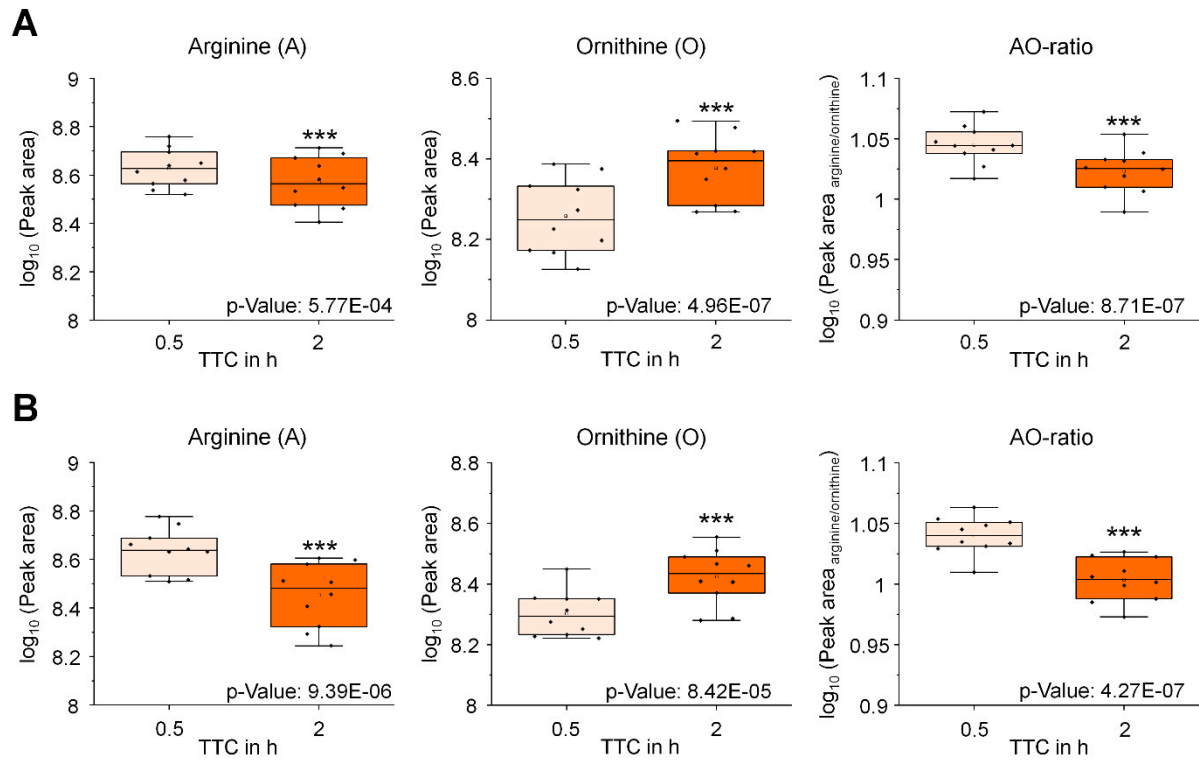


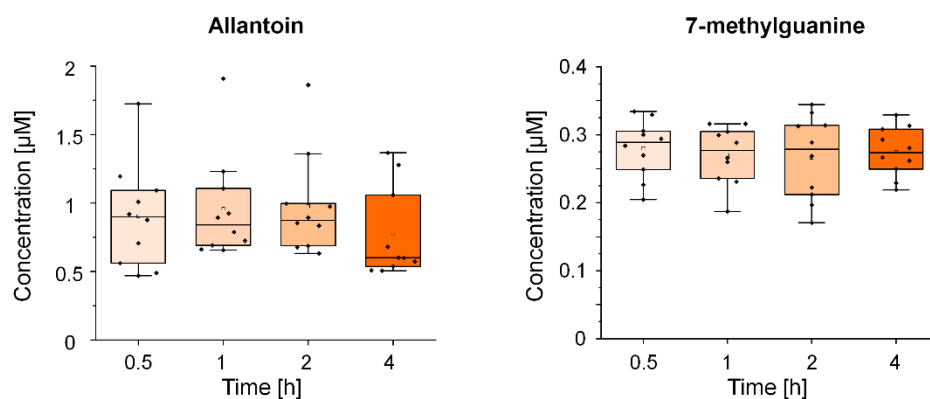
**Figure S1: Purine derivatives and their ratios as potential target QIs in human serum**

