AAAAI 2025 Clinical and AI / ML Preview

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AAAAI 2025 – General Overview

- **Cutting-Edge Research:** Leading experts will present breakthroughs in allergic diseases, asthma, and immunology, highlighting novel therapeutic approaches and mechanistic insights
- **Global Collaboration:** Leading scientists, clinicians, and industry experts will discuss innovations in disease management and patient outcomes
- **Biologic Therapies:** Updates on targeted monoclonal antibodies and small molecules in severe asthma, atopic dermatitis, and other allergic conditions
- **Industry-Academic Partnerships & Translational Science:** Showcasing new pharma-biotech collaborations, accelerating research from bench to bedside for novel allergy and asthma therapies
- **Spotlight Lectures & Scientific Abstracts:** Keynote talks and over 500 presentations covering innovations in immunotherapy, biologics, and precision medicine
- **Patient-Centered Care:** Focus on personalized medicine and real-world evidence to improve treatment strategies

AAAAI 2025– Conference Themes (1/2)

- **Severe Asthma & Biologics:** Advances in dupilumab, tezepelumab, and benralizumab in reducing exacerbations and improving disease control
- **Food Allergy & Immunotherapy:** Epicutaneous immunotherapy, omalizumab-facilitated oral immunotherapy, and novel peanut vaccines
- **Chronic Rhinosinusitis & Nasal Polyps:** Long-term efficacy of mepolizumab, dupilumab, and emerging therapies for disease control
- **Atopic Dermatitis & New Treatments:** Updates on JAK inhibitors, ruxolitinib cream, abrocitinib, and lebrikizumab in improving inflammation and quality of life
- **Hereditary Angioedema & Targeted Therapies:** Gene-editing approaches, donidalorsen, and garadacimab for long-term attack prevention

AAAAI 2025– Conference Themes (2/2)

- **Drug Hypersensitivity & Allergy Testing:** Advances in antibiotic allergy de-labeling, desensitization, and precision diagnostics
- **Environmental & Exposomics Factors:** The impact of pollution, climate change, and exposomics on allergic diseases
- **Precision Medicine & Biomarkers:** Identifying predictive biomarkers to guide personalized therapies in asthma, eosinophilic esophagitis, and systemic mastocytosis
- **Respiratory Infections & Immunity:** Exploring RSV, viral exacerbations in asthma, and vaccine strategies for allergic and immunologic patients
- **Advances in Gene & Cell Therapy:** Investigating CRISPR-based and stem-cell therapies for hereditary immune disorders and allergic diseases.

Noteworthy Scientific presentations at AAAAI 2025

Key Topics From Notable Presentations (1/10)

- **Asthma and Respiratory Diseases:** AAAAI'25 will showcase how dupilumab continues to demonstrate robust efficacy in reducing exacerbations, improving asthma control, and enhancing lung function across diverse asthma populations in real-world and clinical trial settings
  - Real-World Effectiveness of dupilumab in Asthma: A 12-month analysis of 205 patients from RAPID (NCT04287621) demonstrated a significant 93% reduction in exacerbation rates and improved asthma control, with a favorable safety profile
  - Predictors of Clinical Remission in Asthma: Post hoc analysis of QUEST (NCT02414854) identified baseline eosinophil count (≥150–500 cells/μL) and FeNO levels (≥20 ppb) as key predictors of clinical remission with dupilumab
  - Comparative Biologic Efficacy in Lung Function Improvement: EU-ADVANTAGE Study detected that dupilumab provided superior lung function improvement (+16.5% pre-BD ppFEV1) versus omalizumab, benralizumab, and mepolizumab, reinforcing its efficacy in European severe asthma patients

Key Topics From Notable Presentations (2/10)

- **Systemic Mastocytosis:** The focus will be on targeted therapies such as avapritinib, bezuclastinib, and elenestinib, which have the potential to improve ISM outcomes. emerging biomarkers and combination strategies are anticipated to enhance diagnostic accuracy and treatment efficacy
  - Avapritinib and Bezuclastinib in ISM and NonAdvSM: Avapritinib significantly improved quality of life (MC-QoL 61→17, $p<0.001$), symptom control, and bone health in ISM. SUMMIT trial revealed Bezuclastinib reduced serum tryptase (94.4%), KIT p.D816V burden (100%), and bone marrow mast cells (92.3%) with a 49.1% symptom improvement
  - Novel Biomarkers and JAK2 Inhibition for ISM: Data from PIONEER trial identified MILR1, CCL23, CD48, and SIGLEC10 as potential ISM biomarkers correlating with tryptase levels. JAK2 inhibition (fedratinib, gandotinib) enhanced KIT inhibitor efficacy, supporting a combined therapeutic approach
  - Evaluating Elenestinib in ISM: The HARBOR phase 2/3 trial (NCT04910685) is assessing elenestinib in 340 ISM patients, focusing on symptom reduction, serum tryptase levels, and bone density improvements, with results pending

Key Topics From Notable Presentations (3/10)

- **Urticaria and Angioedema:** Targeted therapies like sebetralstat, navenibart, and donidalorsen expected to redefine HAE management, while remibrutinib and barzolvolimab data show promise for chronic urticaria, improving long-term disease control and patient outcomes
  - Sebetralstat and Navenibart for HAE: The KONFIDENT-S trial showed that oral sebetralstat provided rapid symptom relief in laryngeal HAE attacks (median 1.27h), with complete resolution in 12.69h. ALPHA-STAR trial suggests navenibart reduced attack rates to near zero over six months, supporting long-term HAE control
  - Donidalorsen and Garadacimab for Prophylactic HAE Therapy: Data from the OASIS-HAE trial showed donidalorsen reduced attack rates by 97% (Q4W dosing) in adolescents. Garadacimab achieved a 97.3% attack reduction in older HAE patients, reinforcing its potential as a long-term prophylactic.
  - Remibrutinib and Barzolvolimab in CSU: REMIX-1/-2 trials showed remibrutinib provided rapid and sustained urticaria control, while barzolvolimab improved quality of life and urticaria control in antihistamine-refractory CSU, supporting its role as a targeted therapy

Key Topics From Notable Presentations (4/10)

- **Chronic Rhinosinusitis and Nasal Polyps:** Spotlight will be on how biologics like depemokimab, tezepelumab, and dupilumab enhance CRSwNP management, while advanced predictive models help anticipate surgery needs, optimizing personalized treatment strategies
  - Depemokimab and Tezepelumab for CRSwNP: The ANCHOR-1/2 trials suggest that depemokimab, with twice-yearly dosing, significantly improved nasal polyp score and nasal obstruction. WAYPOINT demonstrated Tezepelumab's robust efficacy in reducing polyp burden and the need for surgery/systemic corticosteroids
  - Dupilumab's Real-World Impact: The AROMA registry data highlights dupilumab's long-term benefits in CRSwNP patients with asthma and AERD, significantly improving nasal congestion, smell loss, and quality of life. Liberty ORION showed its efficacy in CRSsNP with type 2 inflammation
  - Predicting Sino-Nasal Surgery in CRSwNP: A retrospective study using XGBoost identified asthma, anosmia, and corticosteroid use as key predictors of sino-nasal surgery in CRSwNP patients, achieving strong predictive performance (AUC 0.78, PPV 70%)

Key Topics From Notable Presentations (5/10)

- **Food Allergy and Immunotherapy:** Discussions will be on how omalizumab shows greater efficacy and safety than OIT for multi-food allergy, while early and high-dose peanut OIT improves long-term immune tolerance and desensitization outcomes

  - Comparing omalizumab and Oral Immunotherapy in Multi-Food Allergy: The OUtMATCH Stage 2 trial found omalizumab superior to oral immunotherapy (OIT) for multi-food allergy, with higher success rates (36% vs. 19%) and fewer adverse events, including epinephrine-treated reactions

  - Long-Term Immunologic Changes in Peanut OIT: The IMPACT study follow-up (5–7 years post-study) showed that early peanut OIT led to sustained reductions in peanut-specific IgE and increased IgG4:IgE ratios, supporting long-term immune modulation and tolerance

  - Sustained Tolerance in High-Threshold Peanut Allergy: A trial evaluating peanut OIT in high-threshold peanut allergy demonstrated increased desensitization (100% vs. 21%) and durable tolerance (68.4% vs. 8.6%) with POIT, with mild adverse events reported

Key Topics From Notable Presentations (6/10)

- **Atopic Dermatitis and Dermatology:** Sessions are set to highlight advancements in atopic dermatitis treatment including new immunomodulators, targeted topical therapies, and biologic-driven metabolic restoration, with early intervention improving long-term outcomes in pediatric patients

  - IRL201104 (A Novel Peptide Therapy for Atopic Dermatitis): Data from Preclinical studies suggest that IRL201104 reduced skin inflammation and immune markers in a dose-dependent manner, demonstrating potential as a first-in-class treatment for atopic dermatitis

  - Tapinarof and Ruxolitinib (Efficacy Across Body Regions and Age Groups): Tapinarof cream improved atopic dermatitis severity across all body regions, while ruxolitinib showed robust efficacy and safety across all age groups in phase 3 trials, supporting its broad clinical application

