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Metabolomics in the nutrition of infant

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Metabolomics is one of the most recent omics sciences that refers to comprehensive measurement of the pool of small molecules called metabolome present in a biological sample. It is in the downstream end of the post-genomic technologies and it allows investigating the metabolic status of an organism in relation to the genome interaction with environmental factors such as drug treatment, diet, lifestyle and environmental agents. Being able to provide a dynamic picture of the functionality (i.e., of the phenotype) of a biological system, metabolomics is having a significant impact on many fields of research. One of these is nutrition science for which the word nutrimentalomics or nutritional metabolomics has been coined. Here metabolomics is basically used to study relationships between food and health with particular focus on the identification of new dietary biomarkers, the study of diet-related diseases and the application to intervention studies to understand the potential role of the diet in health promotion (personalized medicine). Nutrimentalomics appears to be a promising technique also in the pediatric and neonatal field where research is focusing more and more on preventing the development of long-term diseases as well as supporting the repair processes important in the therapy of already fully developed diseases. Most children who are hospitalized or affected by chronic diseases could benefit from specific and careful attention to nutrition. Indeed, there is a growing recognition that the nutritional status of infants has profound implications not only for their health and growth but also for the development of the health and future of all individuals. The purpose of this presentation is to provide an overview of the applications of metabolomics technology in the context of neonatology and pediatrics with emphasis on the potential applications of this approach in the area of nutrition.

Biography

Flaminia Cesare Marincola is currently associate professor in the Department of Chemical and Geological Sciences at the University of Cagliari, Italy. She has her expertise in using Nuclear Magnetic Resonance (NMR) spectroscopy for the characterization of biological systems. In the last 10 years, her research has mainly been carried out in the metabolomics field, performing studies of interests in both the area of neonatology and food science. She is the author of 60 publications in international journals and 6 book chapters.

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