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Type 2 inflammation accelerates CD4⁺ T-cell senescence in asthma

Key words: Asthma; Cellular senescence; T cells; Inflammation

Research Summary

This research mainly focused on asthma and CD4⁺ T-cell senescence, and investigated the key roles of type 2 inflammation in accelerating CD4⁺ T-cell senescence.

- **CD4⁺ T-cell senescence is increased in asthma patients (not CD8⁺)**
- **CD4⁺ Tsens correlate with FeNO, eosinophils, and Th2**
- **Elevated CD4⁺ Tsens also observed in an HDM-induced asthma mouse model**
- **IL-4 neutralization reduces CD4⁺ Tsens and blocks p38 MAPK activation**
- **Adoptive transfer of senescent CD4⁺ T cells worsens type 2 inflammation in asthma.**

Innovation / Significance

- **Establish** a direct link between type 2 inflammation and CD4⁺ T-cell senescence
- **Identify** the IL-4 / p38 MAPK pathway as a driver of T-cell senescence
- **Suggest** CD4⁺ Tsens as a potential biomarker and therapeutic target in asthma.

