Systemic tryptophan and kynurenine catabolite levels relate to severity of rhinovirus-induced asthma exacerbation: a prospective study with a parallel-groups design

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Supplemental figure 1: Tryptophan metabolome in EBC and serum

Tryptophan, kynurenine, anthranilic acid and quinolinic acid were determined in serum (day -1 and day 6) and exhaled breath condensate (day -1 and day 4) of healthy individuals and allergic asthma patients with confirmed lower respiratory tract infection. Concentrations are provided as nmol/L or μmol/L (mean ± SE). *p< 0.05, **p< 0.01 and *** p<0.001 vs healthy individuals. Detection limits are: Tryptophan (5 nmol/l), Kynurenine (1 nmol/l), Quinolinic acid (1 nmol/l) and Anthranilic acid (5 nmol/l).

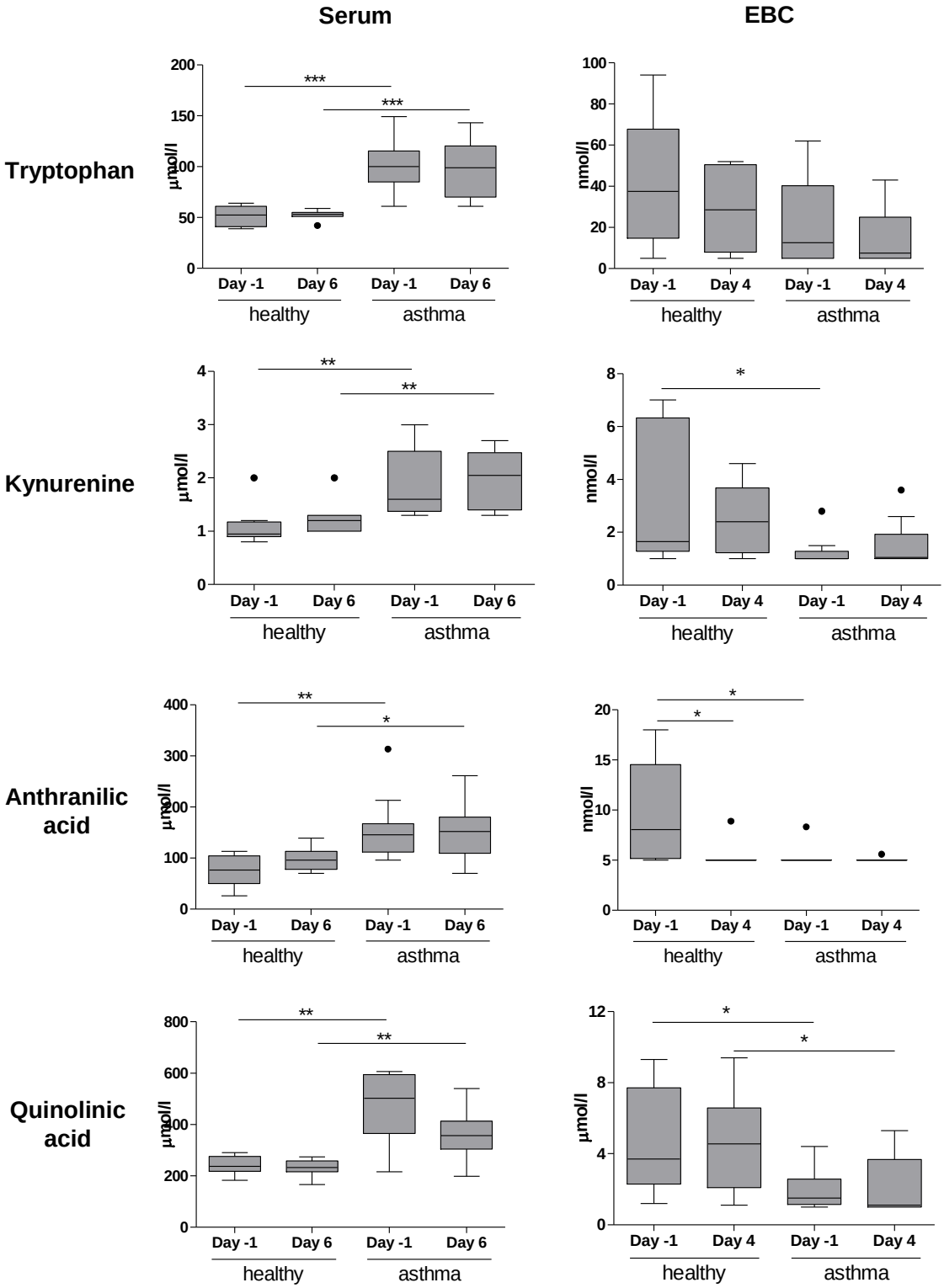
Supplemental figure 2: Arginine metabolome in EBC and serum

Arginine, Citrulline, Ornithine, Proline and urea were determined in serum (day -1 and day 6) and exhaled breath condensate (day -1 and day 4) of healthy individuals and allergic asthma patients. Concentrations are provided as nmol/L, μmol/L or mmol/L (mean ± SE). * p<0.05, ** p<0.01 and *** p<0.001 vs healthy individuals. Detection limits are: Arginine (25 nmol/l), Ornithine (100nmol/l), Citrulline (25 nmol/l) and Proline (50 nmol/l).