  - Dupilumab and Metabolic Correction in Atopic Dermatitis: An analysis showed Dupilumab treatment improved amino acid levels, reduced nucleotide metabolites, and restored ceramide composition in pediatric patients, suggesting metabolic correction as part of its therapeutic effect

Key Topics From Notable Presentations (7/10)

- **Drug Hypersensitivity and Allergy Testing:** Studies will highlight new clinical decision rules and genetic risk markers that improve drug allergy evaluation. Additionally, streamlined delabeling strategies will enhance safe antibiotic use in high-risk patients

  - A New Clinical Decision Rule for Cephalosporin Allergy: CEPH-FAST trial showed high accuracy (AUROC 0.921) in identifying low-risk cephalosporin allergy cases, supporting direct oral challenge use for patients scoring below 3

  - HLA-A*32:01 Functional Divergence and Vancomycin DRESS Risk: Lower HLA functional divergence significantly increased vancomycin DRESS risk (OR 4.8, p=0.02), highlighting its potential role in refining HLA-based drug hypersensitivity screening

  - Rapid Antibiotic Allergy Delabeling in Transplant Patients: Findings from A retrospective cohort study emphasize that a multiple antibiotic evaluation strategy (MAES) successfully delabeled over 80% of antibiotic allergy labels in transplant patients in a single clinic visit, optimizing antibiotic access

Key Topics From Notable Presentations (8/10)

- **Biologics and Novel Therapies:** The conference will highlight that Innovative biologics and novel therapies continue to redefine treatment strategies, offering sustained disease control and improved quality of life across multiple allergic and inflammatory conditions
  - Neffy Nasal Epinephrine Provides Rapid Anaphylaxis Symptom Relief: According to the phase 3 trial, Neffy nasal spray resolved skin, respiratory, and gastrointestinal symptoms faster than standard treatments in anaphylaxis patients, supporting its role as an effective needle-free alternative
  - Dupilumab Demonstrates Long-Term Effectiveness in Chronic Rhinosinusitis with Nasal Polyps: A 24-month real-world study found that dupilumab significantly improved nasal congestion, smell loss, and quality of life in CRSwNP patients, reinforcing its sustained clinical benefits
  - Dupilumab Increases Clinical Remission Rates in Moderate-to-Severe Asthma: The VESTIGE trial showed that Dupilumab doubled clinical remission rates (38.9% vs. 18.9%, $p<0.05$) in asthma patients after 6 months, with significant reductions in airway inflammation and improved lung function

Key Topics From Notable Presentations (9/10)

- **Pediatric Allergy and Immunology:** Discussions will cover optimized management strategies for pediatric allergic diseases, such as OIT and long-term immunotherapy, which enhance safety, adherence, and treatment durability. The emergence of obesity as a critical risk factor for atopic conditions will also be discussed

  - Obesity Increases Risk of New-Onset Allergic Rhinitis in Children: A large cohort study found that children with obesity had a 24% higher risk of developing allergic rhinitis within one year, emphasizing the need for further research into causality

  - Stepwise Egg Oral Immunotherapy (OIT) Demonstrates Favorable Safety Profile: A retrospective study showed that stepwise egg OIT was well tolerated, with no severe reactions or treatment discontinuations, supporting its potential as a safer approach for egg allergy management

  - Long-Term Peanut Patch Therapy Sustains Clinical Benefit in Allergic Children: A 60-month study of the VIASKIN peanut patch showed increasing response rates (39.1% to 73.3%), improved eliciting dose tolerance, and high compliance (93%), reinforcing its long-term efficacy

Key Topics From Notable Presentations (10/10)

- **Miscellaneous Topics in Immunology:** Sessions will highlight advances in immunologic research that are refining allergy diagnostics, uncovering unexpected infection-immunity interactions, and optimizing biologic therapies for various inflammatory conditions

  - Patch Testing Identifies Contact Dermatitis Triggers in Chronic Ulcer Patients: A customized patch test series identified nitrofurazone and fragrance mix II as key allergens in chronic ulcer patients, highlighting the need for improved allergy screening in wound care

  - Helminth Coinfection Modulates SARS-CoV-2 Immune Response: Study highlighted that Mice coinfected with Heligmosomoides polygyrus and SARS-CoV-2 exhibited reduced lung damage and mortality, suggesting helminth-induced IL-5 modulation may protect against severe COVID-19 outcomes

  - Dupilumab Improves Eosinophilic Esophagitis Outcomes Regardless of Dietary Management: A LIBERTY EoE TREET analysis found that histologic and symptomatic improvements with dupilumab were independent of concurrent food elimination diets, supporting its broad use in EoE management

Focus of Key Industry Sponsored Symposia at AAAAI 2025 (1/5)

- **ARS Pharmaceuticals:**
  - Focus Areas: Epinephrine Administration & Emergency Allergy Treatment
  - Sessions will explore innovations in intranasal epinephrine delivery, emphasizing real-world applications, safety, and efficacy in anaphylaxis management
- **Blueprint Medicines:**
  - Focus Areas: Systemic Mastocytosis & Mast Cell Disorders
  - Presentations will cover the mast cell role in disease pathology, patient journeys in indolent systemic mastocytosis, and emerging treatment strategies
- **AstraZeneca:**
  - Focus Areas: Eosinophilic Inflammation, Chronic Rhinosinusitis, and Severe Asthma
  - Discussions will highlight the role of epithelial cytokines, biologics in eosinophilic granulomatosis with polyangiitis (EGPA), and evolving therapies for recurrent CRSwNP and airway diseases

Focus of Key Industry Sponsored Symposia at AAAAI 2025 (2/5)

- **GSK:**
  - Focus Areas: Biologics for Chronic Rhinosinusitis with Nasal Polyps (CRSwNP)
  - Insights into the benefits of biologic therapies for patients with recurrent CRSwNP, focusing on patient outcomes and real-world efficacy
- **Sanofi / Regeneron:**
  - Focus Areas: Type 2 Inflammation, Urticaria, and Airway Diseases
  - Sessions will examine chronic spontaneous urticaria (CSU), type 2 cytokine-driven airway inflammation, and optimal management strategies for allergic diseases
- **Ionis Pharmaceuticals:**
  - Focus Areas: Hereditary Angioedema (HAE)
  - Presentations will explore novel RNA-based therapies targeting HAE attacks and improving long-term disease control

Focus of Key Industry Sponsored Symposia at AAAAI 2025 (3/5)

- **Genentech:**
  - Focus Areas: Food Allergy Treatment & Immunotherapy Advances
  - Sessions will focus on integrating the latest advancements in food allergy treatment and the role of immunotherapy in preventing allergic reactions
- **KalVista Pharmaceuticals:**
  - Focus Areas: Hereditary Angioedema (HAE) Management
  - Novel therapeutic strategies for managing HAE and improving patient outcomes through targeted therapies will be presented
- **DBV Technologies:**
  - Focus Areas: Epicutaneous Immunotherapy for Food Allergies
  - Exploring innovative approaches to tolerance induction and the role of skin-targeted immunotherapy in treating pediatric food allergies

Focus of Key Industry Sponsored Symposia at AAAAI 2025 (4/5)

- **CSL:**
  - Focus Areas: Hereditary Angioedema (HAE) – Factor XII Inhibition
  - Sessions will evaluate new pharmacologic targets, particularly Factor XII inhibition, for improved HAE treatment outcomes and long-term disease control
- **Amgen / Kyowa Kirin:**
  - Focus Areas: OX40 Receptor & Atopic Dermatitis
  - Presentations will explore the role of OX40 in moderate-to-severe atopic dermatitis, emphasizing disease heterogeneity and chronicity
- **Eli Lilly:**
  - Focus Areas: IL-13 Targeted Therapies in Atopic Dermatitis
  - Sessions will focus on novel IL-13 inhibitors, evaluating their impact on disease severity, symptom management, and long-term disease control

Focus of Key Industry Sponsored Symposia at AAAAI 2025 (5/5)

- **BioCryst Pharmaceuticals:**
  - Focus Areas: Real-World Impact of HAE Therapies
  - Updates on real-world data on berotralstat and its effectiveness in HAE prophylaxis
- **Novartis:**
  - Focus Areas: Chronic Spontaneous Urticaria (CSU) & Bruton's Tyrosine Kinase (BTK) Inhibition
  - Sessions will address BTK inhibition as a potential therapeutic target in CSU management
- **Ionis / Pharming Healthcare:**
  - Focus Areas: Innovative HAE Therapeutic Strategies
  - Discussions will focus on case-based challenges and novel treatment paradigms for hereditary angioedema.