Boxplots visualize the variation of the  $\log_{10}$ -transformed peak area of the purine metabolites and their ratios in human serum of healthy volunteers after prolonged incubation 0.5 and 2 h at room temperature (*discovery sample 1*,  $n=10$ ) before centrifugation. Asterisks indicate differences between the time points as indicated by the respective brackets (\*\* $p<0.01$ ). P-Values were calculated using paired *t*-tests.



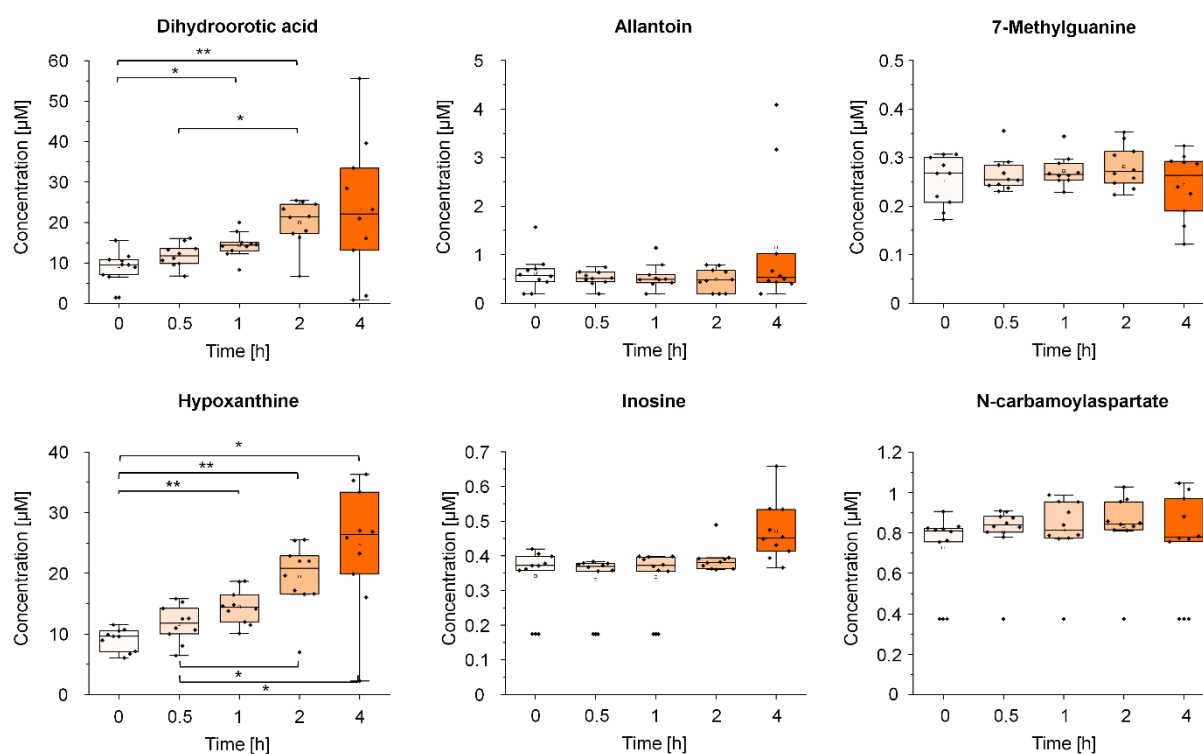
**Figure S2: Arginine, ornithine and AO-ratio as potential target QIs in human serum and EDTA plasma**

Boxplots visualize the variation of the log<sub>10</sub>-transformed peak area of the amino acids arginine and ornithine and their ratios in human serum (A) and EDTA plasma (B) of healthy volunteers after incubation at 0.5 and 2 h at room temperature (*discovery sample 1*, n=10) before centrifugation. Asterisks indicate differences between the time points as indicated by the respective brackets (\*\*p<0.01). P-Values were calculated using paired *t*-tests.



