Abstract: **P505**

**An untargeted metabolomics approach reveals unusual pathways involved in short term low-dose acetylsalicylic acid treatment**

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Introduction. Acetylsalicylic acid (ASA) is one of the most commonly antiplatelet drug used for the prevention of cardiovascular events. Although its clinical efficacy has been well documented, a substantial variability in drug response exists and the mechanisms at the basis of this variability are still poorly understood. Purpose. An untargeted metabolomics approach could reveal novel information about biochemical pathways modified by ASA treatment and elucidate the determinants of drug responsiveness and pharmacological properties.

Methods. In this study we defined the urinary metabolomic profile of healthy subjects (n=7) before and 7 days after 100 mg/die ASA treatment, through a liquid chromatography – time of flight mass spectrometry platform, in positive and negative ionization mode.

Results. Through this untargeted approach, we detected 2007 metabolites: among them 64 significantly differed (p<0.05) after ASA assumption. Pathway analysis, performed on identified metabolites, reveals low levels of those involved in histidine, alanine, aspartate and glutamate and purine metabolisms, after ASA treatment. In addition, we observed the decrease of several short- and medium-chain acylcarnitines, which suggests an increase in fatty acid β-oxidation process.

Conclusion. The data here reported, revealing relevant pathways altered by ASA, may suggest non-canonical use of ASA in clinical situations characterized by energy depletion.