Notable Presentations at AAAAI 2025

Notable Presentations at AAAAI 2025
Asthma and Respiratory Diseases (1/6)

Date	Title	Author	Summary
28 Feb 2025	Baseline Characteristics Associated With Multicomponent Clinical Remission Following Dupilumab Treatment In Patients With Moderate-To-Severe Asthma	Giorgio Canonica	• **Introduction:** This post hoc analysis of the QUEST trial (NCT02414854) examined baseline characteristics linked to clinical remission in moderate-to-severe asthma patients treated with dupilumab. • **Methodology**: Patients received add-on dupilumab (200/300 mg) or placebo every two weeks for 52 weeks. Remission at Week 52 was defined as no exacerbations, no oral corticosteroid use, stable/improved lung function, and ACQ-5 score <1.5. • **Results:** Remission rates were higher with dupilumab (38.3%) vs. placebo (26.2%). Higher remission likelihood was seen with baseline blood eosinophils ≥150, ≥300, or ≥500 cells/μL (OR: 2.17–4.04, P<0.0001) and FeNO ≥20 ppb (OR: 2.35, P<0.0001). • **Conclusions:** Baseline eosinophil count and FeNO levels were key predictors of clinical remission with dupilumab in asthma patients.
01 Mar 2025	Prevalence and Impact of Barriers to Care in Children and Adults with Asthma	Brandon Ansbro	• **Introduction:** Patients with asthma face significant barriers to care, yet comprehensive data on their prevalence and impact are limited. This study evaluates the association between access barriers and asthma control in a national US cohort • **Methodology**: A cross-sectional analysis of the 2023 National Health Interview Survey compared respondents with and without current asthma. Logistic regression, adjusted for clinicodemographic factors, assessed associations between asthma and healthcare access. Weighted statistical analyses were applied • **Results:** Among 7,683 children and 29,457 adults, asthma prevalence was 6.69% and 8.93%, respectively. Asthma patients were significantly more likely to delay care, struggle with medication costs, and experience exacerbations (all P <0.05) • **Conclusions:** Financial barriers contribute to poor asthma control. Improved access programs may mitigate disease burden and enhance patient outcomes

Notable Presentations at AAAAI 2025
Asthma and Respiratory Diseases (2/6)

Date	Title	Author	Summary
01 Mar 2025	Predictive Analysis Model for Exacerbations in Asthmatics Patients on a Remote Patient Monitoring Program	Saud Anwar	• **Introduction:** Asthma, affecting over 22 million Americans, incurs high healthcare costs and frequent exacerbations leading to ER visits. No prior studies have developed a predictive model using remote patient monitoring (RPM) data to preemptively identify exacerbation risk • **Methodology**: A two-year retrospective cohort analysis of 25 patients (mean age 59.2) in an RPM program at two clinics generated 53 alerts. Logistic regression assessed age, gender, FEV1, peak flow, SpO2, biologics use, insurance type, and self-check-ins to develop predictive models • **Results:** Age (OR: 18.9, $p < 0.04$) and FEV1 (OR: 0.007, $p < 0.04$) significantly predicted exacerbations. The high-risk model achieved 88.7% accuracy (AUC = 0.90), and the low-risk model reached 92.5% accuracy (AUC = 0.77) • **Conclusions:** RPM-based predictive models enhance asthma management, enabling early intervention, reducing ER visits, and optimizing treatment strategies.
01 Mar 2025	Twice-Yearly Depemokimab Demonstrates an Acceptable Safety Profile in a 12-Month Interim Analysis of the AGILE Phase III Open-Label Extension Study	Daniel Jackson	• **Introduction:** Depemokimab, an ultra-long-acting anti-IL-5 biologic administered biannually, demonstrated efficacy and safety in type 2 asthma patients in the 52-week SWIFT-1/2 studies. This AGILE open-label extension assessed its long-term safety and efficacy • **Methodology**: Patients (≥12 years) with BEC ≥300/>150 cells/μL, ≥2 exacerbations in the past year, and on medium-to-high-dose ICS who completed SWIFT were enrolled. All received depemokimab 100 mg SC. Safety (primary) and exacerbation rates (secondary) were analyzed • **Results:** Of 640 enrolled patients, 629 received ≥1 dose; 47% completed the study. AEs occurred in 63%, most commonly infections (43%). Serious AEs (7%) were infrequent; no deaths occurred. The annualized exacerbation rate was 0.47 overall • **Conclusions:** Depemokimab maintained a favorable safety and efficacy profile over the long term, supporting sustained benefits in type 2 asthma

Notable Presentations at AAAAI 2025
Asthma and Respiratory Diseases (3/6)

Date	Title	Author	Summary
01 Mar 2025	Two-Year Efficacy and Safety of Benralizumab for the Treatment of Eosinophilic Granulomatosis with Polyangiitis	Michael Wechsler	• **Introduction:** The MANDARA trial previously established the non-inferiority of benralizumab versus mepolizumab in achieving remission in eosinophilic granulomatosis with polyangiitis (EGPA). This two-year analysis evaluates long-term efficacy and safety in the open-label extension (OLE) • **Methodology**: Patients completing the 52-week double-blind phase continued benralizumab (benra/benra) or switched from mepolizumab to benralizumab (mepo/benra). Remission (BVAS=0, OGC ≤4 mg/day), OGC use, relapse rates, blood eosinophil count (bEOS), and safety were assessed at Week 104 • **Results:** Of 128 OLE participants, 62.1% (benra/benra) and 67.7% (mepo/benra) achieved remission. Relapse rates were low (77.3% benra/benra, 67.7% mepo/benra had no relapses). OGC withdrawal improved over time. bEOS rapidly decreased after switching to benralizumab. Safety remained consistent • **Conclusions:** Benralizumab maintains durable remission, low relapse rates, and OGC reduction in EGPA, with additional benefits observed in patients switching from mepolizumab
02 Mar 2025	The Safety And Efficacy Of Dupilumab In A Real-World Clinical Setting: The RAPID Asthma Prospective Registry	Anju Peters	• **Introduction:** Dupilumab, a monoclonal antibody targeting interleukin-4 and -13, has demonstrated efficacy in asthma clinical trials, but real-world data remain limited. This study assessed its effectiveness and safety in RAPID • **Methodology**: RAPID enrolled 719 asthma patients (≥12 years) initiating dupilumab. This analysis included the first 205 patients who completed 12 months. Outcomes included annualized exacerbation rates, asthma control (ACQ-6), quality of life (mini-AQLQ), and safety. • **Results:** Exacerbation rates dropped from 1.9 to 0.14/year. ACQ-6 scores improved by -1.36, and mini-AQLQ increased from 4.08 to 5.52. Adverse events (48.3%) were mostly mild, with asthma, COVID-19, and sinusitis most reported. • **Conclusions:** Dupilumab significantly reduced exacerbations and improved asthma control and quality of life, with a favorable safety profile.

Notable Presentations at AAAAI 2025
Asthma and Respiratory Diseases (4/6)

Date	Title	Author	Summary
02 Mar 2025	Baseline Asthma Burden of Patients Who Initiated Dupilumab In The RAPID Registry, Stratified By Dose Of Inhaled Corticosteroid	Leonard Bacharier	• **Introduction:** Dupilumab is recommended for severe asthma, but the burden of disease in patients on medium- vs. high-dose inhaled corticosteroids (ICS) remains unclear. This study assessed asthma-related work impairment, systemic corticosteroid (SCS) use, and emergency room (ER) visits before dupilumab initiation. • **Methodology**: RAPID (NCT04287621), a global registry, enrolled 719 patients (≥12 years) initiating dupilumab. Work impairment (WPAI questionnaire), SCS use (past year), and ER visits were analyzed in patients on medium- vs. high-dose ICS. • **Results:** Patients missed 9.2% (medium ICS) and 10.3% (high ICS) of work time. Mean SCS use was 20.8 vs. 22.7 days, and ER visit rates were 19.5% vs. 18.7%, respectively. • **Conclusions:** Asthma burden was high regardless of ICS dose before dupilumab, highlighting the need for better disease control.
02 Mar 2025	Long-Term Effects Of Dupilumab On Children With Type 2 Asthma With Or Without Evidence Of Allergy	Alessandro Fiocchi	• **Introduction:** Dupilumab, an IL-4/IL-13 receptor blocker, has demonstrated efficacy in children (6–11 years) with type 2 asthma. This post hoc analysis assessed its effect in allergic vs. non-allergic phenotypes. • **Methodology**: Children in VOYAGE (NCT02948959) received dupilumab (100/200 mg q2w) or placebo for 52 weeks, followed by 52 weeks of open-label dupilumab in EXCURSION (NCT035604666). Outcomes included annualized exacerbation rate and total IgE levels. • **Results:** Dupilumab reduced exacerbation rates vs. placebo in allergic (0.333 vs. 0.651) and non-allergic (0.429 vs. 0.749) groups, with sustained reductions in EXCURSION. Total IgE decreased significantly in dupilumab-treated patients. • **Conclusions:** Dupilumab provided sustained exacerbation reduction in children with moderate-to-severe asthma, regardless of allergic status.

