 through 2016 by the National Institutes of Health to characterize the genomic makeup of all microbes inhabiting the human body and analyze its role in health and disease. Bacteria outnumber the human cells tenfold and make up about 1–3% of body mass. The composition of the microbiome changes during the lifetime, impacting human physiology in healthy and diseased state by modulating the metabolic and immune functions. The current chapter provides an introduction to the “human

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