DIVERGENT BIOMARKER PATHWAYS:

SERUM IGE AND EOSINOPHILS ARE INDEPENDENT CORRELATES OF ATOPIC DERMATITIS SEVERITY

OBJECTIVE: To evaluate the correlation of Total serum IgE and Absolute Eosinophil Count with EASI scores in patients with AD

TAKE HOME MESSAGE: The distinct immunological pathways underscores the importance of a multi-biomarker approach for accurate disease assessment and therapy

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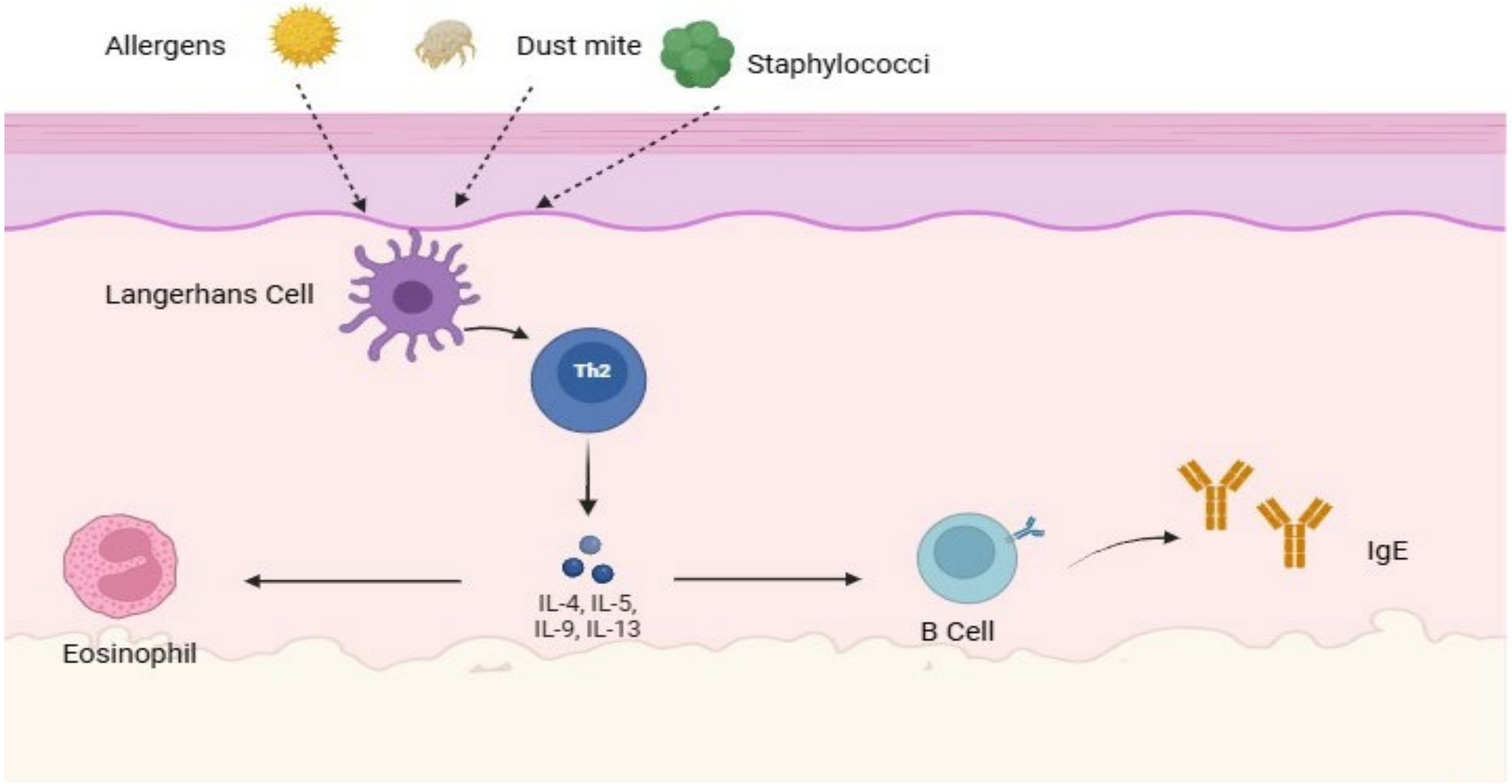
No conflicts of interest

The Immunopathogenic Cross Roads



Background:

Atopic dermatitis (AD) is a heterogeneous inflammatory skin disease

Serum immunoglobulin E (IgE) and eosinophil counts (AEC) are often elevated

Do they represent overlapping or distinct immunological pathways?