Notable Presentations at AAAAI 2025
Asthma and Respiratory Diseases (5/6)

Date	Title	Author	Summary
02 Mar 2025	Efficacy And Safety Of Tezepelumab In Adults With Severe, Uncontrolled Asthma In Asia: Results From The Regional, Phase 3 DIRECTION Study	Yang Yan	• **Introduction:** Tezepelumab, a monoclonal antibody targeting thymic stromal lymphopoietin, has demonstrated efficacy in severe, uncontrolled asthma. The DIRECTION study evaluated its efficacy and safety in an Asian population • **Methodology**: This phase 3, multicenter, double-blind, placebo-controlled trial randomized 404 patients (18–80 years) 1:1 to tezepelumab 210 mg or placebo every 4 weeks for 52 weeks. The primary endpoint was annualized asthma exacerbation rate (AAER), with secondary outcomes including FEV1, ACQ-6, AQLQ(S)+12, ASD scores, and safety • **Results:** Tezepelumab reduced AAER by 74% ($p<0.001$) and significantly improved FEV1 (+0.25L, $p\leq0.001$), ACQ-6, AQLQ(S)+12, and ASD scores versus placebo. No safety concerns emerged • **Conclusions:** Consistent with global findings, tezepelumab demonstrated robust efficacy in reducing exacerbations and improving lung function and asthma control in Asian patients
02 Mar 2025	Real-World Effectiveness of Dupilumab vs Omalizumab, Benralizumab, and Mepolizumab on Lung Function Improvement in Severe Asthma Patients: Findings from the EU-ADVANTAGE Study	Giorgio Canonica	• **Introduction:** Biologics improve lung function in severe asthma (SA), but comparative real-world data in Europe are limited. This study assessed lung function improvement with dupilumab vs. other biologics in the EU-ADVANTAGE study. • **Methodology**: A retrospective analysis of SA patients (≥12 years) from five European countries assessed changes in percent predicted FEV1 (ppFEV1) before and after initiating dupilumab, omalizumab, benralizumab, or mepolizumab. Inverse probability treatment weighting (IPTW) adjusted for baseline differences. • **Results:** Dupilumab-treated patients had the highest mean pre-BD ppFEV1 improvement (16.5%), significantly greater than omalizumab (Δ5.25%, $p<0.0001$), benralizumab (Δ3.23%, $p=0.048$), and mepolizumab (Δ3.29%, $p=0.029$). Similar post-BD improvements were observed. • **Conclusions:** Dupilumab demonstrated superior lung function improvement compared to other biologics in European SA patients.

Notable Presentations at AAAAI 2025
Asthma and Respiratory Diseases (6/6)

Date	Title	Author	Summary
03 Mar 2025	Dupilumab Produces Clinically Relevant Improvement in Small Airway Dysfunction in Patients With Moderate-to-Severe Asthma: Results From the Phase 4 VESTIGE Study	Brian Lipworth	• **Introduction: S**mall airway dysfunction (SAD) is linked to type 2 inflammation and poor asthma control. This post hoc analysis of the phase 4 VESTIGE trial assessed the impact of dupilumab on SAD using airway oscillometry • **Methodology**: In this 24-week study, 109 adults with uncontrolled type 2 high moderate-to-severe asthma were randomized to dupilumab 300 mg (n=72) or placebo (n=37) every two weeks. SAD was evaluated via peripheral airway resistance (R5–R20) and compliance (AX) using airway oscillometry. The proportion of patients exceeding biological variability thresholds was analyzed • **Results:** Dupilumab significantly improved R5–R20 (−0.06 kPa/L/s, P<0.01) and AX (−1.43 kPa/L, P<0.01) vs placebo. Dupilumab recipients were 73% more likely to improve R5–R20 and 57% more likely to improve AX beyond biological variability (P<0.05) • **Conclusions:** Dupilumab significantly improved SAD, potentially contributing to enhanced asthma control
03 Mar 2025	Reduction in Asthma Exacerbations Following Initiation of Benralizumab Among Medicare Beneficiaries: Results from the ZEPHYR-5 Study	Muhammad Adrish	• **Introduction:** Older asthma patients are underrepresented in clinical trials. This real-world study evaluated the impact of benralizumab on asthma exacerbations in Medicare beneficiaries • **Methodology**: Medicare Fee-for-Service (MFFS) and Medicare Advantage (MA) claims (2017–2022) identified patients (N=4,611) initiating benralizumab with ≥1 refill, 12 months pre/post-index enrollment, ≥2 asthma exacerbations at baseline, and confirmed asthma diagnosis. Exacerbations were defined as hospitalizations, mechanical ventilation claims, or outpatient/ED visits requiring systemic corticosteroids. The annualized asthma exacerbation rate (AAER) change was assessed • **Results:** Mean age was 69.3±10.9 years; 69.1% were female. AAER decreased by 43.5% (3.8±2.0 to 2.2±2.2, p<0.001), with ≥4 exacerbations declining by 50.5% • **Conclusions:** Benralizumab significantly reduced asthma exacerbations in older patients, supporting its efficacy in real-world clinical practice

Notable Presentations at AAAAI 2025
Systemic Mastocytosis (1/4)

Date	Title	Author	Summary
1 Mar 2025	Avapritinib improves disease control and quality of life in patients with indolent systemic mastocytosis: First results of the real-world evidence study AVATAR	Polina Pyatilova	• **Introduction:** Indolent systemic mastocytosis (ISM) is primarily driven by the KIT D816V mutation, leading to chronic symptoms and impaired quality of life. While avapritinib, a selective KIT D816V inhibitor, has shown efficacy in clinical trials, real-world data remain limited • **Methodology**: This study enrolled ISM patients with uncontrolled disease (MCT <13) and assessed symptom severity, quality of life (QoL), disease burden, and mast cell activity at baseline (w0) and weeks 4 (w4), 12 (w12), and 24 (w24) • **Results:** Among 17 ISM patients, 88% tolerated avapritinib well. Significant improvements were seen in QoL (MC-QoL 61→17, p<0.001), disease control (MCT 7→16), and BST reduction (53→6 ng/mL, p<0.001). Skin involvement improved in all patients • **Conclusions:** Avapritinib demonstrated rapid and sustained benefits in QoL, symptom control, and BST reduction, supporting its real-world efficacy in ISM
01 Mar 2025	Multiple Proteins Correlate With Tryptase Levels in Patients With Indolent Systemic Mastocytosis (ISM): Preliminary Results of Plasma Proteomic Analysis in PIONEER	Vito Sabato	• **Introduction:** Systemic mastocytosis (SM), driven by the KIT D816V mutation, is diagnosed using WHO criteria, including serum tryptase >20 ng/mL. However, ~30% of indolent SM (ISM) patients do not meet this threshold, and tryptase levels do not correlate well with symptoms. Identifying alternative biomarkers is crucial for refining disease assessment • **Methodology**: High-throughput plasma proteome profiling was conducted in ISM patients (n=156) from the PIONEER trial. The Olink® Explore 384 Inflammation panel analyzed 363 proteins at baseline and after 24 weeks of avapritinib (n=96) or placebo (n=51) • **Results:** MILR1 (r=0.74), CCL23 (r=0.62), CD48 (r=0.51), SIGLEC10 (r=0.43), IL5RA, CD4, and IL13 correlated with baseline tryptase. MILR1, CCL23, CD48, and SIGLEC10 changes also correlated with tryptase reductions post-treatment (FDR <0.05), but not in placebo • **Conclusions:** Several inflammatory proteins exhibit expression patterns similar to tryptase, offering potential new biomarkers for ISM. Further studies are needed to assess their clinical relevance and role in disease severity

Notable Presentations at AAAAI 2025
Systemic Mastocytosis (2/4)

Date	Title	Author	Summary
01 Mar 2025	Efficacy and Safety Results of Adult Patients with NonAdvanced Systemic Mastocytosis Receiving Bezuclastinib 100 mg in the Ongoing Summit Trial: A Randomized, Double-Blind, Placebo Controlled Phase 2 Clinical Trial of Bezuclastinib	Nathan Boggs	• **Introduction:** Bezuclastinib (CGT9486) is an investigational, selective tyrosine kinase inhibitor with clinical activity in systemic mastocytosis (SM). The Phase 2 Summit trial evaluated its efficacy and safety in non-advanced SM (NonAdvSM) patients with inadequate symptom control despite best supportive care (BSC) • **Methodology**: In this randomized, double-blind, placebo-controlled trial, patients received bezuclastinib 100 mg (original/optimized formulation) or placebo. Part 1 assessed biomarker response and symptom reduction at 12 weeks, followed by an open-label extension (OLE) • **Results:** Bezuclastinib 100 mg led to ≥50% reductions in serum tryptase (94.4%), KIT p.D816V variant allele frequency (100%), and bone marrow mast cells (92.3%). MS2D2 symptom scores improved by 49.1% vs 21.1% (placebo), reaching 59.7% at week 24. TEAEs were mild and reversible • **Conclusions:** Bezuclastinib demonstrated robust biomarker reductions, symptom improvement, and favorable safety in NonAdvSM, supporting its potential as a targeted therapy
01 Mar 2025	Comprehensive Analysis of Immunoglobulin E Levels in Healthy Donors and Patients With Indolent Systemic Mastocytosis Enrolled on the PIONEER Trial of Avapritinib	Sigurd Broesby-Olsen	• **Introduction:** Indolent systemic mastocytosis (ISM), driven by the KIT D816V mutation, involves mast cell (MC) activation independent of IgE binding. While IgE plays a key role in allergic MC degranulation, its significance in ISM remains unclear. Prior studies show that anti-IgE therapies, such as omalizumab, do not substantially reduce ISM-related biomarkers • **Methodology**: Plasma IgE levels were assessed in 168 ISM patients from the PIONEER trial at baseline and after 24 weeks of avapritinib (25 mg daily). Samples were stratified by omalizumab use and compared to 39 age-matched healthy donors (HDs) • **Results:** Baseline IgE was significantly lower in ISM patients not on omalizumab (median: 9.68 kU/L) vs. HDs (39.00 kU/L, P=0.0024). IgE negatively correlated with KIT D816V allele frequency (r=−0.22, P=0.0086) and tryptase (r=−0.21, P=0.01). Post-avapritinib, IgE levels remained stable (P=0.2321) • **Conclusions:** ISM patients without omalizumab treatment exhibit lower baseline IgE than healthy individuals, suggesting distinct immune system alterations in ISM pathophysiology

