metabolites

MDPI

Supplementary Material

Dysregulation of the tryptophan pathway evidences gender differences in COPD

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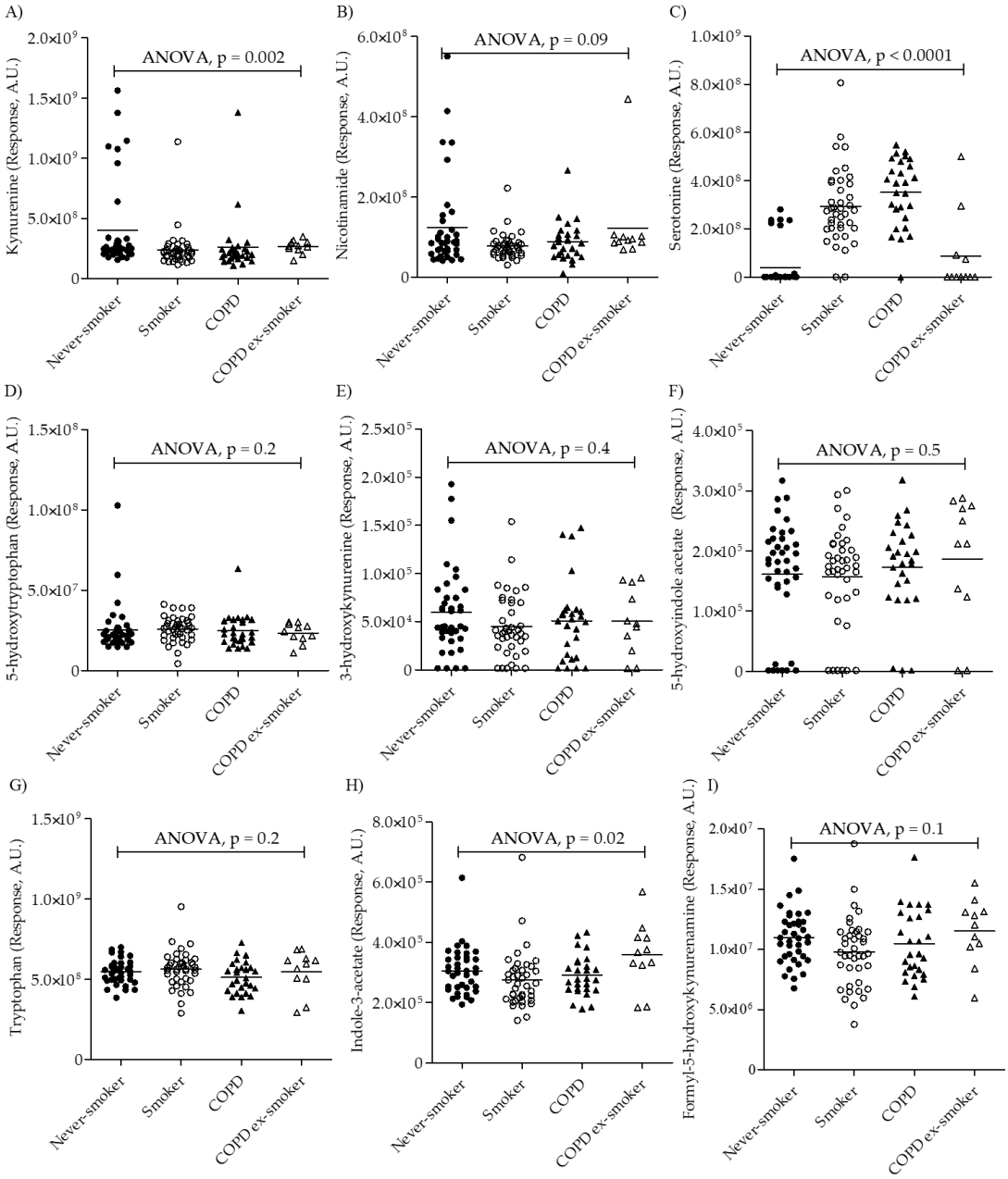

Figure S1. Serum tryptophan pathway metabolites identified from the non-targeted metabolomics study in the Karolinska COSMIC cohort. Comparison of (A) kynurenine, (B) nicotinamide, (C) serotonin, (D) 5-hydroxytryptophan, (E) 3-hydroxykynurenine, (F) 5-hydroxyindoleacetate, (G) tryptophan, (H) indole-3-acetate and (I) folmyl-5-hydroxykynurenamine abundances in healthy (Never-smokers, filled circles), smokers (open circles), COPD individuals (filled triangles) and COPD ex-smokers (open triangles). Significance was tested by applying a non-parametric Kruskal-Wallis one-way ANOVA.

