transcriptome (RNAseq) (collection at 0, 2, 4, 6 h). Processed data was filtered to select metabolites and genes that showed a significant postprandial response for at least one test meal. The similiarity network fusion (SNF) method was applied to the two datasets to create a single network of nodes representing the postprandial response for each individual and each meal type. Three clusters were identified in the network, with the greatest distance between nodes representing the soy meal and those representing the milk meal. The genes and metabolites that showed the greatest contribution to the network are further explored with functional analysis tools. The use of network tools such as the SNF on data collected postprandially may help to confirm the biological relevance of putative biomarkers of food intake.

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The experience of PATHWAY-27 multi-centre randomized controlled trial: an attempt to develop bioactive-enriched foods improving metabolic profile

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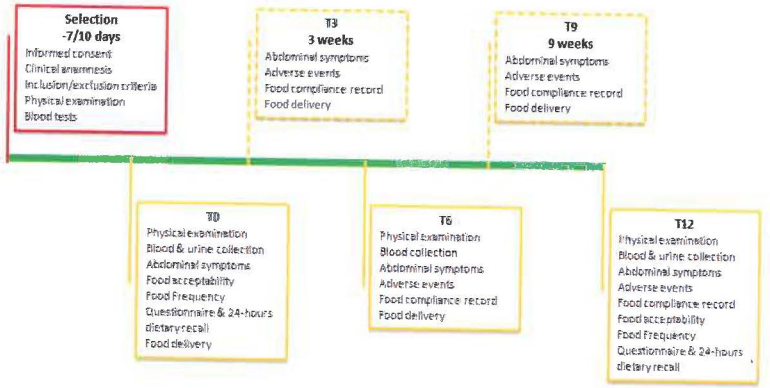
Many natural components of foods have biological activity in addition to their nutritional value. These compounds, known as bioactives, promote human health and wellbeing and contribute to reduce the risk of diet related-disease (DRD), but they are naturally present at low concentrations [1]. To overcome this limit, in the last decades an increasing attention has been focused on the development of bioactive-enriched foods (BEF) which contain bioactives at

optimal doses [2]. The PATHWAY-27 human multi-centre randomized controlled intervention study has been carried out to evaluate the effectiveness of BEF (three food matrices: dairy, bakery and egg-based), containing docosahexaenoic acid (DHA), anthocyanins (AC) and beta-glucan (BG) in combination, on improving risk factors of the Metabolic Syndrome (MetS), chosen as a paradigm of DRD.

Participants have been randomly assigned to one of four groups to receive for 12 weeks either: 1) Dairy BEF + egg placebo + bakery placebo; 2) Egg BEF + dairy placebo + bakery placebo; 3) Bakery BEF + dairy placebo + egg placebo; 4) Dairy, egg and bakery placebo. Here we present an example of a multi-centre, randomized, double-blind, placebo-controlled trial, analyzing the effects of BEF on metabolic profile in subjects at risk of/affected by MetS (two to four diagnostic criteria of MetS, at least one of them being high triglycerides or low HDL-cholesterol).



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Nutriepigenomics and epigenetic inheritance: insights on food pesticides and neurodegeneration

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