Objective:

To evaluate the correlation of Total serum IgE and Absolute Eosinophil Count with EASI scores in patients with AD

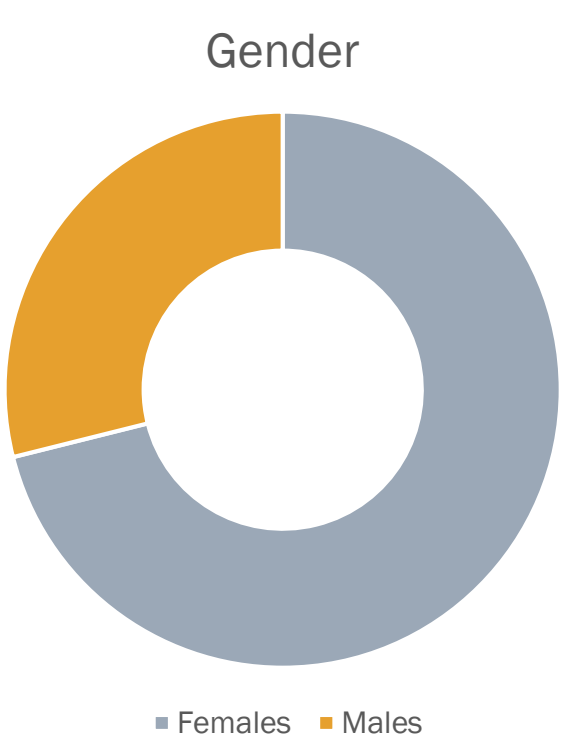
To examine whether these biomarkers are inter-related

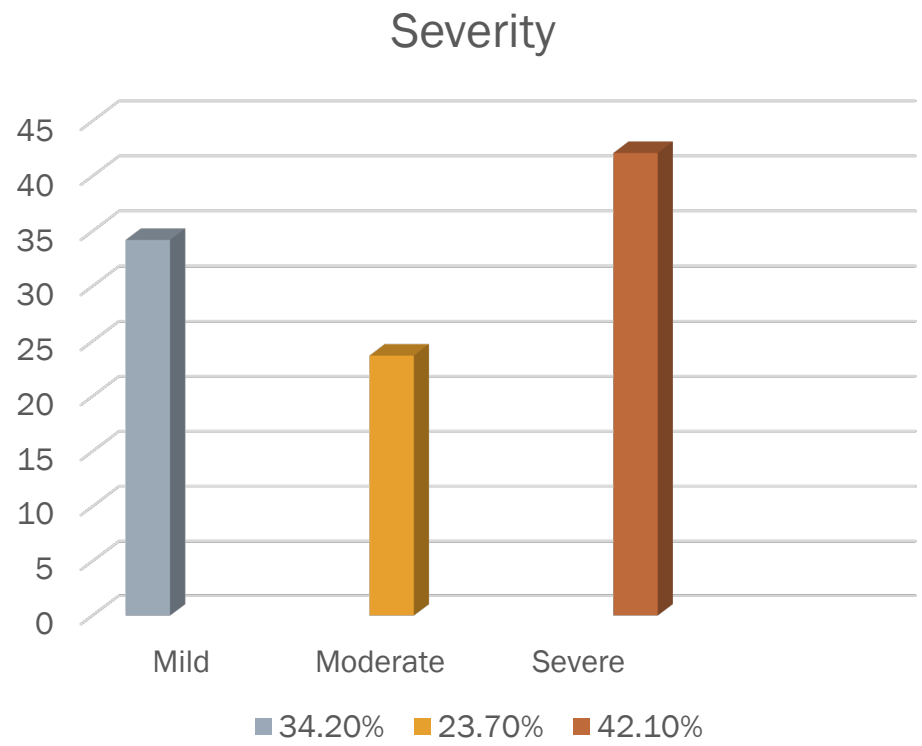
Methods:

- Fifty cases of mild to moderate Atopic Dermatitis (AD) were prospectively enrolled
- 12 cases refused or didn’t review with blood tests
- 38 patients with AD completed the study
- Clinical severity was graded with EASI Scoring
- Total serum IgE and Absolute Eosinophil Count (AEC) were quantified
- Correlations were assessed using Spearman’s rank and Pearson analysis

Results:

mean age 25.0 ± 10.0 years (range 10–52)





IgE and AEC

Mean serum IgE

661.4 IU/mL (range: 12–10,100 IU/mL; median: 158, IQR: 83.8–328.3)

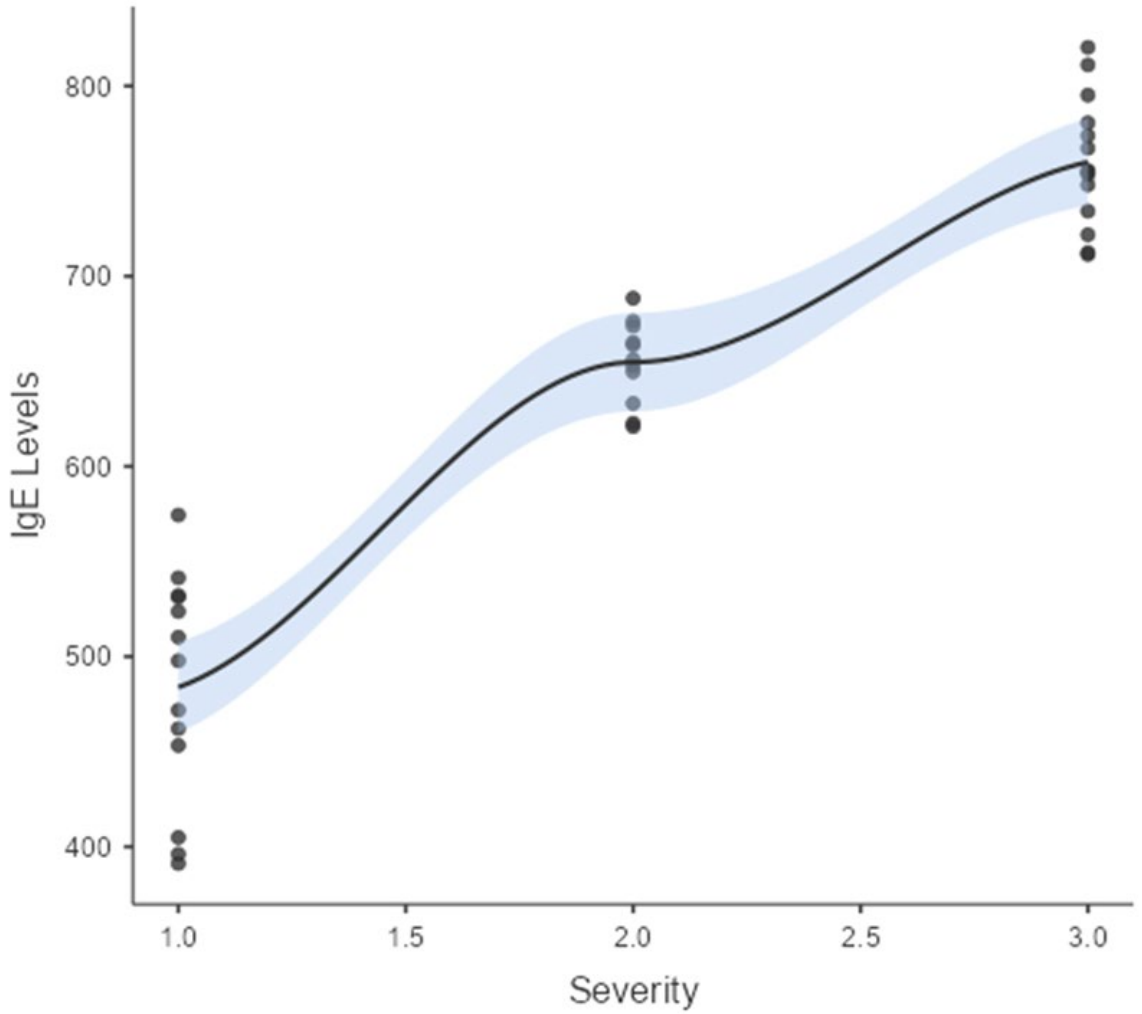
Wide inter-individual variability

Mean AEC

344.2 cells/mm³ (range: 20–820; median: 305).

