Dupilumab Improves Lung Function and Asthma Control While Reducing Systemic Corticosteroid Use in Patients With Allergic Bronchopulmonary Aspergillosis: The Phase 2 LIBERTY ABPA AIRED Study

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Asthma

Conclusion

Dupilumab treatment vs placebo significantly improved lung function, substantially reduced severe respiratory exacerbations and SCS use, and improved quality of life in patients with asthma and ABPA during the 24- to 52-week treatment period

Objective

The phase 2 LIBERTY ABPA AIRED study (NCT04442269) evaluated the efficacy and safety of dupilumab in patients with asthma and ABPA

Background

- Allergic bronchopulmonary aspergillosis (ABPA) is a rare progressive lung disease that affects 2.5% of patients with asthma globally[1]
- ABPA is characterized primarily by hypersensitivity to, and airway colonization with, *Aspergillus fumigatus* in patients with asthma and a robust type 2 inflammatory response, as well as increased IgE levels, and elevated blood eosinophil counts[2–4]
- Patients with asthma and ABPA often receive SCS and experience more severe clinical outcomes than those without ABPA, highlighting the need for treatments that address the immunological basis of ABPA[3,5,6]

Methods

- Patients aged ≥12 years[a] with uncontrolled asthma[7] (≥1 severe respiratory exacerbation requiring treatment with SCS, or hospitalization, or treatment in emergency department/urgent care within the past 12 months; or receiving long-term low-dose OCS) meeting clinical criteria for ABPA[8] received dupilumab 300 mg or placebo q2w for 24–52 weeks
- The primary endpoint was change from baseline in pre-bronchodilator FEV_1 at Week 24, assessed through formal hypothesis testing
- Select secondary and exploratory endpoints included annualized rate of severe respiratory exacerbations, change from baseline in SGRQ score, and proportion of patients with ≥50% reduction in SCS dose, assessed through within-group, descriptive statistics

[a]No adolescents were enrolled in the trial.

Results

Key baseline characteristics

Characteristic	Placebo N = 27	Dupilumab N = 35	Total N = 62
Age, mean (SD), years	57.1 (14.38)	61.2 (8.62)	59.4 (11.56)
Female, n (%)	17 (63.0)	22 (62.9)	39 (62.9)
Pre-bronchodilator FEV_1, mean (SD), L	1.83 (0.58)	1.95 (0.68)	1.90 (0.63)
Pre-bronchodilator $ppFEV_1$, mean (SD), %	64.4 (18.5)	71.4 (25.7)	68.3 (22.9)
Severe respiratory exacerbations requiring SCS in the 12 months prior to screening, n (%)			
≤1	20 (74.1)	23 (65.7)	43 (69.4)
2	6 (22.2)	5 (14.3)	11 (17.7)
>2	1 (3.7)	7 (20.0)	8 (12.9)
SGRQ total score, mean (SD)	51.3 (17.2)	52.4 (15.3)	51.9 (16.0)
Biomarkers, median (Q1–Q3)			
Blood eosinophil count, cells/µL	600 (230–1,260)	560 (180–800)	575 (230–890)
Total IgE, IU/mL	2,051 (693–4,206)	1,969 (1,005–3,475)	2,010 (1,005–3,475)
A. fumigatus-specific IgE, kU/L	52.5 (4.7–108.6)	39.9 (1.1–91.5)	44.4 (3.8–91.5)
FeNO, ppb	47.0 (18.0–63.0)	33.5 (19.0–54.0)	35.0 (18.5–60.0)
Medical history events			
Bronchiectasis, n (%)	3 (11.1)	3 (8.6)	6 (9.7)

Figure 1. Dupilumab vs placebo improved pre-bronchodilator FEV_1 over the 24- to 52-week treatment period