Notable Presentations at AAAAI 2025
Systemic Mastocytosis (3/4)

Date	Title	Author	Summary
01 Mar 2025	Avapritinib and Bone Health in Indolent Systemic Mastocytosis: Learnings from the PIONEER Trial	Frank Siebenhaar	• **Introduction:** Indolent systemic mastocytosis (ISM) is associated with significant bone health complications, including osteoporosis (~25%), osteopenia (~30%), and a 30% lifetime risk of fragility fractures. Avapritinib, a selective KIT D816V inhibitor, improves ISM symptoms, but its impact on bone mineral density (BMD) is unclear • **Methodology**: Physician-reported osteoporosis/osteopenia history and medication use were collected from 251 PIONEER trial patients. DXA scans were retrospectively analyzed at a single site where serial BMD assessments were available • **Results:** Among 251 patients, 22% had osteoporosis, and 19% had osteopenia. In a DXA-assessed subset (n=13), mean BMD increased by 4.79±4.78% (lumbar spine) and 3.59±5.58% (femoral neck) after 2 years of avapritinib • **Conclusions:** Osteoporosis is common in ISM. Preliminary findings suggest avapritinib may improve BMD, warranting larger longitudinal studies
01 Mar 2025	JAK2 Inhibitors Induce Apoptosis and Enhance the Efficacy of KIT-Targeting Tyrosine Kinase Inhibitors In Human KIT-Mutant Mast Cells	Karin Hartmann	• **Introduction:** Mastocytosis is driven by abnormal mast cell (MC) accumulation, primarily due to the KIT D816V mutation, which activates downstream pathways, including JAK/STAT. While KIT-selective tyrosine kinase inhibitors (TKIs) show efficacy, response rates remain suboptimal. This study explores whether JAK2 inhibition enhances treatment efficacy • **Methodology**: The effects of various JAK inhibitors on MC viability, proliferation, and apoptosis were assessed in KIT D816V-mutant human MC lines (HMC-1.2, ROSAKITD816V) and primary cord blood-derived MCs. Combination treatments with JAK inhibitors and TKIs (avapritinib, midostaurin) were evaluated • **Results:** JAK2-selective inhibitors (fedratinib, gandotinib) induced apoptosis, suppressed viability, and enhanced TKI efficacy, whereas JAK1/2 and JAK1 inhibitors (ruxolitinib, baricitinib, upadacitinib, abrocitinib) had no significant effect. JAK2 inhibitors also reduced MC activation • **Conclusions:** JAK2 inhibition enhances apoptosis and TKI efficacy, suggesting a novel therapeutic strategy for mastocytosis. Further studies are warranted to explore JAK2 inhibitors in clinical settings

Notable Presentations at AAAAI 2025
Systemic Mastocytosis (4/4)

Date	Title	Author	Summary
01 Mar 2025	Modeling Advanced Systemic Mastocytosis: A Novel Transgenic Mouse Line Recapitulates Human Disease and Validates Avapritinib Efficacy	Karin Hartmann	• **Introduction:** Systemic mastocytosis (SM) is driven by KIT D816V mutations, leading to mast cell (MC) expansion. Advanced SM (advSM) is particularly aggressive, requiring targeted therapies. Existing models do not fully replicate advSM pathology. This study developed a new inducible transgenic mouse model (Scl-CreERT;Kit+/D814V) to better study disease mechanisms and therapy responses • **Methodology**: Disease progression was assessed via skin biopsies, blood analyses, histology, and flow cytometry. Anaphylaxis models (IgE- and MRGPRX2-mediated) and avapritinib treatment effects were evaluated • **Results:** Mutant mice exhibited MC accumulation, splenomegaly, hematologic abnormalities, and elevated MCPT1 levels, closely mimicking advSM. MRGPRX2-mediated anaphylaxis was enhanced, whereas IgE-mediated anaphylaxis remained unchanged. Avapritinib significantly improved disease parameters • **Conclusions:** This new Scl-CreERT;Kit+/D814V mouse model closely replicates advSM pathophysiology, enabling mechanistic studies and therapeutic exploration
01 Mar 2025	HARBOR: An Ongoing Phase 2/3 Study of Elenestinib in Patients With Indolent Systemic Mastocytosis	Mariana Castells	• **Introduction:** Indolent systemic mastocytosis (ISM), driven by KIT D816V, leads to mast cell (MC) accumulation, chronic inflammation, and debilitating symptoms, including bone density loss and anaphylaxis. Current treatments provide incomplete symptom control, highlighting the need for more targeted therapies. Elenestinib, a selective KIT D816V inhibitor, is under investigation in the HARBOR trial • **Methodology**: HARBOR (NCT04910685) is a phase 2/3, randomized, double-blind, placebo-controlled study across 75 centers (US, Europe, Australia). 340 patients will be randomized 1:1:1 to two elenestinib doses or placebo, continuing best supportive care (BSC). Part 3 is an open-label extension. Primary endpoint: mean ISM-SAF TSS change at Week 48. Secondary outcomes include disease control, serum tryptase, KIT D816V allele fraction, bone density, and anaphylaxis rate • **Results:** Not yet available • **Conclusions:** Not yet available. HARBOR will provide crucial insights into elenestinib's efficacy in ISM, particularly for bone loss and anaphylaxis risk reduction

Notable Presentations at AAAAI 2025
Urticaria and Angioedema (1/10)

Date	Title	Author	Summary
28 Feb 2025	Barriers to Timely On-demand Treatment of Hereditary Angioedema Attacks in Italian Patients	Mauro Cancian	• **Introduction:** Despite guidelines recommending prompt on-demand treatment for hereditary angioedema (HAE) attacks, delays remain common. This study assessed treatment behaviors in Italian patients. • **Methodology**: Patients (≥12 years) with Type 1 or Type 2 HAE from the ITACA registry completed an online survey (Sept 2023–Jan 2024) about their last treated attack. Eligible respondents had used approved on-demand therapy within the past three months. • **Results:** Among 101 respondents (mean age 38 years, 60% female), mean time to treatment was 2.9 hours, with only 10% treating within one hour. Key reasons for delay included attack uncertainty (40%), expectation of mild symptoms (37%), and treatment-saving concerns (22%). Administration barriers were cited by 38%. • **Conclusions:** Many patients delay HAE treatment, underscoring the need for proactive strategies to improve adherence to guidelines.
28 Feb 2025	Burden of Injectable On-Demand Treatment for Hereditary Angioedema Attacks in Adolescents	Paula Busse	• **Introduction:** Parenteral administration of on-demand hereditary angioedema (HAE) treatments can be challenging, particularly for adolescents, leading to delayed treatment and increased disease burden. • **Methodology**: Adolescents (12–17 years) with Type 1 or Type 2 HAE from the US, UK, France, and Italy completed an online survey assessing treatment behaviors. Eligible respondents had treated at least one HAE attack with approved therapy within the past three months. • **Results:** Among 31 respondents (mean age 14.3 years, 61% male), 87% used intravenous treatment. Mean time to treatment was 5.2 hours; only 10% treated within one hour. At treatment, 68% had moderate and 29% had severe/very severe attacks. Higher anxiety correlated with longer delays (7.5 vs. 2.7 hours). • **Conclusions:** Delayed treatment worsens HAE attack severity, and anxiety contributes to further delays. Non-parenteral options could improve treatment adherence in adolescents.

Notable Presentations at AAAAI 2025
Urticaria and Angioedema (2/10)

Date	Title	Author	Summary
28 Feb 2025	Delays in the On-demand Treatment of Hereditary Angioedema Attacks and Associated Barriers Reported in Different Healthcare Systems	Sandra Christiansen	• **Introduction:** Guidelines recommend prompt on-demand treatment for hereditary angioedema (HAE) attacks, yet delays remain common. This study assessed treatment behaviors across different geographies • **Methodology**: Adults with Type 1 or Type 2 HAE from the US, UK, and France were recruited via patient organizations. Eligible participants had treated ≥1 attack with an approved therapy within the past three months. • **Results:** Among 80 US, 46 UK, and 40 French respondents, mean time to treatment was 3.2, 4.6, and 3.7 hours, respectively. Only 19%, 9%, and 18% treated within one hour. The most cited reasons for delay were uncertainty (31–36%) and perceived mildness (13–22%). • **Conclusions:** Despite geographic differences, treatment delays were common, highlighting the need for improved awareness and adherence to early intervention guidelines.
01 Mar 2025	Study to Adjudicate Hereditary Angioedema with Normal C1INH Diagnoses in the PIONEER-HAE Database	Maeve O'Connor	• **Introduction:** Diagnosing hereditary angioedema with normal C1-esterase inhibitor (HAE-nC1INH) is challenging due to a lack of biomarkers. This study assessed diagnostic approaches among community immunologists. • **Methodology**: Patients with HAE-nC1INH or HAE-unknown (N=140) from PIONEER-HAE underwent secondary review and expert adjudication. Cases were classified as "highly likely," "somewhat likely," or "not likely" based on clinical and laboratory criteria. • **Results:** Post-adjudication, 20% were "highly likely" and 11% "somewhat likely" to have HAE-nC1INH. Nearly 46% lacked sufficient diagnostic data, highlighting variability in diagnostic criteria. • **Conclusions:** HAE-nC1INH diagnosis remains uncertain in many cases. Standardized clinical assessments and validated biomarkers are needed for improved accuracy.