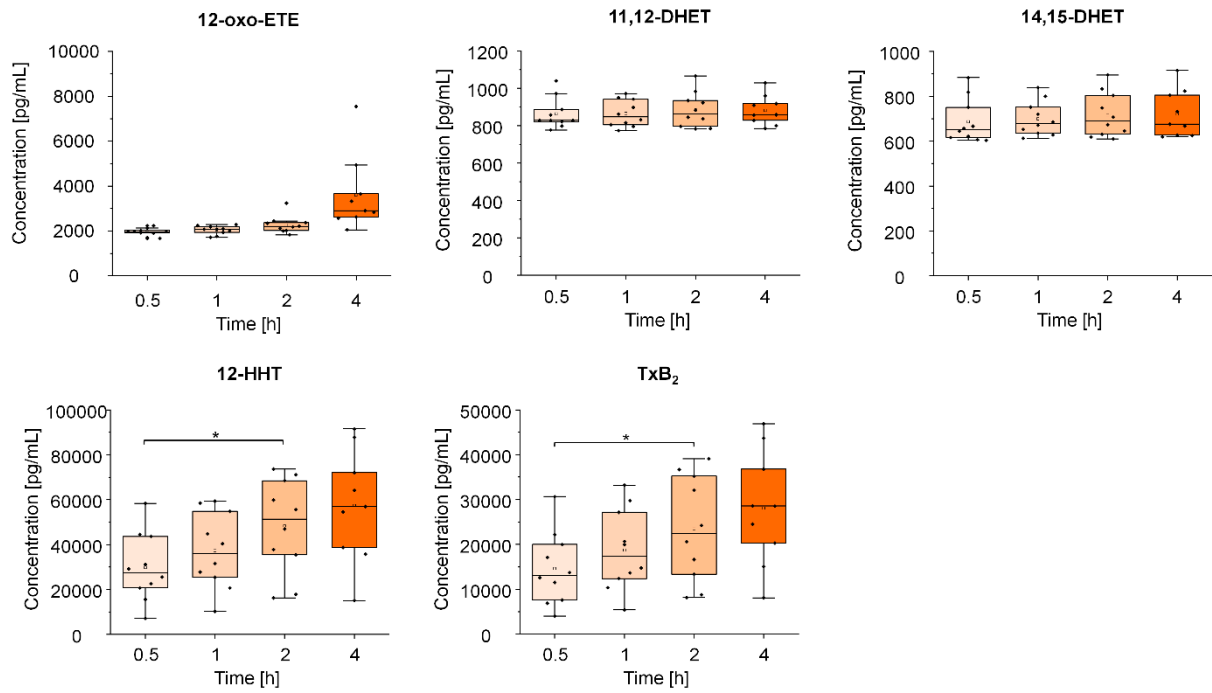
**Figure S3: Precentrifugation delay dependent impact on allantoin and 7-methylguanine in serum**

Boxplots visualize the variation of the concentration of selected metabolites in human serum of healthy volunteers after prolonged incubation for 0.5, 1, 2 and 4 h at room temperature (*validation sample 1*,  $n=10$ ) before centrifugation. P-Values were calculated using linear mixed models or paired  $t$ -tests and corrected for multiple testing using Bonferroni post-hoc test.



