

Literature

Metabiotics – Novel Prophylactic and Protective Technology of Metabolic Diseases Associated With Human Gut Microbiota Perturbation

Shenderov Boris*

Professor, Centre for Strategic Planning, Moscow, Russian Ministry of Health, Russia

***Corresponding author:** Shenderov Boris, Professor, Centre for Strategic Planning, Moscow, Russian Ministry of Health, Russia

Received: August 26, 2018; **Accepted:** September 07, 2018; **Published:** September 14, 2018

Literature

The human symbiotic microbiota contributes to more 40% of low-molecular-weight (LMW) substances in human blood. Many of them have chemical and functional similarity to dietary nutrients and/or endogenous compounds modifying host homeostasis in specific environmental conditions. Different symbiotic strains form various set of bio-active LMW molecules. Various factors and agents cause the imbalance of host/microbial dialogue and can become the key factor predisposing to onset and progression of many human metabolic diseases. Currently, the most common technique for conservation and restoration of human microbial community are various live probiotic microorganisms. Unfortunately, live-based probiotics often produce short or uncertain effects; besides they may have non-desirable side effects in the application as well. For these reasons, the search for microbial LMW modifiers of host/microbe axis is emerging, especially with regard to personal medicine. These compounds have been named metabiotics (metabolic probiotics, postbiotics, biological drugs, pharmabiotics, etc). Metabiotics (M) are structural components of already known probiotic microorganisms and/or their metabolites and/or signaling molecules that can restoring

shortages and disruption of the balance of mitochondrial, microbial or cellular LMW substances with increased health effectiveness [1]. They have some advantages (certain chemical structure, well dosed, safety, long shelf-life) in optimizing host gene expression, epigenetic, energetic, metabolic, immune, informational, regulatory, transport, neuro-hormonal and/or behavioral responses associated with the symbiotic microbiota. M can act as independent means or as enriching additives in food supplements and/or functional foods [2]. Simple microbial molecules can also be used in constructing hybrid M containing multiple metabolites and structural components separately or in combination with herbal compounds. Special attention should be paid to the design of M with specific targets in the host. Further investigations will clarify what natural microbial or artificial (semi-synthetic, synthetic) pan- or selective M may affect host functions and biochemical processes [3]. Advances in the omic fields, especially coupled with current and novel germ-free and gnotobiotic technologies, open a new era in characterizing the role of M in the host genomic and epigenomic stability, metabolomics and phenotypic relations and have far-reaching implications relevant to health and metabolic diseases.

References

1. Shenderov BA. Probiotic (symbiotic) bacterial languages. *Anaerobe*. 2011; 17: 490-495.
2. Shenderov BA. Metabiotics: novel idea or natural development of probiotic conception. *Microbial Ecology in Health & Disease*. 2013; 24: 20399.
3. Shenderov BA, Tkachenko EI, Lazebnik LB, Ardatskaya MD, Sinitsa AV, Zakharchenko MM. Metabiotics - novel technology of protective and treatment of diseases associated with micro ecological imbalance in human being. *Experimental and Clinical Gastroenterology*. 2018; 151: 83-92.