anti-inflammatory, antioxidant and cell cycle influencing properties. The isolated treatment of turmeric and combined with the various nutraceuticals influence the cell cycle regulators (cyclin D1, β-catenin, p21, p53) and apoptosis activators or inhibitors (BAX, pro-caspase3, Bcl-2). The bioavailability of turmeric increases in association with piperine and vitamin E on cell proliferation involving different markers, such as inhibition of: beta-catenin, cyclinD1 and p53. Therefore, a possible candidate for the use of turmeric and its bio-modulators as adjuvant therapy to that currently used in oncology is hypothesised.

A12
POTENTIAL FUNCTIONALITY OF PROTEIN HYDROLYSATES FOR GLYCAEMIA CONTROL

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Introduction: Dietary proteins may contain some bioactive peptides (BAPs) encrypted within their primary structures. BAPs may be delivered in the food during processing and/or in the gastro-intestinal tract during food digestion and can exert some biological effects beyond nutrition such as antimicrobial, anti-thrombotic, antihypertensive, opioid and immunomodulatory effects. BAPs modulating blood glucose response are promising ingredients for functional foods development. They work through inhibition of the enzyme dipeptidyl peptidase IV (DPP-IV) that modulate glucose homeostasis by cleaving GLP-1 and GIP (Lacroix et al.,2016). The aim of this study was to evaluate the potential activity of casein (CH) and soy (SH) protein hydrolysates as well as of CH and SH enriched biscuits (CHB and SHB) on post-prandial glucose response in vitro.
Methods: Control biscuits (ConB) without protein hydrolysates and two types of CH and SH-enriched biscuits providing 4.5% (CHB1 and SHB1) and 13% (CHB2 and SHB2) of each hydrolysate were developed. CH, SH, CHB1, CHB2, SHB1 and SHB2 were subjected to in vitro simulated gastrointestinal digestion and the ability of the digested samples to inhibit DPP-IV activity was assessed. In vitro glycaemic index (GI) of the biscuits was also measured.
Results: Data showed that CH and SH behaved as mixed and competitive inhibitor of DPP-IV with an IC50 of 2.59 mg/ml and 3.56 mg/ml ($p < 0.05$), respectively, when tested alone. No significant difference between digested biscuits for the inhibition of DPP-IV activity was observed. The GI of the biscuits was in the order ConB>CHB1>SHB1>CHB2>SHB2.
Conclusions: This study suggested that CH and SH maybe functional ingredients for glycaemia control through inhibition of DPP-IV activity. A food matrix effect could hide the bioactivity of CH and SH at the doses used in the biscuits during in vitro enzymatic digestion.

A13
PLASMA MICRORNA EXPRESSION PROFILES ARE ASSOCIATED WITH EARLY CHILDHOOD OBESITY: RESULTS OF THE I.FAMILY STUDY

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Introduction: Nearly ten years ago, the WHO reported the increasing prevalence of obesity worldwide as a challenge for public health due the associated adverse consequences. Omic studies demonstrated that microRNA (miRNA) changes in tissues correlate with several diseases, including obesity. Other studies suggested a remarkable stability of miRNA also in blood, emphasing their potential as theranostic agents. This study investigated the profiles of circulating miRNAs in plasma samples of normal weight ($n = 159$) and overweight/obese ($n = 149$) children participating to the I.Family study, an EC funded study finalized to investigate the etiology of overweight, obesity and related disorders in children of eight European countries (www.ifamilystudy.eu). Differences in miRNA expression patterns with respect to anthropometric and biochemical variables were explored.
Results: A high degree of variability in levels of circulating miRNAs was recognised among children from different countries. Several miRNAs differentially expressed in overweight/low grade obesity children were characterized (miR-551a and miR-501-5p up-regulated; miR-10b-5p, miR-191-3p, miR-215-5p and miR-874-3p down-regulated). ROC curves were constructed for confirmed miRNAs. Single miRNAs exhibited low AUC values with the highest values for miR-874-3p and miR-501-5p which in combination provided an interesting value (AUC = 0.755). Pearson's analysis confirmed that miR-10b-5p, miR-215-5p, miR-501-5p, miR-551a, and miR-874-3p correlated with BMI z-score. Molecular interactions of obesity-associated miRNAs were also predicted. Computational analysis indicated that miRNAs act as key regulators of metabolism, playing pivotal roles in early stages of obesity by affecting multiple candidate genes.
Conclusions: Although causal pathways cannot be definitely inferred it is conceivable that circulating miRNAs may be new biomarkers of early childhood obesity.

A14
MEDITERRANEAN, BUT NOT LACTO-OVO-VEGETARIAN, DIET POSITIVELY INFLUENCE CIRCULATING PROGENITOR CELLS FOR CARDIOVASCULAR PREVENTION: THE CARDIVEG STUDY

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Introduction: Recent studies have suggested that diet may modulate the number of progenitor cells. Our aim was to evaluate the possible association between dietary habits and progenitor cells using data obtained from the CARDIVEG study, a randomized crossover trial that compared the effects of a lacto-ovo-vegetarian (VD) and a Mediterranean diet (MD).
Methods: Eighty clinically healthy subjects with a low-to-moderate cardiovascular risk profile (61 F; 19 M; mean age: 50.7 years) were randomly assigned to isocaloric VD and MD diets lasting three months each, and then crossed. Endothelial progenitor cells (EPCs), circulating progenitor cells (CPCs), and circulating endothelial cells (CECs), were obtained from each participant at the beginning and at the end of each intervention phase.
Results: The 2 diets showed no effects on EPCs and CECs but opposite effects on CPCs. In fact, VD determined significant ($p < 0.05$) and negative changes on CPCs, with an average geometric variation of -130 cells/106 events for CD34+, -80 cells/106 events for CD133+, and -84 cells/106 events for CD34+/CD133+ while MD determined significant ($p < 0.05$) and positive changes for CD34+ levels, with a geometric mean increase of +54 cells/106 events. No significant correlations were observed between changes in progenitor cells and changes in inflammatory parameters during the VD phase. On the other hand, during the MD phase negative correlations between changes of CD34+ and interleukin-6 ($R = -0.324$; $p = 0.004$) as well as interleukin-8 ($R = -0.228$; $p = 0.04$) and monocyte chemotactic protein-1 (MCP-1) ($R = -0.277$; $p = 0.01$) were observed. These correlations remained significant after adjustment for confounding factors only for CD34+ and interleukin-6 ($ß = -0.282$; $p = 0.018$) and MCP-1 ($ß = -0.254$; $p = 0.031$).
Conclusions: MD, but not VD, reported a significant and positive effect on CPCs in a group of subjects at low-to-moderate cardiovascular risk, probably acting through the modulation of inflammatory parameters.