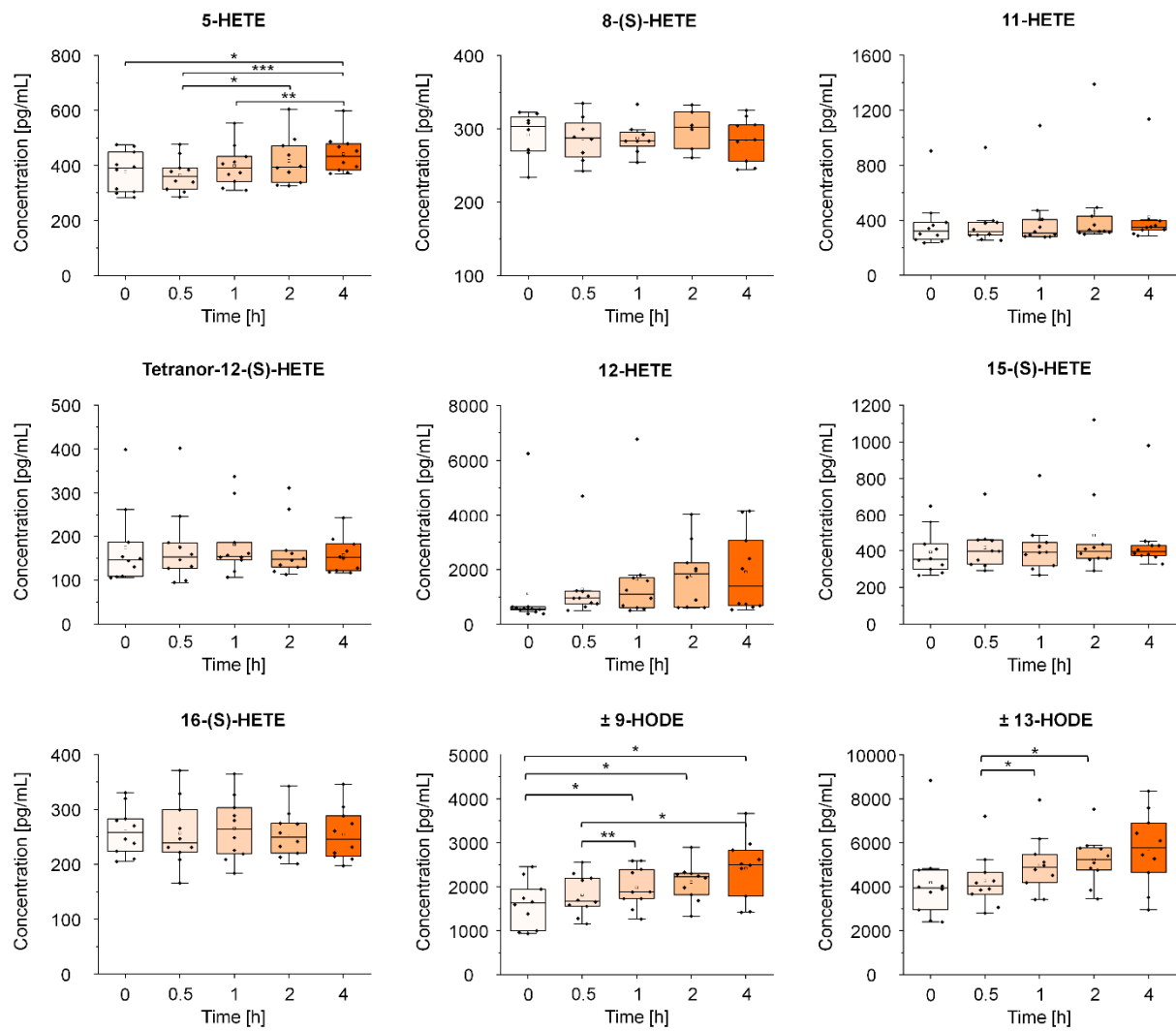
#### **Figure S4: Precentrifugation delay dependent impact on selected metabolites in EDTA plasma**

Boxplots visualize the variation of the concentration of selected metabolites in human EDTA plasma of healthy volunteers after prolonged incubation for 0, 0.5, 1, 2 and 4 h at room temperature (*validation sample 1*, n=10) before centrifugation. Asterisks indicate differences between the time points as indicated by the respective brackets (\*p<0.05, \*\*p<0.01). P-Values were calculated using linear mixed models or paired *t*-tests and corrected for multiple testing using Bonferroni post-hoc test.



