The effect of exposure to Mt. Cedar pollen in a pollen challenge chamber (PCC) on immune changes in eosinophil counts and cytokines in blood cell counts and cytokines in Mountain Cedar positive and negative subjects.

**Introduction**

Pollen is a major cause of allergic rhinoconjunctivitis (AR) and has been shown to elicit immune responses in both mountain and grass pollen allergic individuals. These responses are typically characterized by an influx of eosinophils and the production of cytokines. However, studies towards understanding these changes in eosinophil counts and cytokine levels in Mountain Cedar positive and negative subjects are lacking. The present study aimed to characterize these changes using a pollen challenge chamber (PCC) to uncover the determinants of AR pathogenesis and the expression of allergic airway disease.

**Materials and Methods**

Pollen challenge was performed in a Biogenics Research Chamber, San Antonio, TX. Exposure to Mt. Cedar pollen during 2 PCC runs of 3 hours duration on consecutive days. There was a total of forty-six cytokines in which at least one run met QC standards and forty-six cytokines that were measured in both runs.

**Results**

Changes in eosinophil counts and cytokine levels were characterized by a threshold response to observed increases in eosinophil counts and cytokine levels, although at lower levels than observed in previous studies. These data also underline the utility of PCC to uncover determinants of allergic airway disease.

**Conclusion**

These results demonstrate that exposure to pollen in a PCC associates with increases in eosinophil counts and cytokine levels in MCPS and MCNS. Cytokine changes were also observed in MCPS at lower levels. Changes in these cytokines associated with max TSS (Eotaxin, MDC, and TRAIL) and TRAIL explained 66% of the variability in max TSS among the MCPS participants. These data support the use of PCC in uncovering AR pathogenesis as well as potential targets for intervention.

**References**