Notable Presentations at AAAAI 2025
Urticaria and Angioedema (3/10)

Date	Title	Author	Summary
01 Mar 2025	Effectiveness of Sebetralstat for the On-demand Treatment of Laryngeal Hereditary Angioedema Attacks: Interim Analysis from KONFIDENT-S	Jonathan Bernstein	• **Introduction:** Laryngeal hereditary angioedema (HAE) attacks are medical emergencies. This interim analysis from KONFIDENT-S (NCT05505916) evaluates sebetralstat's safety and efficacy in treating laryngeal attacks. • **Methodology**: Patients received sebetralstat 600mg for laryngeal HAE attacks. Key endpoints included time to symptom relief, reduction in attack severity, and complete resolution within 12–24 hours. • **Results:** Among 32 attacks, symptom relief began in 1.27h (median); attack severity reduced in 4.25h; complete resolution in 12.69h. Four (12.5%) required additional sebetralstat; four (12.5%) received conventional treatment. No difficulty swallowing was reported. • **Conclusions:** Sebetralstat provided rapid, effective treatment for laryngeal HAE attacks and was well-tolerated.
01 Mar 2025	Results from the ALPHA-STAR Trial, a Phase 1b/2 Single and Multiple Dose Study to Assess the Safety, Tolerability, Clinical Activity, Pharmacokinetics, Pharmacodynamics, and Immunogenicity of Navenibart (STAR-0215) in Participants with Hered	Aleena Banerji	• **Introduction:** ALPHA-STAR (NCT05695248) assessed the safety and efficacy of navenibart, a novel Fc-engineered plasma kallikrein monoclonal antibody, in HAE-C1INH patients. • **Methodology**: Adults were sequentially enrolled into three dose cohorts and followed for six months post-treatment. Primary outcomes included safety, HAE attack rates, and pharmacokinetic (PK)/pharmacodynamic (PD) profiles. • **Results:** Among 16 participants, time-normalized monthly attack rates dropped from 2.9/1.9/1.7 to 0.2/0.0/0.0 by six months. At follow-up, 67% in Cohort 3 remained attack-free. No severe or serious TEAEs were reported. Five participants had anti-drug antibodies without PK/PD impact. • **Conclusions:** Navenibart showed a favorable safety profile and long-lasting HAE attack reduction, supporting Phase 3 evaluation for extended dosing intervals.

Notable Presentations at AAAAI 2025
Urticaria and Angioedema (4/10)

Date	Title	Author	Summary
01 Mar 2025	Dupilumab Improves Itch And Urticaria Activity In Patients With Chronic Spontaneous Urticaria: Pooled Results From Two Phase 3 Trials (LIBERTY-CSU CUPID Study A and Study C)	Thomas Casale	• **Introduction:** Chronic spontaneous urticaria (CSU) remains challenging to manage, with many patients experiencing persistent symptoms despite H1-antihistamines. Dupilumab, an IL-4Rα antagonist, offers a potential treatment option for antihistamine-refractory CSU • **Methodology**: LIBERTY-CSU CUPID (Studies A and C) were 24-week, phase 3, randomized, double-blind, placebo-controlled trials evaluating dupilumab in omalizumab-naïve CSU patients (N=289) inadequately controlled on ≤4× standard H1-antihistamine dose. Patients received dupilumab (200/300 mg) or placebo every two weeks. Efficacy was assessed via ISS7 (itch severity score) and UAS7 (urticaria activity score) • **Results:** Dupilumab significantly improved ISS7 (Δ−3.2, P<0.0001) and UAS7 (Δ−6.2, P<0.0001) vs. placebo at week 24. More patients achieved UAS7<6 (43.1% vs. 23.4%) and complete response (30.6% vs. 15.9%). Adverse event rates were comparable (53.5% vs. 55.9%) • **Conclusions:** Dupilumab effectively reduces itch and urticaria activity in CSU patients uncontrolled on antihistamines, demonstrating clinically meaningful symptom relief with a favorable safety profile
01 Mar 2025	Barzolvolimab Improves Urticaria Control and Quality of Life in Patients with Chronic Spontaneous Urticaria: 52-Week Data	Martin Metz	• **Introduction:** Chronic spontaneous urticaria (CSU) refractory to H1-antihistamines significantly impacts quality of life (QoL) and disease control. Barzolvolimab, an anti-KIT monoclonal antibody, demonstrated rapid and durable efficacy in CSU patients in a 52-week Phase 2 trial (NCT05368285) • **Methodology**: In this double-blind, placebo-controlled trial, 208 patients received barzolvolimab (75mg Q4W, 150mg Q4W, 300mg Q8W) or placebo during a 16-week treatment phase, followed by 36 weeks of active treatment and 24 weeks of follow-up. Urticaria Control Test (UCT) and Dermatology Life Quality Index (DLQI) were assessed • **Results:** At baseline, UCT scores (3.0–3.7) indicated poorly controlled CSU, while DLQI scores (15.7–17.4) reflected severe QoL impairment. At week 52, barzolvolimab significantly improved UCT (+10.5 and +9.4) and DLQI (-14.2 and -15.0), demonstrating sustained disease control and QoL enhancement • **Conclusions:** Barzolvolimab provides significant and sustained improvement in urticaria control and QoL in CSU refractory to antihistamines, supporting its potential as a long-term targeted therapy

Notable Presentations at AAAAI 2025
Urticaria and Angioedema (5/10)

Date	Title	Author	Summary
01 Mar 2025	CRISPR-Based NTLA-2002 Improves Quality of Life in Patients With Hereditary Angioedema	Padmalal Gurugama	• **Introduction:** Hereditary angioedema (HAE) is a rare genetic disorder causing unpredictable, severe swelling attacks that significantly impact quality of life (QoL). Current prophylactic and on-demand treatments do not fully prevent breakthrough attacks. NTLA-2002, an in vivo CRISPR-based therapy, targets KLKB1 gene editing for long-term attack prevention • **Methodology**: In the Phase 1/2 trial (NCT05120830), 27 patients were randomized to receive NTLA-2002 (25mg, 50mg) or placebo. The primary endpoint was monthly angioedema attacks (Weeks 1-16). QoL was assessed via MOXIE AE-QOL and WPAI scores. A 6-point AE-QOL improvement was considered clinically meaningful • **Results:** 50mg NTLA-2002 reduced attacks by 77% (95% CI, -95%, 15%) vs. placebo, with 73% (8/11) of patients attack-free. AE-QOL improved by -18.2 (SD: 17.15) vs. -3.5 (SD: 10.39) with placebo. No serious adverse events were reported • **Conclusions:** NTLA-2002 demonstrated robust efficacy and QoL improvements with a one-time treatment, marking the first CRISPR-based therapy to show clinically meaningful benefits in HAE
01 Mar 2025	The Impact of Remibrutinib on Urticaria Control in Patients with Chronic Spontaneous Urticaria: Long-term Results from the REMIX-1/-2 Phase 3 Trials	Martin Metz	• **Introduction:** Chronic spontaneous urticaria (CSU) often remains uncontrolled despite H1-antihistamines, necessitating targeted therapies. Remibrutinib, a highly selective Bruton's tyrosine kinase (BTK) inhibitor, demonstrated superior efficacy vs. placebo in the REMIX-1/-2 Phase 3 trials, with early and sustained urticaria control • **Methodology**: REMIX-1/-2 were identical, randomized, placebo-controlled, double-blind trials assessing remibrutinib 25 mg BID vs. placebo in 912 CSU patients. Urticaria control (UCT7) was measured at weeks 2, 4, 12, 24, and 52. At week 24, placebo patients transitioned to remibrutinib • **Results:** Remibrutinib rapidly improved UCT7 at week 2 (Δ+3.79 vs. placebo) and week 24 (Δ+2.57–2.46). More patients achieved UCT7≥12 (well-controlled CSU) at week 24 (63.1% vs. 41.6%; 64.8% vs. 40.2%), with sustained benefits at week 52 • **Conclusions:** Remibrutinib provided rapid, sustained CSU symptom control, reinforcing its role as a targeted oral therapy for antihistamine-refractory CSU

Notable Presentations at AAAAI 2025
Urticaria and Angioedema (6/10)

