

# Dupilumab Treatment Restores Skin Barrier Function and Improves Clinical and Patient Reported Outcomes in Adults and Adolescents With Moderate-to-Severe Atopic Dermatitis

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## BACKGROUND

- Type 2 inflammation, mediated by interleukin-4 and interleukin-13, influences keratinization, integrity of tight junction, composition of lipids, microbiome diversity, filaggrin expression, and natural moisturizing factors

## OBJECTIVE

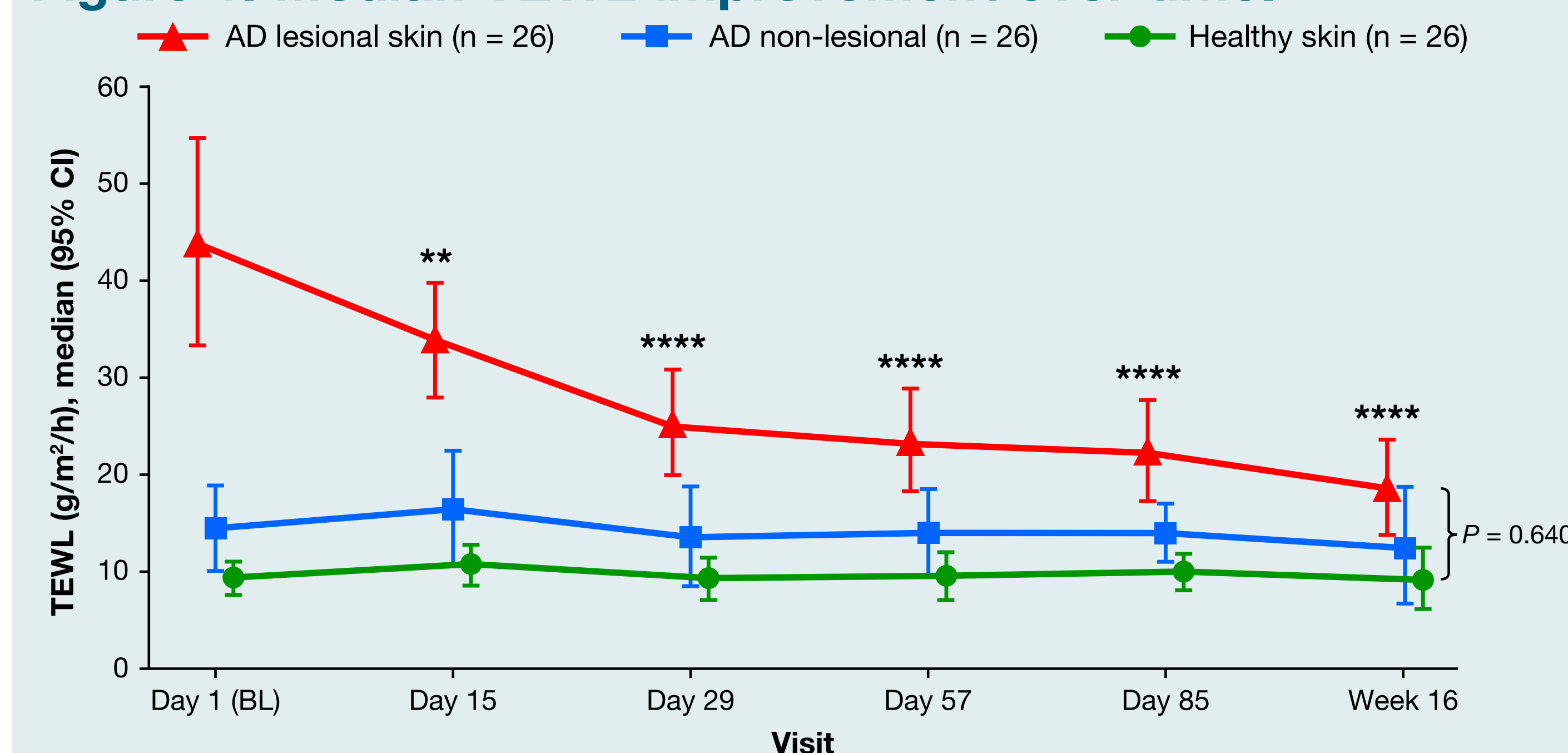
- To evaluate the effect of dupilumab on skin barrier function in adults and adolescents with moderate-to-severe AD over 16 weeks of treatment with healthy volunteers as a reference

## METHODS

- The dupilumab skin BArrier function and Llipidomics STudy in Atopic Dermatitis (BALISTAD [NCT04447417]) was an open label, exploratory study on skin barrier function in patients with AD aged 12 to 65 years
- Adult AD patients received dupilumab 300 mg every 2 weeks (q2w); adolescent AD patient received dupilumab 200 mg q2w if baseline weight < 60 kg and 300 mg if ≥ 60 kg
- Transepidermal Water Loss (TEWL) was assessed before and after skin tape stripping (STS) from lesional and non-lesional skin of 26 AD patients treated with dupilumab and from normal skin of 26 matched healthy volunteers over 16 weeks; TEWL data before STS procedure were analyzed for skin barrier assessment over time

## RESULTS

Figure 1. Median TEWL improvement over time.



