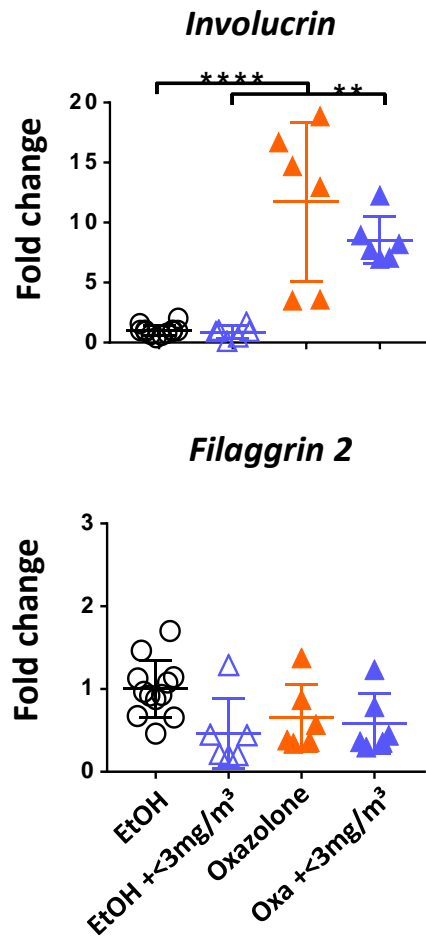
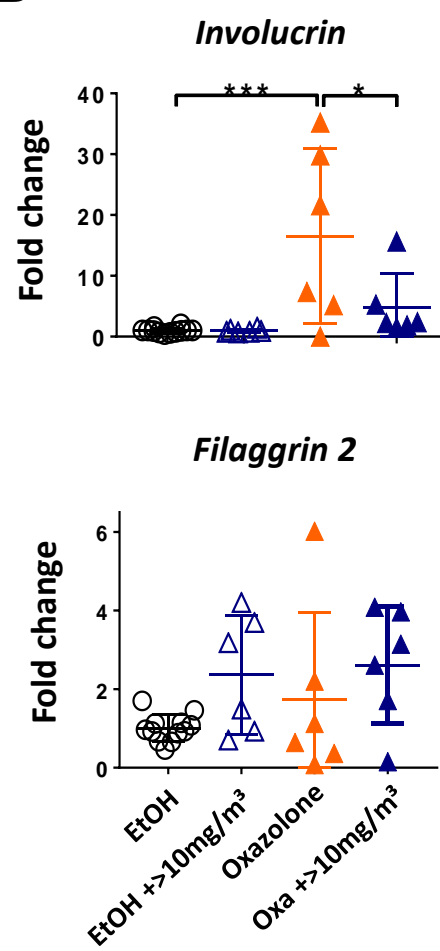
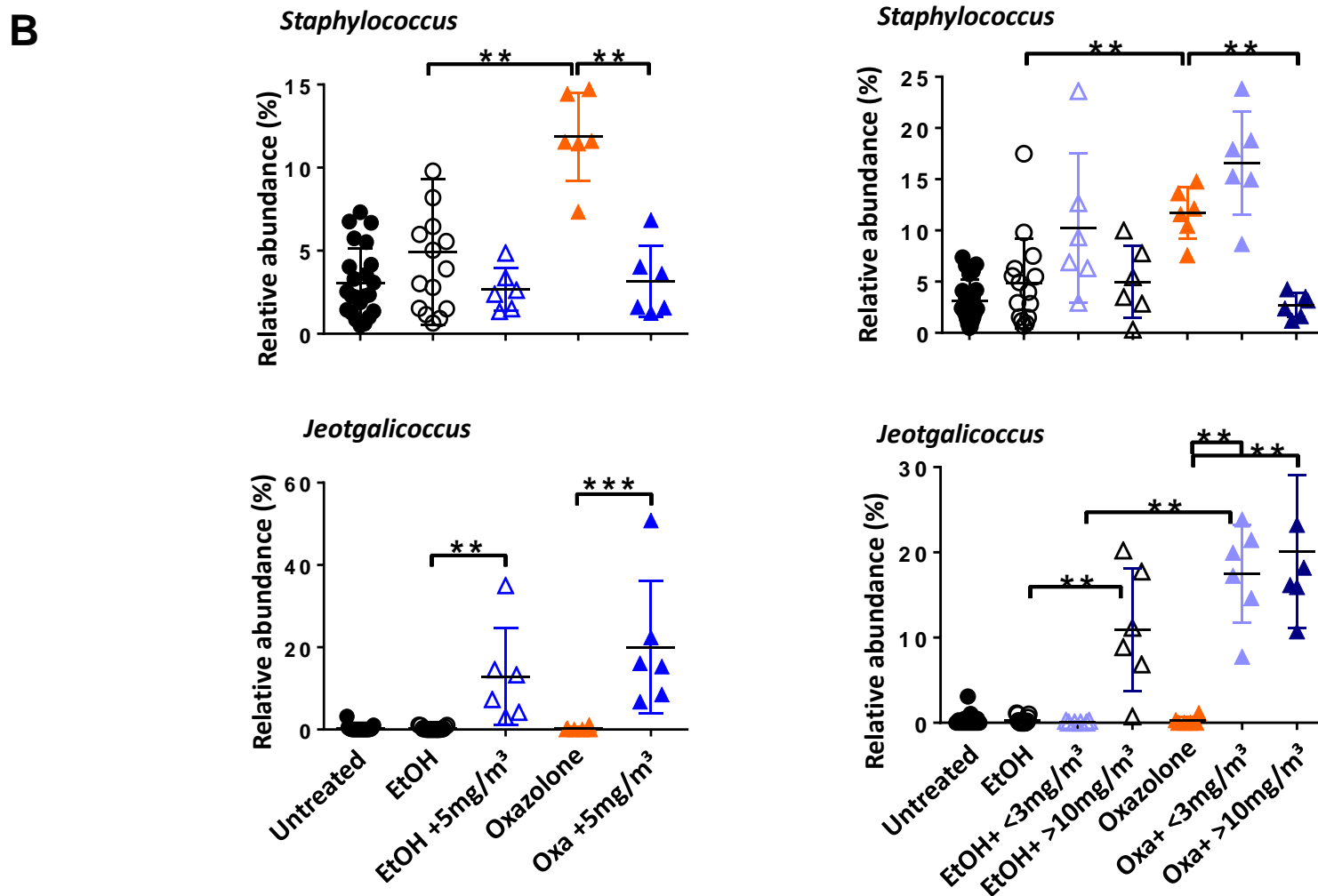
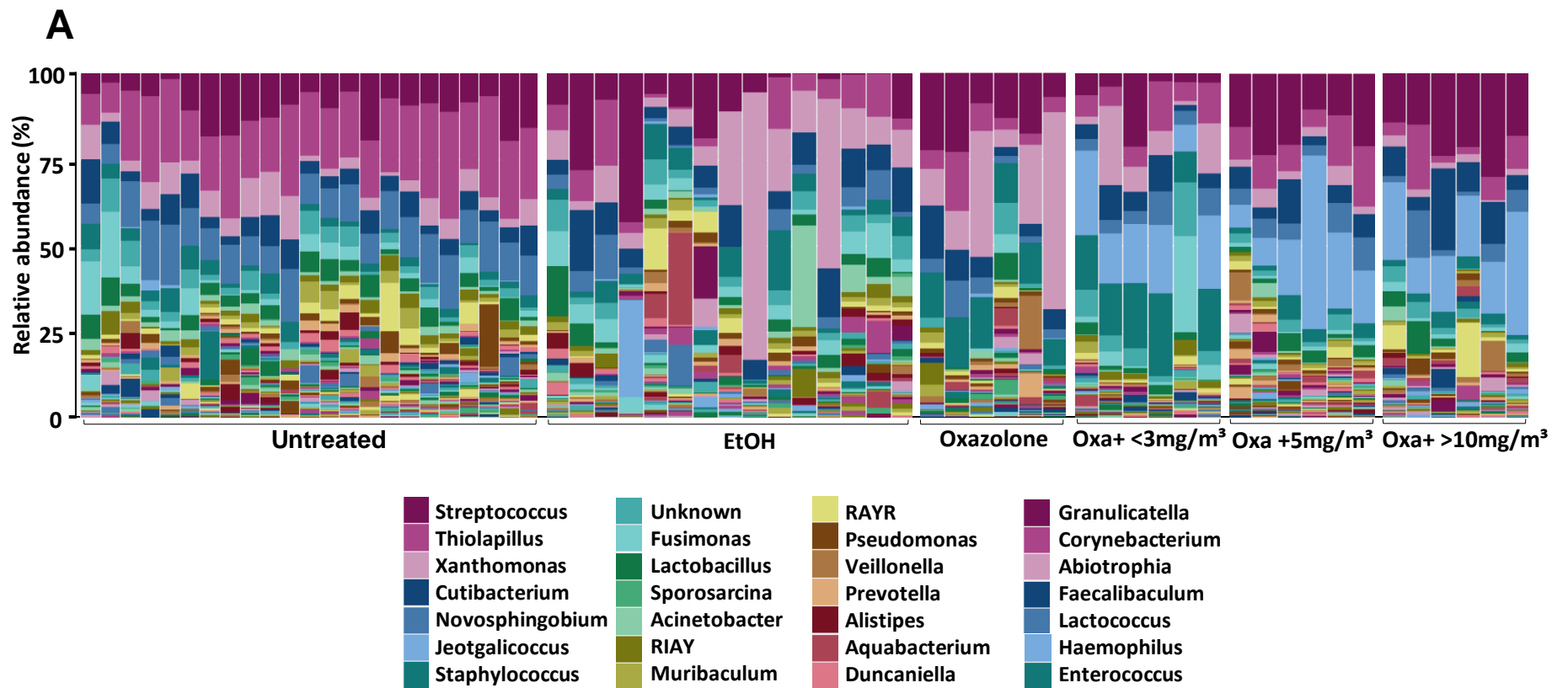


Supplementary Fig. 5. Effects of exposure of AD skin to lower (< 3 mg/m³) and higher (>10 mg/m³) pinewood emissions. TEWL (left) and ear swelling (right) to monitor the effects of **A**) lower and **B**) higher pinewood VOCs on the oxazolone-induced AD model on mouse ears. **C**) Representative sections of mouse ears stained with H&E. Arrows, inflammatory cell infiltrate; arrowheads, parakeratosis. Scale bar = 50 μm. Average sizes of **D**) epidermis and **E**) dermis of animals exposed to lower (left) or higher (right) pinewood VOCs. Levels of serum total IgE measured at the beginning (day 0) and end (day end) of experiment and key inflammatory cytokines