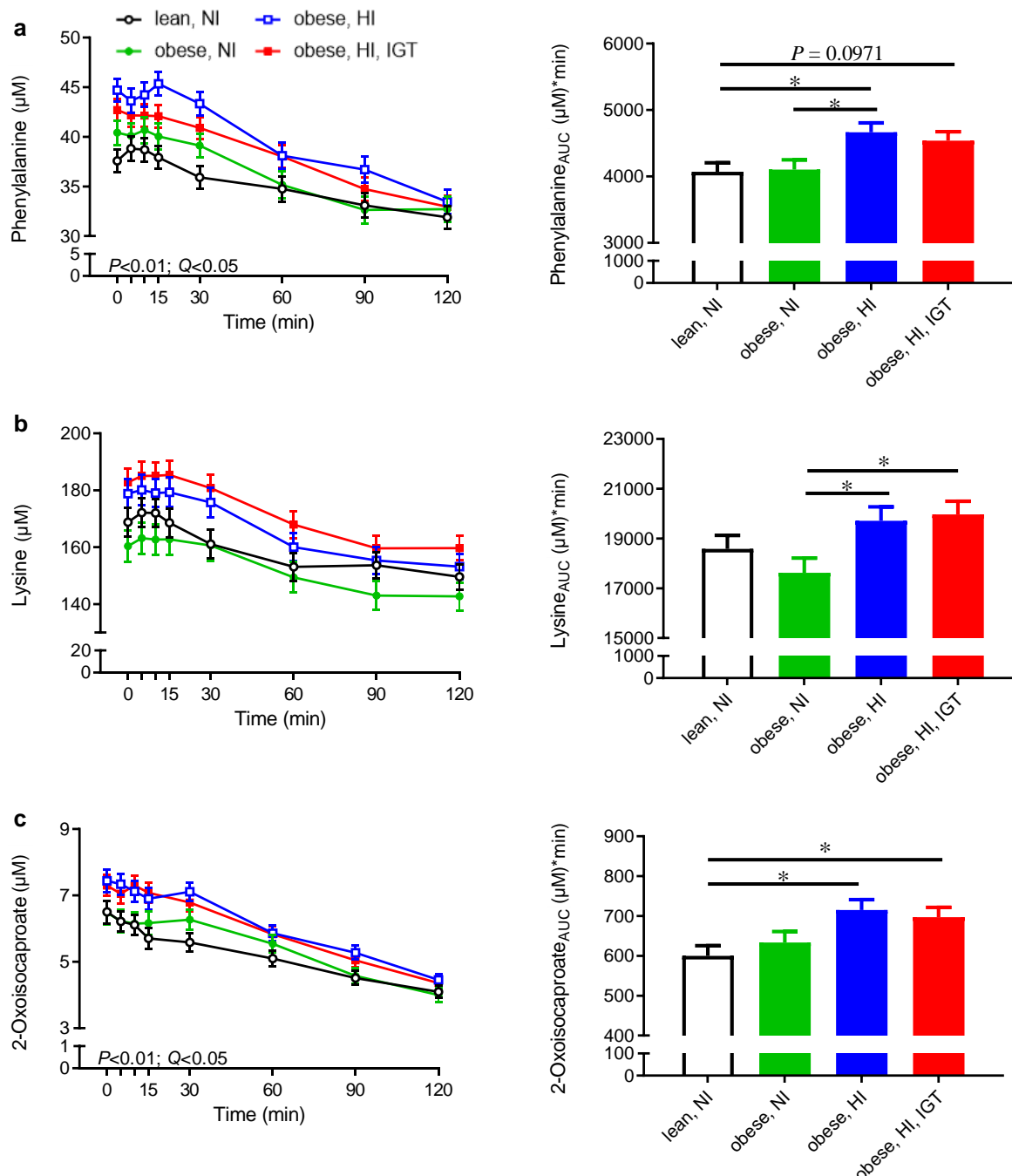


Metabolomics analysis reveals altered metabolites in lean compared with obese adolescents and additional metabolic shifts associated with hyperinsulinaemia and insulin resistance in obese adolescents: a cross-sectional study

Elisabeth Müllner, Hanna E. Röhnisch, Claudia von Brömssen, Ali A. Moazzami*

*Corresponding author: Ali.Moazzami@slu.se; Department of Molecular Sciences, Swedish University of Agricultural Sciences, Uppsala, Sweden



Online Resource 6: Plasma levels during an OGTT (left panel) and area under the curve (AUC; right panel) of (a) phenylalanine, (b) lysine and (c) 2-oxoisocaproate in lean adolescents with normal insulin (NI; black, $n=21$), adolescents with obesity and NI during OGTT (green, $n=18$), adolescents with obesity and high insulin (HI; blue, $n=20$), and adolescents with obesity and HI in combination with impaired glucose tolerance (IGT; red, $n=23$). P -values for group effect ($n=4$, mixed model) and corresponding Benjamini-Hochberg-adjusted P -values (Q -values) are presented. All metabolites also showed a significant insulin response effect (NI versus HI, $P < 0.05$).