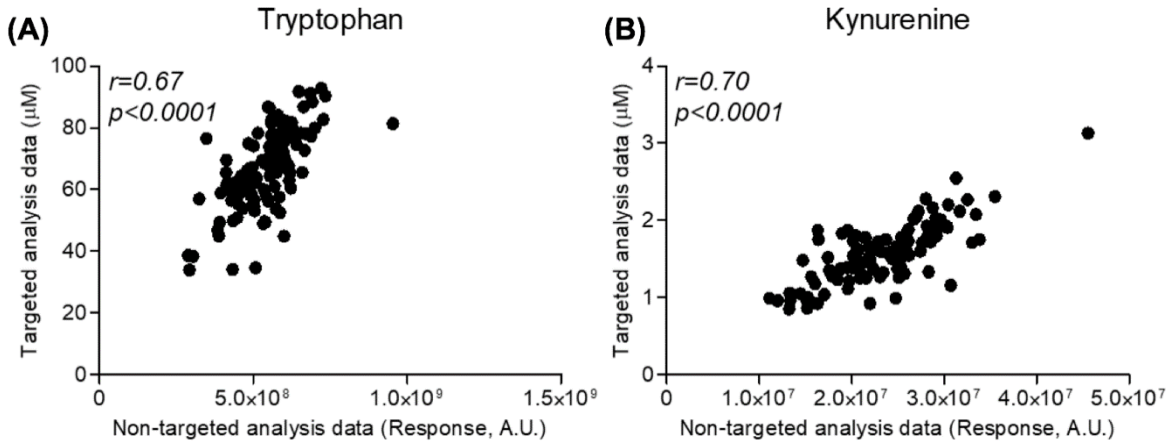

Figure S2. Correlation of (A) tryptophan and (B) kynurenine signals from the non-targeted metabolomics platform with the quantified concentrations acquired from the targeted LC-MS/MS method.

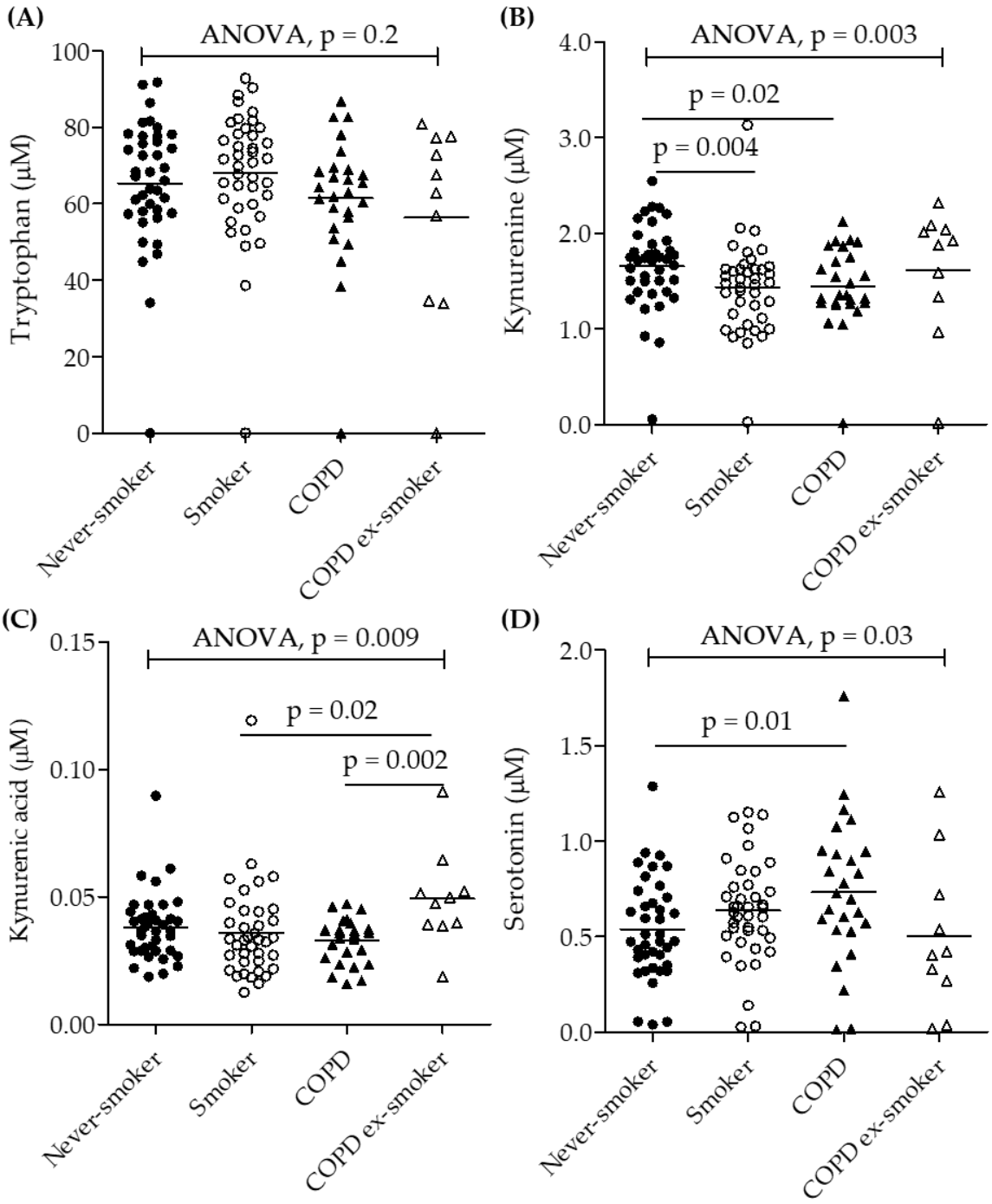

Figure S3. Joint gender comparison of serum tryptophan pathway metabolites quantified by LC-MS/MS in the Karolinska COSMIC cohort. Comparison of (A) tryptophan, (B) kynurenine, (C) kynurenic acid and (D) serotonin, in healthy (Never-smokers, filled circles), smokers (open circles), COPD individuals (filled triangles) and COPD ex-smokers (open triangles). Significance was tested by applying non-parametric Kruskal-Wallis one-way ANOVA and Mann-Whitney test.

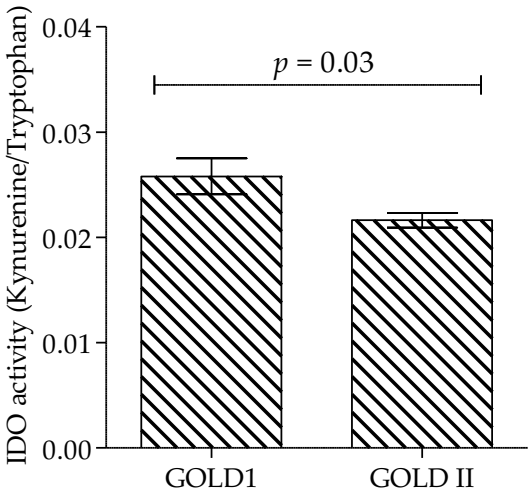

Figure S4. Estimated IDO activity according to COPD GOLD stage. Significance was tested by applying a non-parametric Mann-Whitney test.