in mouse ear lysates following exposure to **F**) lower or **G**) higher pinewood VOCs. Levels of **H**) 8-isoprostane in ear lysates and **I**) skin pH at day 0 and day end following exposure to higher VOCs. Data are expressed as mean ± SD. n=5-6/group; n=3 (H, EtOH controls). TEWL and ear swelling: +p<0.05; ++p<0.01; +++p<0.001; ++++p<0.0001 vs. EtOH; *p<0.05; **p<0.01; ***p<0.001 vs. Oxazolone; further graphs: *p<0.05; **p<0.01; ***p<0.001; ****p<0.0001. Statistical analyses were performed by two-way ANOVA (A-B, F-G (total IgE) and H) and one-way ANOVA (D-G (excluding total IgE) and I) with Bonferroni post-hoc-test.

A**B**

Supplementary Fig. 6. Effects of **A)** lower (< 3 mg/m³) and **B)** higher (> 10 mg/m³) pinewood emissions on the expression of key skin barrier genes. Data are expressed as mean ± SD. n=6/group; n=10 (EtOH). *p<0.05; **p<0.01; ***p<0.001; ****p<0.0001. Statistical analysis was performed using one-way ANOVA with Bonferroni post-hoc-test.



Supplementary Fig. 7. Effects of < 3 mg/m³, 5 mg/m³, and > 10 mg/m³ pinewood VOC emission concentrations on cutaneous microbiome of mice treated with oxazolone or EtOH (vehicle control). **A)** Taxonomic bar charts displaying the relative abundance of detected genera in untreated and treated animals. **B)** Relative abundance of key genera with major shifts. Data are expressed as mean \pm SD. Statistical significance was calculated using Kruskal Wallis and Wilcoxon Mann Whitney tests, respectively for multiple and pairwise groups comparisons. Multiple test corrections were performed with the Benjamini and Hochberg procedure to adjust P values (*p<0.05, **p<0.01, ***p<0.001).