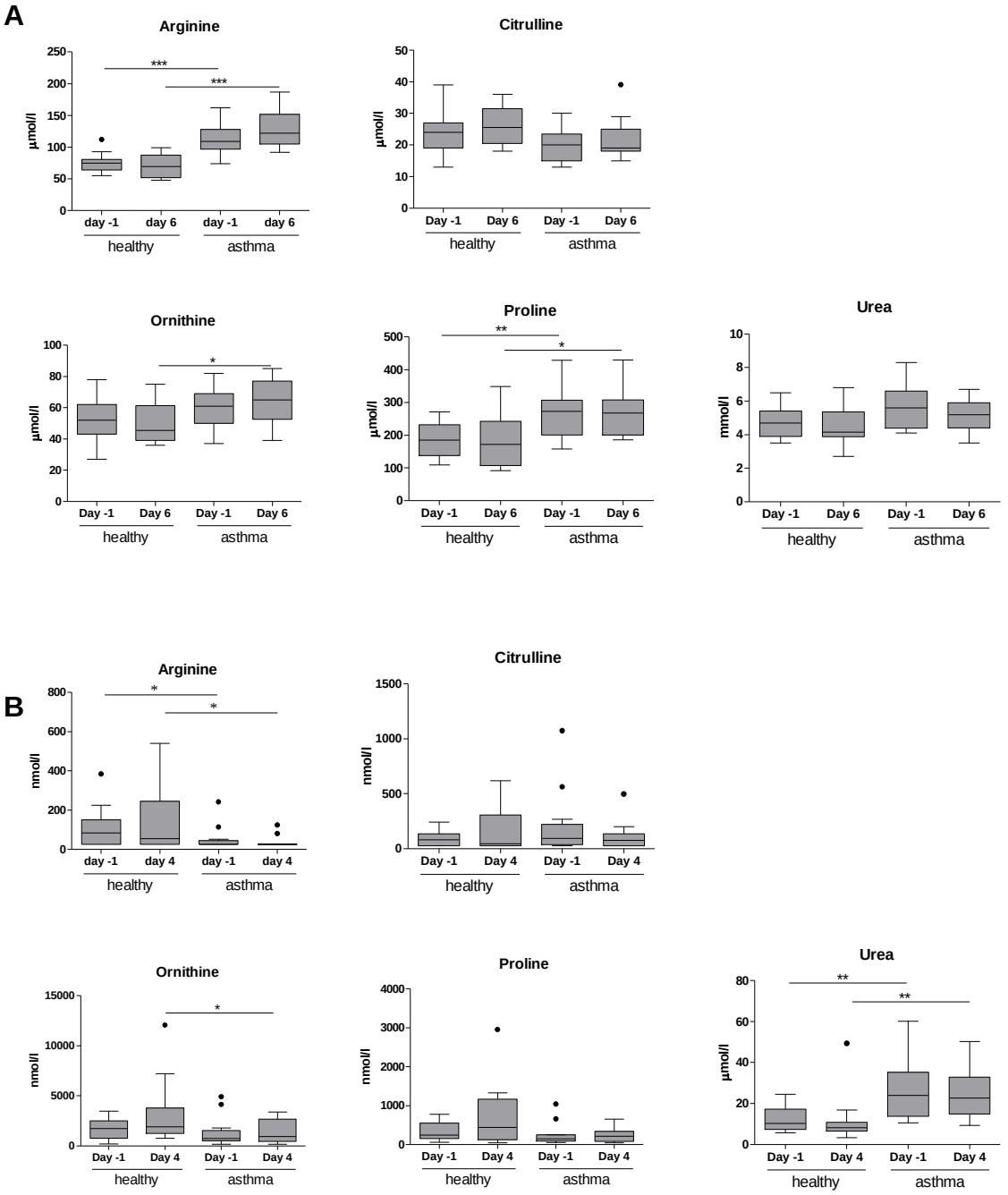
Supplemental figure 3: Association between tryptophan metabolism and eosinophilic inflammation.

Analyses of the correlation between systemic quinolinic acid (left) and systemic tryptophan (right) with (A) % eosinophils in BAL fluid (B) ECP concentration in BAL fluid and (C) peak asthma symptom scores after rhinovirus exposure in asthmatic (solid dots) and healthy individuals (open dots) with confirmed lower respiratory tract infection. Spearman correlation coefficients (*r*) and *P* values are given in each panel.

Supplemetal Figure 1:



Supplemental Figure 2:



Supplemental Figure 3: