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Fermented milk and microRNA: An epigenetic modifier

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Which the increasing development of new functional dairy foods, there was a need to understand which mechanisms of action these foods present to confer health benefits. In addition to the nutritional effect of the food matrix and the probiotic effect conferred by the fermented bacteria, the effect of diet-induced host epigenetic modulation could be evidenced. Within these epigenetic effects, interference by microRNA's inter-kingdom has particular attention. Epigenetics corresponds to a set of mechanisms that promote the regulation of gene expression by chemical modifications, such as methylation of DNA and chromatin, modification of histones and non-coding RNAs. These results in phenotypic change without alteration of the base sequence of the genomic DNA. Immune response regulators similar to human milk were identified in bovine and buffalo milk. However, food processing and probiotic interference in matrix composition may degrade and modify the presence and quantity of these miRNAs in the final product. Consequently, the modulation exerted by the consumption of the fermented milk. Among the biological processes modulated by miRNAs could be identified the differentiation of T cells, B cells, dendritic cells, and macrophages; Prevention of bone deterioration; Release of inflammatory mediators; Although this inter-kingdom regulation remains unclear. Even then, the benefits of probiotic fermented foods are greater than the sum of their individual microbial, nutritional or bioactive components.

Biography

Cristina Bogsan is Pharmaceutical-biochemistry, formed by the Faculty of Pharmacy and Biochemistry of the Paulista University (1999). She holds a master's degree in Microbiology and Immunology from the Federal University of São Paulo (2002) and a Ph.D. in Sciences from the University of São Paulo (2012). Professor in the area of Food Technology in the Department of Biochemical Technology - Pharmaceutical, Faculty of Pharmaceutical Sciences, University of São Paulo since 2015, has experience in Microbiology and Immunology and Food Science and Technology, working mainly in the following subjects: B-1 cell, inflammation, fermented milk, matrix-mucosal-probiotic interaction, mucosal immunity, and probiotics. Development and functional characterization of probiotic products: in vitro and in vivo, development of novel functional foods.

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