Date	Title	Author	Summary
01 Mar 2025	On-demand Treatment Of Hereditary Angioedema Attacks With Sebetralstat In Adolescents: Pooled Analysis From KONFIDENT And KONFIDENT-S	Danny Cohn	• **Introduction:** Adolescents with hereditary angioedema (HAE-C1INH) often delay or avoid parenteral on-demand treatment. Oral treatment could improve early intervention, reduce burden, and enhance outcomes. • **Methodology**: Data from KONFIDENT and KONFIDENT-S trials were pooled to assess the efficacy and safety of oral sebetralstat 600 mg in adolescents (12–17 years). Time to symptom relief, severity reduction, and complete resolution were analyzed. • **Results:** Nineteen adolescents treated 149 attacks. Median treatment time was 4 minutes. Median time to symptom relief was 1.79 hours, severity reduction 3.53 hours, and complete resolution 15.09 hours. Sebetralstat was well tolerated, with no discontinuations due to adverse events. • **Conclusions:** Oral sebetralstat provided rapid self-administration and symptom relief in adolescents with HAE-C1INH, demonstrating strong efficacy and safety.
02 Mar 2025	Effects of Rilzabrutinib on Angioedema over 12 Weeks: Results from the Phase 2 RILECSU Trial in Participants With Moderate-to-Severe Chronic Spontaneous Urticaria	Jonathan Bernstein	• **Introduction:** Rilzabrutinib (SAR444671), an oral BTK inhibitor, is being investigated for CSU with angioedema. The RILECSU Phase 2 trial assessed its efficacy in reducing angioedema symptoms • **Methodology**: In this 52-week trial, 160 adults with CSU inadequately controlled by H1-antihistamines were randomized to rilzabrutinib (1200mg, 800mg, 400mg/day) or placebo. Angioedema improvement was evaluated in omalizumab-naïve participants with baseline AAS7>0 (N=102). • **Results:** At Week 12, 60.9% of participants on rilzabrutinib 1200mg/day achieved AAS7=0 vs. 30.8% on placebo. Improvements were rapid, with 30.4% reaching AAS7=0 by Week 1. The duration of AAS7=0 response was longer with rilzabrutinib (5.1 vs. 3.1 weeks). • **Conclusions:** Rilzabrutinib 1200mg/day improved angioedema outcomes in CSU patients vs. placebo.

Notable Presentations at AAAAI 2025
Urticaria and Angioedema (7/10)

Date	Title	Author	Summary
02 Mar 2025	Dupilumab Improves Signs And Symptoms Of Chronic Spontaneous Urticaria Regardless Of Baseline Body Mass Index	Thomas Casale	• **Introduction:** Chronic spontaneous urticaria (CSU) is a chronic inflammatory skin disease. This study examined the impact of baseline BMI on dupilumab efficacy in omalizumab-naive patients with CSU uncontrolled on antihistamines. • **Methodology**: LIBERTY-CSU CUPID Study A (NCT04180488) was a phase 3, double-blind trial. Patients received add-on dupilumab or placebo every two weeks. Efficacy was assessed using the Itch Severity Score (ISS7) and Urticaria Activity Score (UAS7). • **Results:** At Week 24, dupilumab significantly improved ISS7 (−10.2 vs −6.0; P=0.0005) and UAS7 (−20.5 vs −12.0; P=0.0003) vs placebo. Improvements were consistent across BMI subgroups. • **Conclusions:** Dupilumab improved CSU symptoms regardless of baseline BMI, with a safety profile consistent with prior studies.
02 Mar 2025	Rilzabrutinib Improves Chronic Spontaneous Urticaria in Patients With and Without Allergic Comorbidities: A Subgroup Analysis From the RILECSU Study	Jordan Talia	• **Introduction:** Chronic spontaneous urticaria (CSU) is an inflammatory skin disease driven by mast-cell activation. This study evaluated the efficacy of rilzabrutinib, a Bruton's tyrosine kinase (BTK) inhibitor, in CSU patients with and without allergic comorbidities. • **Methodology**: RILECSU (NCT05107115) was a phase 2, 52-week study with a 12-week, placebo-controlled period. Adults with moderate-to-severe CSU were randomized to rilzabrutinib (1200mg, 800mg, 400mg) or placebo. Subgroup analyses assessed treatment response by allergic history, IgE levels, and eosinophil counts. • **Results:** At Week 12, rilzabrutinib 1200mg/day reduced ISS7 from baseline vs placebo across subgroups, including allergic history (-2.25 to -3.75), low/high IgE (-4.82 to -3.38), and low/high eosinophils (-3.87 to -2.42). UAS7 showed similar reductions. • **Conclusions:** Rilzabrutinib improved CSU outcomes, regardless of allergic history or type 2 inflammation markers.

Notable Presentations at AAAAI 2025
Urticaria and Angioedema (8/10)

Date	Title	Author	Summary
02 Mar 2025	Hereditary Angioedema Disease Control After Switching To Donidalorsen From Prior Long-Term Prophylaxis: Results From The OASISplus Open-Label Extension Study	Marc Riedl	• **Introduction:** Hereditary angioedema (HAE) is a rare disorder marked by severe, recurrent swelling attacks, despite available prophylactic treatments. Donidalorsen, an investigational antisense oligonucleotide targeting prekallikrein production, may offer improved disease control. This OASISplus open-label extension (NCT05392114) analyzed HAE control in patients switching from lanadelumab, C1 inhibitor (C1INH), or berotralstat to donidalorsen • **Methodology**: 64 patients switched to donidalorsen 80 mg Q4W without washout. Disease control was assessed via Angioedema Control Test (AECT, 0–16) and HAE attack rate reduction over 16 weeks • **Results:** AECT scores improved across all groups (+1.9 to +4.7 points), with well-controlled disease rates rising to ≥90%. Mean monthly attack rates decreased by 65% (lanadelumab), 41% (C1INH), and 73% (berotralstat). Patients with poorly-controlled disease had even greater reductions (60–76%) • **Conclusions:** Donidalorsen significantly improved disease control and attack rates, supporting its potential as a novel prophylactic option for HAE patients inadequately controlled on existing therapies
02 Mar 2025	Safety And Efficacy Of Garadacimab For Hereditary Angioedema Prophylaxis In Patients Aged ≥65 Years	Joshua Jacobs	• **Introduction:** Hereditary angioedema (HAE) requires lifelong prophylaxis, particularly in patients ≥65 years, who often have comorbidities requiring concomitant medications. Garadacimab, a novel factor XIIa inhibitor, was assessed for long-term safety and efficacy in older HAE patients • **Methodology**: Integrated analysis included data from Phase 2, Phase 3 VANGUARD, and ongoing long-term open-label extension (OLE) studies. 14 patients ≥65 years received garadacimab 200 mg SC monthly. Safety outcomes and mean monthly attack rates were assessed • **Results:** Median exposure: 1.5 years (1.1–4.1 years). 84.6% experienced TEAEs, but no serious TEAEs, thromboembolic events, or anaphylaxis. Monthly attack rate dropped by 97.3% (0.06 vs. 2.56 pre-treatment); 50% remained attack-free • **Conclusions:** Garadacimab was well-tolerated and highly effective in older HAE patients, supporting its use as a long-term prophylactic option

Notable Presentations at AAAAI 2025
Urticaria and Angioedema (9/10)

Date	Title	Author	Summary
02 Mar 2025	Treatment with Navenibart (STAR-0215) Reduces Attack Severity and Use of Rescue Medication in Patients with Hereditary Angioedema (HAE): Interim Results from the ALPHA-STAR Trial	Joshua Jacobs	• **Introduction:** Hereditary angioedema (HAE) due to C1 inhibitor deficiency (Type 1/2) causes recurrent, unpredictable swelling attacks, requiring lifelong management. Navenibart, an investigational subcutaneous therapy, is being evaluated for long-term attack reduction and safety in the ALPHA-STAR Phase 1b/2 trial (NCT05695248) • **Methodology**: 16 adults with HAE-C1INH were enrolled in three dose cohorts (450 mg, 600 mg single or repeated doses). HAE attack severity and need for rescue therapy were assessed at 3 and 6 months • **Results:** At 3 months (n=14), mild/moderate/severe attack rates dropped from 0.95/1.25/0.11 to 0.13/0.05/0.00. At 6 months (n=7), attack rates fell further (0.45/1.54/0.14 to 0.10/0.08/0.00). Rescue medication use declined from 1.86/1.32 to 0.16/0.10 attacks/month. No serious adverse events or discontinuations occurred • **Conclusions:** Navenibart demonstrated substantial HAE attack reduction and was well-tolerated, supporting its potential as a novel long-term prophylactic therapy
02 Mar 2025	Long-Term Efficacy Of Garadacimab For Hereditary Angioedema In Patients With Or Without Prior Exposure In A Phase 3 Open-Label Extension Study	John Anderson	• **Introduction:** Hereditary angioedema (HAE) requires effective long-term prophylaxis. Garadacimab, an anti-activated factor XII monoclonal antibody, has demonstrated durable efficacy and a favorable safety profile. This post hoc analysis of the Phase 3 open-label extension (OLE) study (NCT04739059) evaluates HAE attack reduction in patients with and without prior garadacimab exposure • **Methodology**: Patients were stratified into prior garadacimab exposure (n=71) and garadacimab-naïve (n=90) groups. Mean monthly attack rates and reductions vs. run-in were analyzed over 3-month intervals • **Results:** Median garadacimab exposure: 21.9 months (prior) vs. 13.3 months (naïve). Mean monthly attack rates: 0.1 (prior) vs. 0.2 (naïve), with 96.8% and 93.0% reductions vs. run-in, respectively. Attack-free rates were 66.2% (prior) and 54.4% (naïve) • **Conclusions:** Garadacimab provided sustained HAE prophylaxis, with ≥90% attack rate reduction across all treatment windows, reinforcing its long-term efficacy and clinical benefit