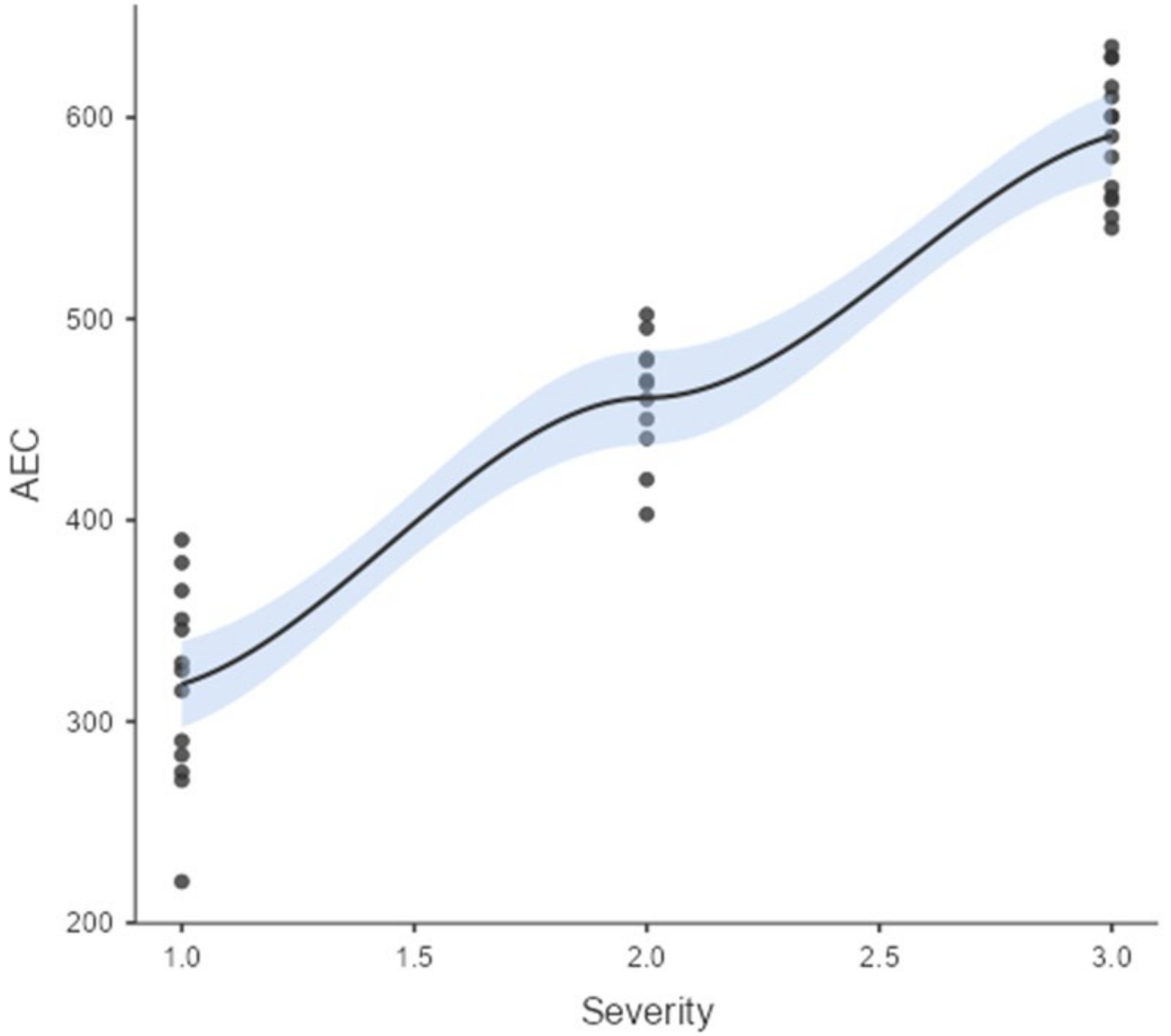
IgE and severity Correlation

Disease severity strongly correlated with IgE (Spearman's r = 0.88, p < 0.001)



AEC and severity correltion

EASI Severity moderately correlated with AEC (r = 0.66, p < 0.001).