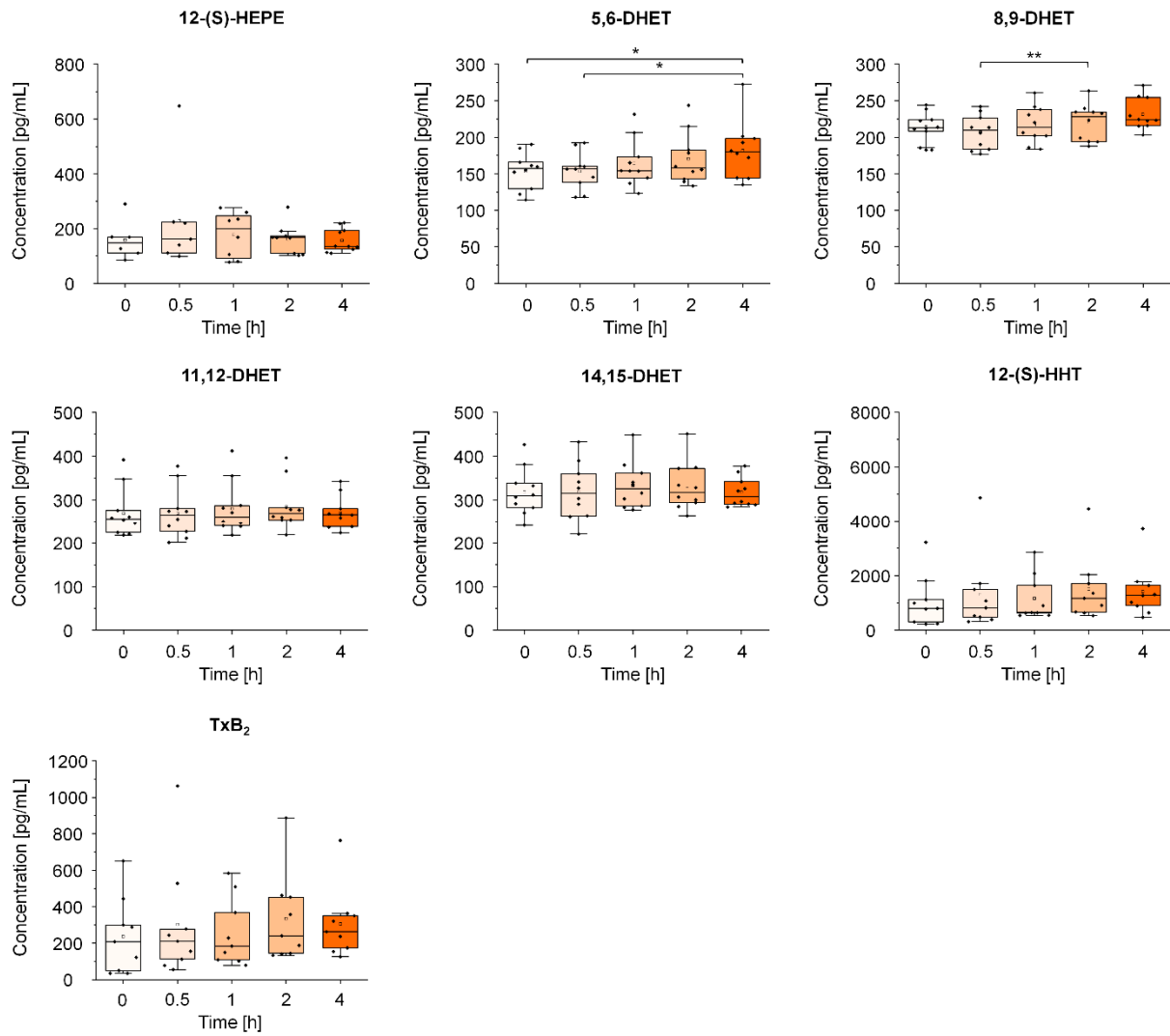
**Figure S5: Influence of precentrifugation delay on eicosanoids in serum**

Boxplots visualize the variation of the concentration of selected eicosanoids in human serum of healthy volunteers after prolonged incubation for 0.5, 1, 2 and 4 h at room temperature (*test cohort 1*, n=10) before centrifugation. Asterisks indicate differences between the time points as indicated by the respective brackets (\* $p < 0.05$ ). P-Values were calculated using linear mixed models or paired *t*-tests and corrected for multiple testing using Bonferroni post-hoc test.