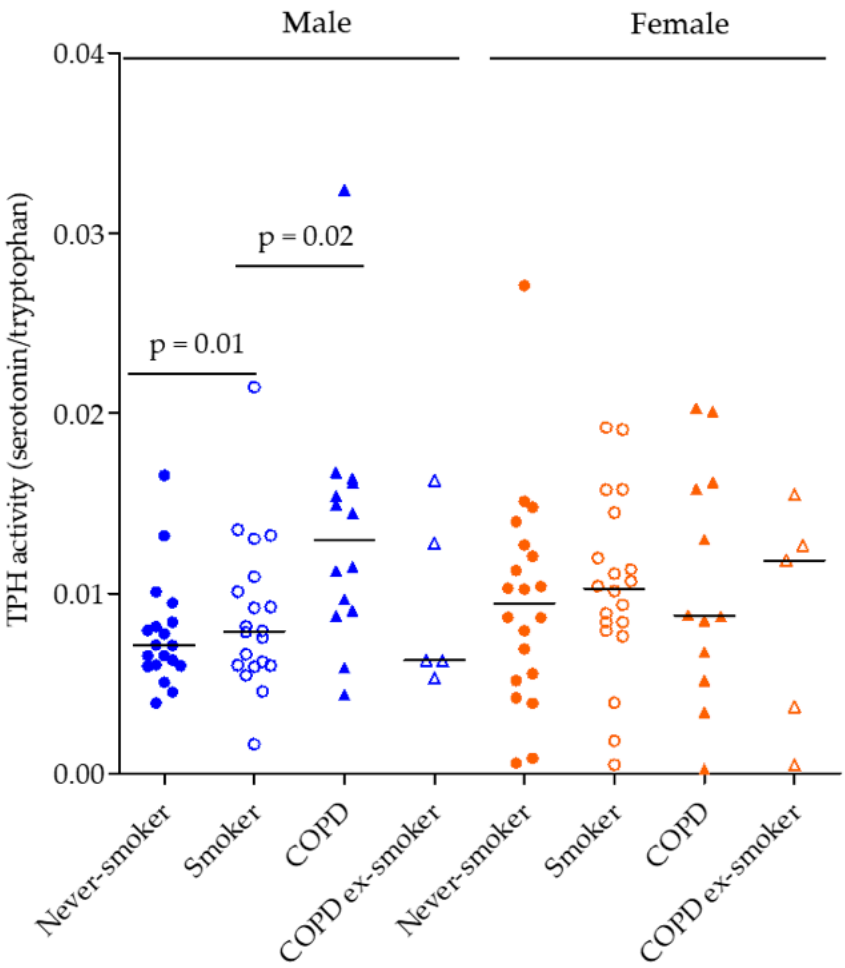

Figure S5. Estimated serum TPH (serotonin/tryptophan) activity, stratified by gender. Never-smokers: closed circles, Smokers: open circles, COPD smokers: closed triangles, COPD ex-smokers: open triangles, male: blue, female: orange. Significance was tested by applying a non-parametric Mann-Whitney test.

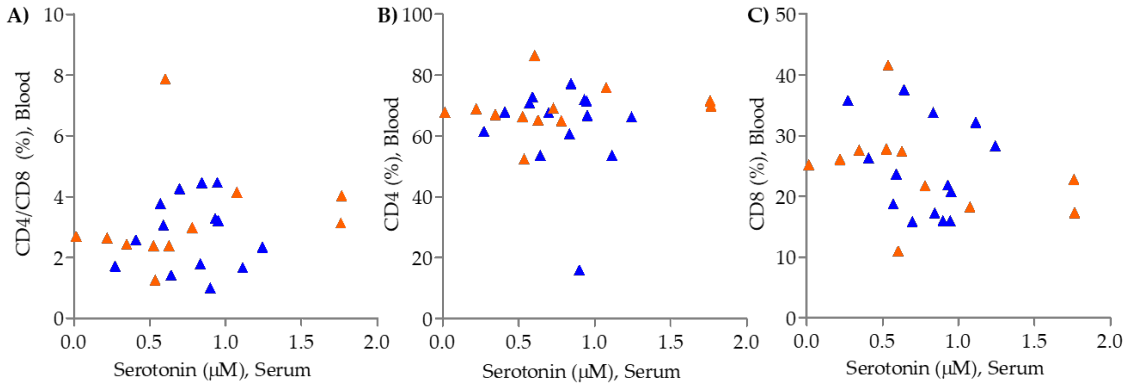

Figure S6: Correlation of serum serotonin levels with T cells populations from blood in COPD smokers. A) CD4/CD8 %, B) CD4 %, C) CD8 %. Male: blue triangles, female: orange triangles.