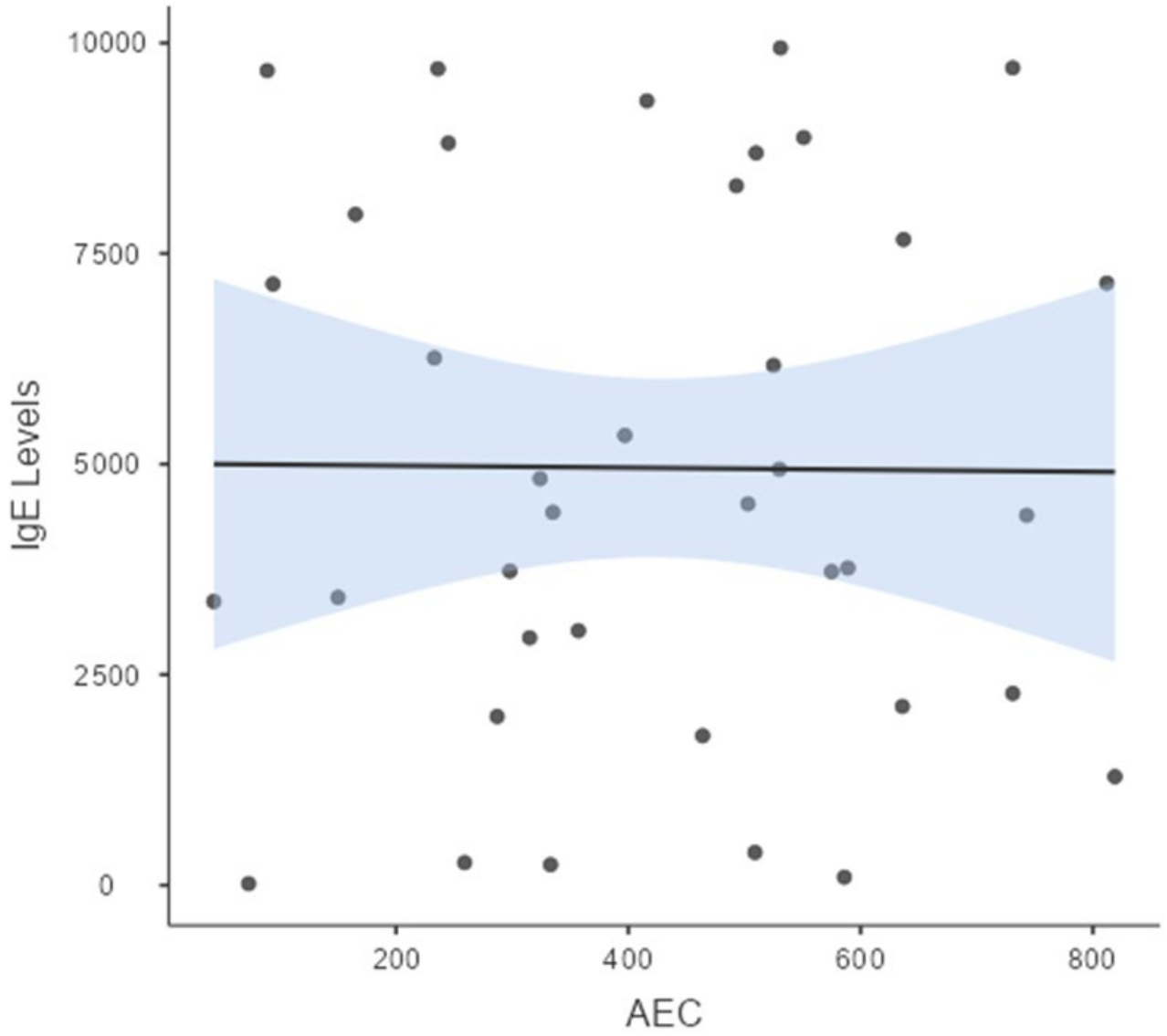


IgE and AEC Correlation

IgE and AEC **did not correlate** with each other

(Pearson's r = 0.08, p = 0.654)

Suggesting independent or divergent immunopathological pathways



Conclusion

Both serum IgE and eosinophil counts are significant correlates of AD severity, yet they remain uncoupled from one another.

This divergence highlights the multifaceted immune pathways underlying AD and underscores the value of evaluating multiple biomarkers for comprehensive disease assessment.

Biomarker-guided stratification in AD may inform future precision-based therapeutic strategies.

References:

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In the atopic skin, two rivers flow apart, IgE and eosinophils, never meeting, yet each deepening the storm

Thank you