Week 16 least squares mean TEWL values were estimated with Analysis of Covariance (ANCOVA) models adjusting for baseline TEWL, skin type, age, and sex. At baseline, the median TEWL in AD lesional skin was significantly different from that of healthy volunteers ( $P < 0.0001$ ). \*\* $P < 0.01$ , \*\*\*\* $P < 0.0001$  vs baseline. \*At Week 16, the adjusted mean (95% CI) TEWL in AD lesional skin was not significantly different from that of healthy volunteers (ANCOVA;  $P = 0.640$ ). BL, baseline; CI, confidence interval.

Figure 2. Example of improvement in target lesion in an AD patient.

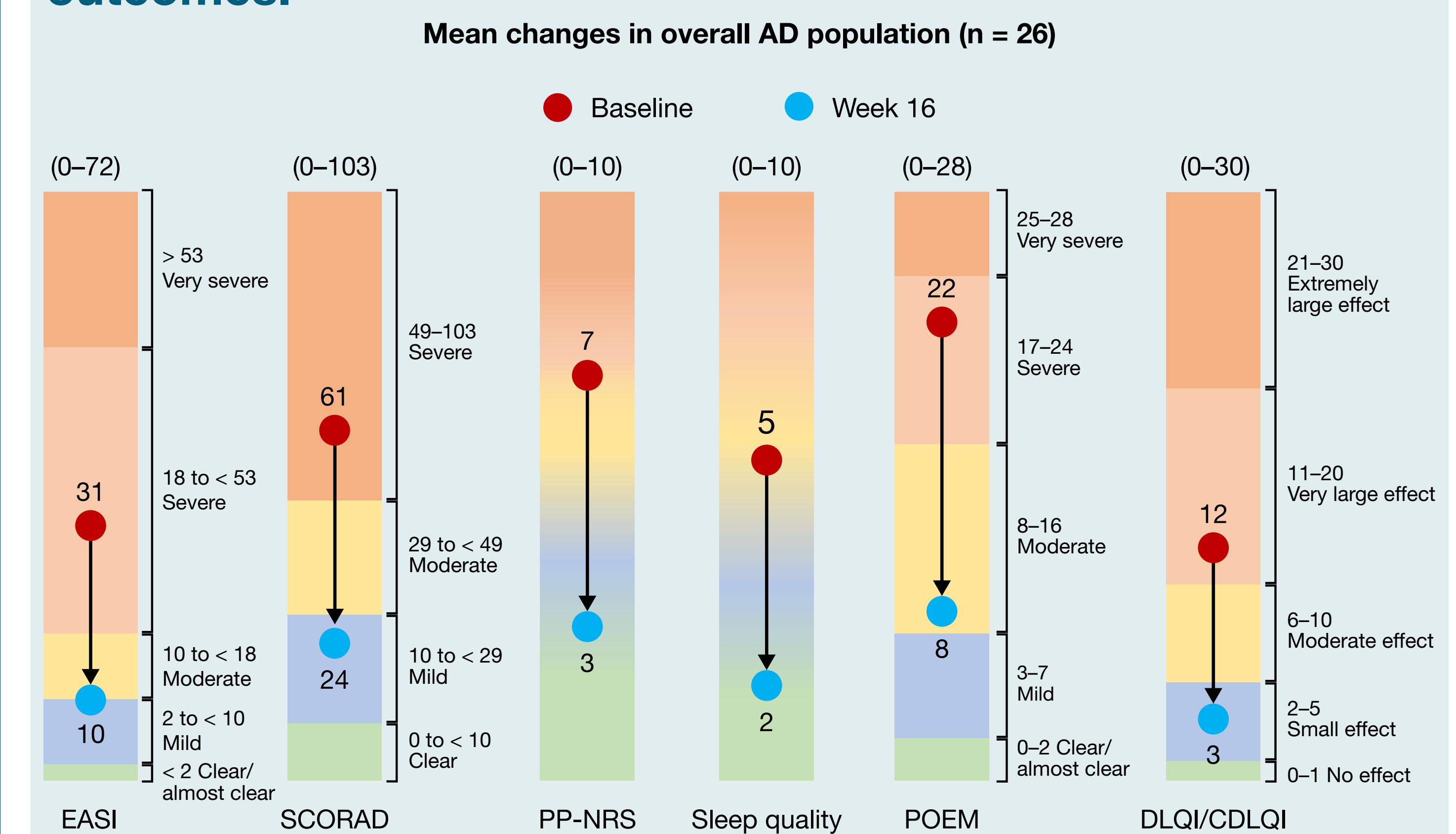


Photos of a 20-year-old, white, female patient representative of the mean improvement in lesions observed after 16 weeks of dupilumab treatment.

## Safety

- The safety results were consistent with the known dupilumab safety profile; no patients discontinued treatment due to adverse events

Figure 3. Improvements in clinical and patient-reported outcomes.



The rainbow graphics display change in absolute values from baseline (red) to Week 16 (blue) for each outcome. Color bands are based on validated thresholds for each outcome. (C)DLQI, (Children's) Dermatology Life Quality Index; EASI, Eczema Area and Severity Index; NRS, numerical Rating Scale; POEM, Patient-Oriented Eczema Measure; PP, Peak Pruritus; SCORAD, SCORing Atopic Dermatitis.

## CONCLUSION

- Dupilumab treatment led to rapid restoration and normalization of epidermal barrier function measured by significant reduction of TEWL in lesional skin of adults and adolescents with moderate-to-severe AD, associated with significant improvement in signs, symptoms, and quality of life

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