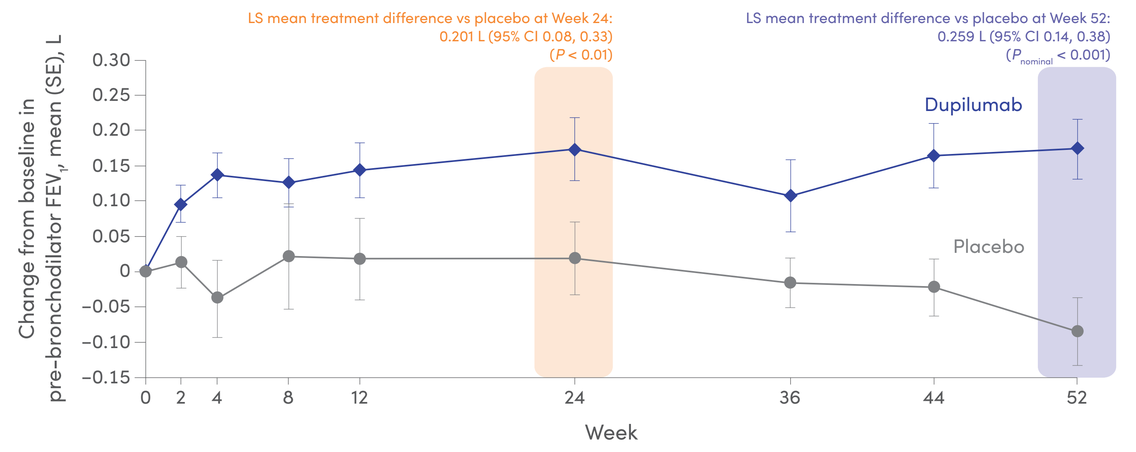
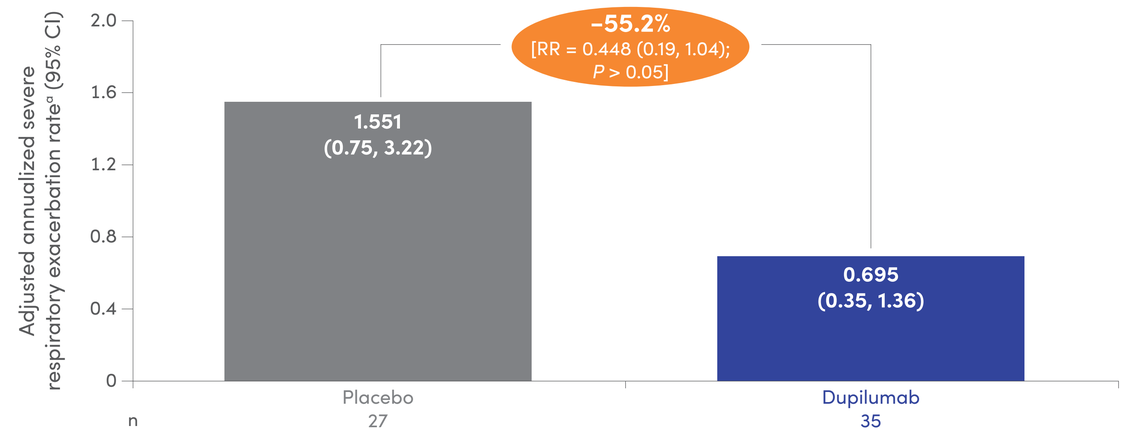


Figure 2. Treatment with dupilumab vs placebo reduced the annualized rate of severe respiratory exacerbations during the 24- to 52-week treatment period



[a]Severe respiratory exacerbations are defined as new onset symptoms or clinical worsening that require systemic corticosteroid treatment for ≥3 consecutive days, and, for patients who are on maintenance systemic corticosteroids, at least double the dose of maintenance systemic corticosteroids for ≥3 consecutive days plus antibiotic therapy if indicated.

Figure 3. Dupilumab vs placebo was associated with a higher proportion of patients with SCS dose reduction by ≥50% from baseline

