

P-244**Effects of bioactive oligopeptides to human cells – a lipid- and metabolomics approach****PRESENTING AUTHOR:** *Tobias Demetrowitsch, Christian-Albrechts-University Kiel, Division of Food Technology, Germany***CO-AUTHORS:** *Julia Jensen-Kroll, Martin Klempt, Ingrid Clawin-Rädecker, Stephan Seifert, Silke Szymczak3, Karin Schwarz*

Effects of bioactive oligopeptides to human cells – a lipid- and metabolomics approach Introduction: Within the milk protein sequence, several bioactive peptides are encrypted which showed e.g. anti-inflammatory effects. For activation, an enzymatic digestion and purification is necessary. The anti-inflammatory bioactivity has been already published. However, the fundamental effects to the lipid- and metabolom has not been reported, yet. Therefore, this study aims to observe the changes of the lipid and metabolites profile in cells. Material and Methods: The peptides were used in an in-trans-approach. The cells were cultivated in calf serum and then in human serum. Within the serum cultivation, the treatments were conducted for 48 h. After preparation by the SIMPLEX approach, the cell extracts were analyzed by a 7T solarixXR FT-ICR-MS (Bruker, Germany). The data validation was conducted by the QC protocol (Demetrowitsch et al., 2015). The data evaluations were conducted by non-targeted and targeted methods. For the non-targeted approach, a PCA and a classification algorithm were used to identify specify biomarkers. The lipidomics approach was conducted with the LipidXplorer. Results: The treatments vs. control showed tight clusters within the PCA model. The bucket statistic showed changed metabolite patterns for the high anti-inflammatory treatment. Changed concentration were observed for e.g. dityrosine and 6-chlorocatechine. The lipidomics approach provides e.g. highly significant changes for some phospholipids, like diacylglycerol (31:7) and phosphatidylinositol (44:3). These findings are in accordance with earlier studies and enable us to proceed with this cellular model system for mechanism clarification.