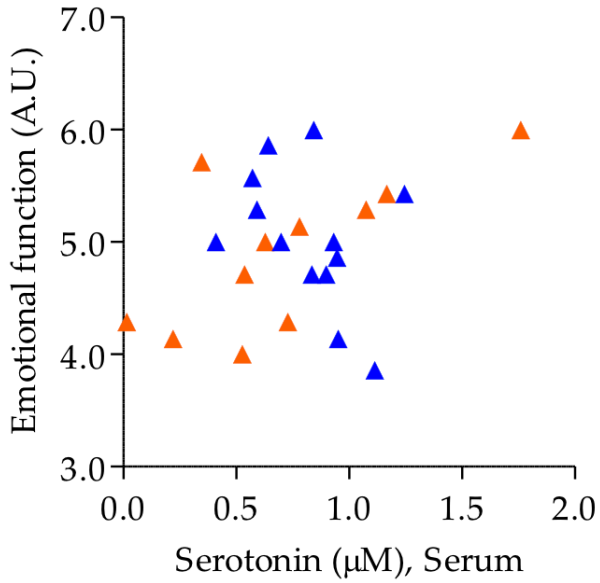

Figure S7. Correlation of serum serotonin levels with emotional function in COPD smokers. Male: blue triangles, female: orange triangles. Serotonin levels showed a positive association with emotional function in female COPD smokers (p= 0.03, r=0.64), but not males (p=0.1, r=-0.45).

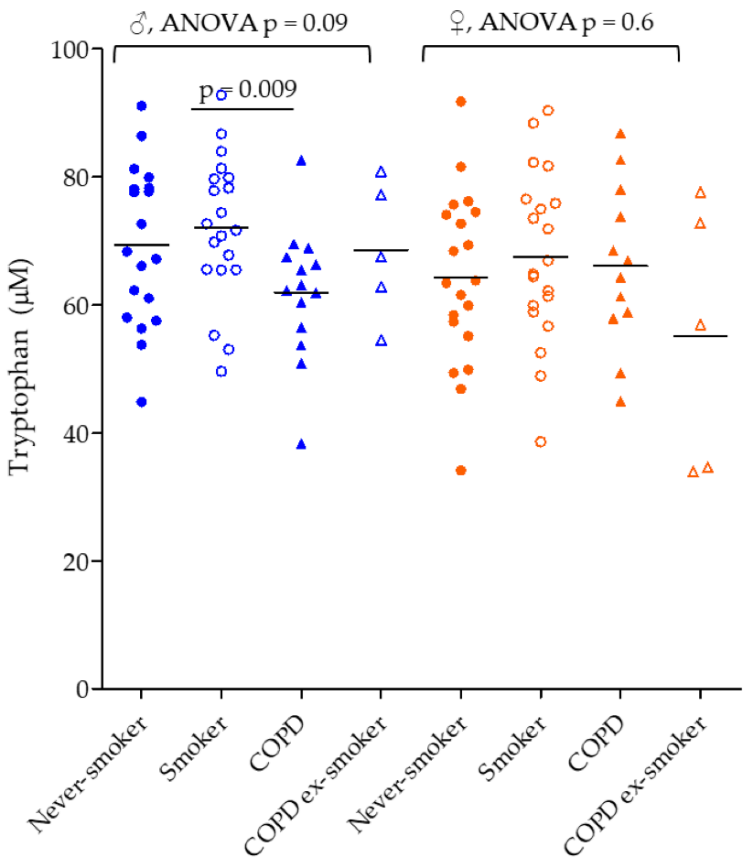

Figure S8. Serum concentration of tryptophan in four study groups, stratified by gender. Never-smokers: closed circles, Smokers: open circles, COPD smokers: closed triangles, COPD ex-smokers: open triangles, male: blue, female: orange. Significance was tested by applying a non-parametric Kruskal-Wallis ANOVA and a non-parametric Mann-Whitney test.