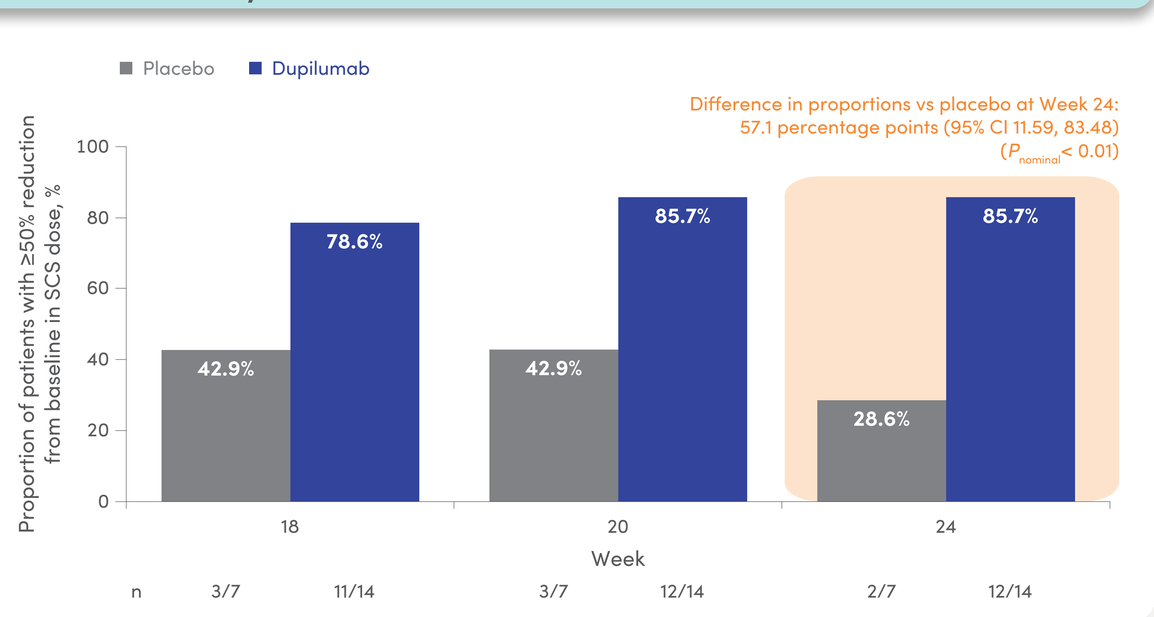
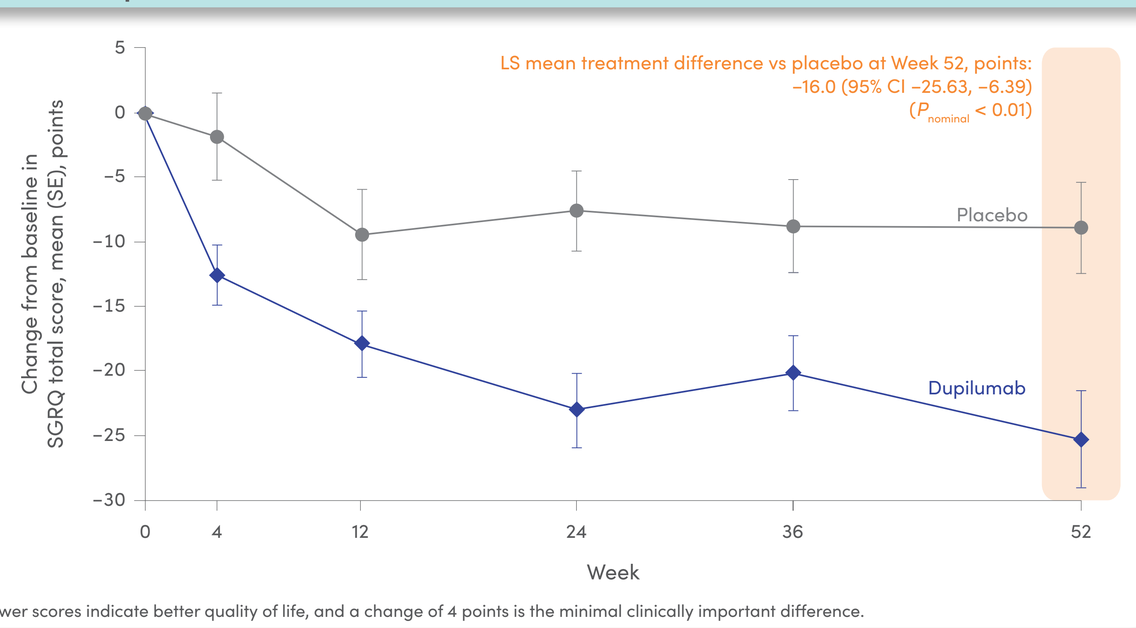


Figure 4. Dupilumab vs placebo improved the SGRQ total score during the 24- to 52-week treatment period



Lower scores indicate better quality of life, and a change of 4 points is the minimal clinically important difference.

FeNO, fractional exhaled nitric oxide; FEV_1, forced expiratory volume in 1 second; IgE, immunoglobulin E; LS, least squares; OCS, oral corticosteroid(s); ppb, parts per billion; $ppFEV_1$, percent predicted FEV_1; Q, quartile; q2w, every 2 weeks; RR, rate ratio; SCS, systemic corticosteroid(s); SD, standard deviation; SE, standard error; SGRQ, St. George's Respiratory Questionnaire.

References: 1. Denning DW, et al. Med Mycol. 2013;51:361-70. 2. Agarwal R, et al. Clin Chest Med. 2022;43:99-125. 3. Agarwal R, et al. Eur Respir J. 2024;63:2400061. 4. Knutsen AP, Slavin RG. Clin Dev Immunol. 2011;2011:843763. 5. Agbetile J, et al. J Allergy Clin Immunol. 2014;134:33-9. 6. Stevens DA, et al. N Engl J Med. 2000;342:756-62. 7. Global Initiative for Asthma (GINA) 2019. www.ginasthma.org/wp-content/uploads/2019/06/GINA-2019-main-report-June-2019-wms.pdf. 8. Agarwal R, et al. Clin Exp Allergy. 2013;43:850-73.

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