Effects of therapeutic probiotics on modulation of microRNAs

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Abstract

The gastrointestinal tract is an active ecosystem in the human body containing beneficial bacteria – probiotics – that are essential for maintaining metabolism and immune cell maturation. Probiotics have demonstrated benefits in many infectious and non-infectious diseases, including lactose intolerance, GI and urogenital infections, cancer, cystic fibrosis, allergies, atopic dermatitis, and inflammatory bowel disease. A recent review focuses on one aspect of the effects of probiotics. MicroRNAs (miRNAs) are short non-coding RNAs that regulate gene expression post-transcription. miRNAs are biochemical biomarkers that play an important role in cell signaling pathways in health and disease. Probiotics are capable of inducing the expression of miRNAs in a variety of disease conditions, improving immune system modulation and protecting intestinal barrier function. Probiotic administration, therefore, could play a crucial role in the prevention and treatment of pathological conditions. Future studies should focus further on how miRNAs are affected by gut microbes. allowing for the development of guidelines for probiotic supplementation for human health.