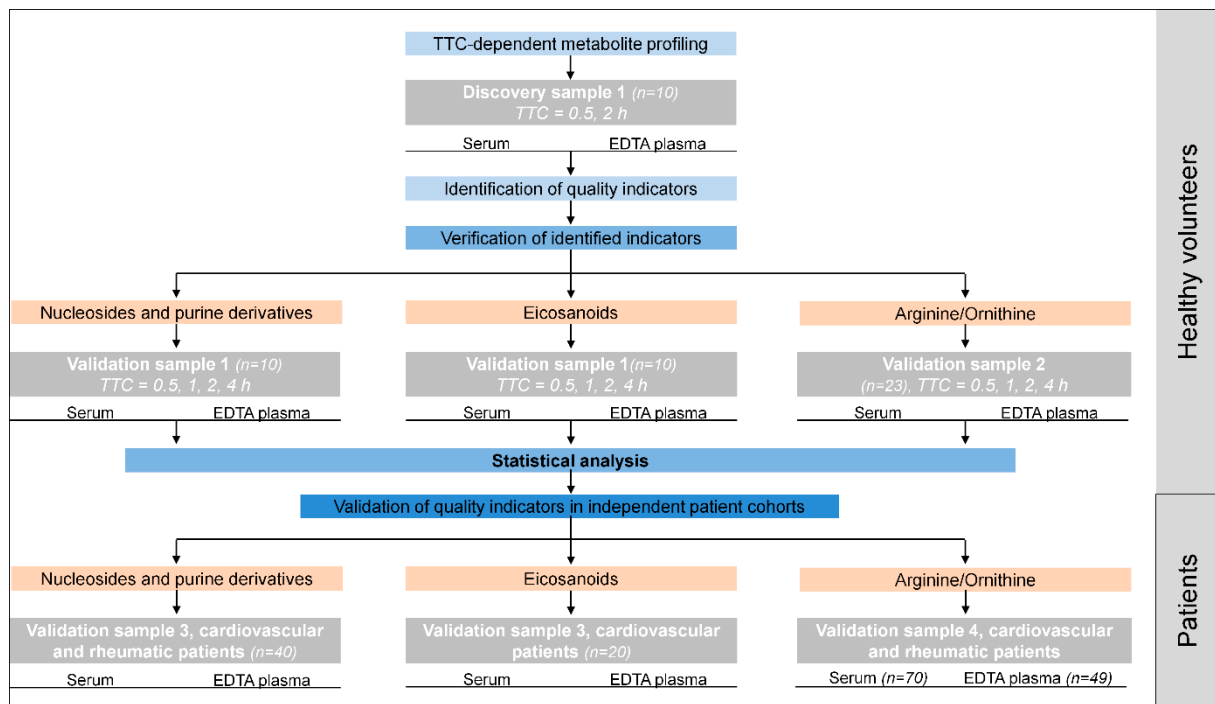
**Figure S6A: Influence of precentrifugation delay on eicosanoids in EDTA plasma**

Boxplots visualize the variation of the concentration of selected eicosanoids in human EDTA plasma of healthy volunteers after prolonged incubation for 0, 0.5, 1, 2 and 4 h at room temperature (*validation sample 1*, n=10) before centrifugation. Asterisks indicate differences between the time points as indicated by the respective brackets (\*p<0.05, \*\*p<0.01, \*\*\*p<0.001). P-Values were calculated using linear mixed models or paired *t*-tests and corrected for multiple testing using Bonferroni post-hoc test.



**Figure S6B: Influence of precentrifugation delay on eicosanoids in EDTA plasma**

Boxplots visualize the variation of the concentration of selected eicosanoids in human EDTA plasma of healthy volunteers after prolonged incubation for 0, 0.5, 1, 2 and 4 h at room temperature (*validation sample 1*, n=10) before centrifugation. Asterisks indicate differences between the time points as indicated by the respective brackets (\*p<0.05, \*\*p<0.01). P-Values were calculated using linear mixed models or paired *t*-tests and corrected for multiple testing using Bonferroni post-hoc test.



**Figure S7: Experimental Design**

Schematic overview of the QI study design describing the *discovery* and *validation* (1-4) *samples* as well as analytical parameters measured.