Notable Presentations at AAAAI 2025
Urticaria and Angioedema (10/10)

Date	Title	Author	Summary
02 Mar 2025	Bradykinin Level As A Biomarker For Treatment Efficacy in Hereditary Angioedema Patients	Huamin Li	• **Introduction:** Bradykinin (BK) plays a central role in hereditary angioedema (HAE), particularly in patients with SERPING1 mutations. Quantifying BK levels may enhance diagnosis and treatment monitoring, particularly in response to prophylactic vs. acute therapies. This study employed liquid chromatography-tandem mass spectrometry (LC-MS/MS) to measure BK metabolites in HAE patients • **Methodology**: Whole blood samples from 56 HAE patients with confirmed SERPING1 mutations were analyzed using LC-MS/MS. BK levels were correlated with clinical presentation and treatment regimen (prophylactic vs. acute therapy) • **Results:** 42 patients had elevated BK levels (mean: 290.3 ng/mL), with higher levels in acute therapy-only patients. 14 patients had normal BK levels (mean: 2.7 ng/mL), with lower levels in those on prophylactic therapy. Patients with fewer attacks exhibited lower BK levels • **Conclusions:** BK levels correlate with treatment response and attack frequency, suggesting BK as a potential biomarker for HAE management and therapy efficacy assessment
02 Mar 2025	Efficacy And Safety Of Donidalorsen In Adolescent Patients With Hereditary Angioedema: A Subanalysis Of The Phase 3 OASIS-HAE Study	Joshua Jacobs	• **Introduction:** Hereditary angioedema (HAE) due to C1 inhibitor deficiency or dysfunction requires effective long-term prophylaxis, including in adolescents. Donidalorsen, an antisense oligonucleotide targeting prekallikrein mRNA, was evaluated in adolescents enrolled in the OASIS-HAE Phase 3 trial (NCT05139810) • **Methodology:** Seven adolescents (12–17 years) received donidalorsen 80 mg subcutaneously every 4 weeks (Q4W, n=4) or 8 weeks (Q8W, n=3) for 24 weeks. HAE attack rate, prekallikrein levels, quality of life (AE-QoL), disease control (AECT score ≥10), and safety were assessed • **Results:** HAE attack rates decreased by 97% (Q4W) and 71% (Q8W). Prekallikrein levels dropped by 93% (Q4W) and 49% (Q8W). AE-QoL scores improved (-18.0, Q4W; -20.6, Q8W), and all patients achieved disease control. No serious adverse events or discontinuations occurred • **Conclusions:** Donidalorsen demonstrated strong efficacy, quality of life improvements, and favorable safety in adolescents with HAE, supporting its use as a prophylactic therapy in younger patients

Notable Presentations at AAAAI 2025
Chronic Rhinosinusitis and Nasal Polyps (1/4)

Date	Title	Author	Summary
28 Feb 2025	Results Of An International Survey In Adults With CRSwNP: Surgery Or Biologics?	Kristen Willard	• **Introduction:** Despite the availability of biologics for chronic rhinosinusitis with nasal polyps (CRSwNP), treatment preferences and patient awareness remain unclear. This international survey assessed patient perspectives on CRSwNP management • **Methodology**: A Survey Monkey questionnaire collected responses from 677 adults with CRSwNP across the US, Canada, the UK, Spain, France, Germany, and Italy. Key outcomes included treatment experiences and preferences. • **Results:** Among respondents, 43% had comorbid asthma, 46% found disease management difficult, and 59% had undergone nasal polyp surgery. Biologic use ranged from 15–25%, while intranasal steroid use varied by country (22–61%). Only 50% of post-surgical patients were offered biologics as an alternative. • **Conclusions:** Many CRSwNP patients undergo surgery or use intranasal steroids despite biologic availability. Improved shared decision-making could optimize treatment choices.
28 Feb 2025	Real-World Dupilumab Effectiveness Through 18 Months in Patients with CRSwNP and Coexisting Asthma: Results from the Global AROMA Registry	Kathleen Buchheit	• **Introduction:** Chronic rhinosinusitis with nasal polyps (CRSwNP) and asthma frequently coexist, increasing symptom burden. While dupilumab is effective for both conditions, real-world evidence remains limited. This study evaluates its long-term impact in CRSwNP patients with asthma. • **Methodology**: The phase 4 AROMA registry (NCT04959448) tracks adults initiating dupilumab for CRSwNP in the USA, Canada, Germany, Italy, Japan, and the Netherlands. Asthma and CRSwNP outcomes were assessed over 18 months. • **Results:** Among 691 CRSwNP patients, 69.2% had asthma. ACQ-6 scores improved from 1.4 to 0.3, mini-AQLQ from 5.1 to 6.5, and FeNO from 62.2 ppb to 25.1 ppb. CRSwNP symptoms improved significantly, with nasal congestion scores decreasing from 1.8 to 0.6, smell loss from 2.3 to 0.9, and SNOT-22 scores from 46.4 to 15.5. • **Conclusions:** Dupilumab provides sustained symptom relief in CRSwNP patients with coexisting asthma, supporting its long-term real-world effectiveness.

Notable Presentations at AAAAI 2025
Chronic Rhinosinusitis and Nasal Polyps (2/4)

Date	Title	Author	Summary
28 Feb 2025	A Study of Dupilumab in Adults with CRSsNP: Results from the Liberty ORION study	Stella Lee	• **Introduction:** Chronic rhinosinusitis without nasal polyps (CRSsNP) is an inflammatory condition causing persistent nasal symptoms. The Liberty ORION trial evaluated dupilumab's efficacy in CRSsNP patients with type 2 inflammation. • **Methodology**: This phase 2, double-blind study (NCT04678856) randomized adults with CRSsNP (eosinophils ≥300 cells/mm³) to dupilumab 300 mg every two weeks or placebo. The primary endpoint was Lund-Mackay CT (LMK-CT) score change at Week 24. Secondary/exploratory endpoints included symptom scores (sTSS, UPSIT, SNOT-22). • **Results:** Among 31 patients, dupilumab improved LMK-CT at Week 24 (-6.63, P<0.0001). Dupilumab vs. placebo differences were -5.95 (LMK-CT), -1.43 (sTSS), 5.91 (UPSIT), and -14.71 (SNOT-22). • **Conclusions:** Dupilumab significantly improved CRSsNP-associated sinus inflammation, with numerical benefits in symptom scores.
28 Feb 2025	Predictive Characteristics of Sino-Nasal Surgery in CRSwNP Patients in the US from a Large Physician Network Database	Joseph Han	• **Introduction:** Predicting the likelihood of sino-nasal (SN) surgery in chronic rhinosinusitis with nasal polyps (CRSwNP) patients can help optimize treatment strategies. This study applied machine learning to identify key predictors of SN surgery. • **Methodology**: A retrospective case-control study using Lynx.MD electronic medical records compared 1,931 CRSwNP patients who underwent SN surgery within two years of diagnosis with matched non-surgical controls. Extreme gradient boosting (XGBoost) was used for predictive modeling. • **Results:** Surgery was more likely in younger, male, non-white patients with asthma, anosmia, facial pain/pressure, and increased oral corticosteroid/antibiotic use. The model demonstrated strong predictive performance (AUC 0.78; PPV 70%). • **Conclusions:** Machine learning effectively predicts SN surgery likelihood, highlighting key clinical factors associated with surgical intervention.

Notable Presentations at AAAAI 2025
Chronic Rhinosinusitis and Nasal Polyps (3/4)

Date	Title	Author	Summary
01 Mar 2025	Efficacy and Safety of Twice-Yearly Depemokimab in Patients With Chronic Rhinosinusitis With Nasal Polyps (CRSwNP): The Phase III Randomized, Double-Blind, Placebo-Controlled Replicate ANCHOR-1/2 Trials	Joseph Han	• **Introduction:** Depemokimab, an ultra-long-acting IL-5 biologic with high potency and extended half-life, enables twice-yearly dosing for chronic rhinosinusitis with nasal polyps (CRSwNP). The ANCHOR-1/2 trials evaluated its efficacy and safety. • **Methodology**: Adults with CRSwNP (NPS ≥5, prior systemic corticosteroid use or NP surgery) were randomized 1:1 to receive depemokimab 100 mg SC or placebo every 26 weeks for 52 weeks. Coprimary endpoints included total NPS change at Week 52 and nasal obstruction VRS over Weeks 49–52. Safety outcomes included adverse events (AEs/SAEs). • **Results:** Depemokimab significantly improved NPS (-0.7/-0.6, p≤0.004) and nasal obstruction VRS (-0.23/-0.25, p≤0.047) vs placebo. AE/SAE rates were comparable between groups. • **Conclusions:** Depemokimab demonstrated significant efficacy in CRSwNP with a well-tolerated safety profile, supporting its potential as a twice-yearly treatment.
01 Mar 2025	Efficacy And Safety Of Tezepelumab In Adults With Severe Chronic Rhinosinusitis With Nasal Polyps: Results From The Phase 3 WAYPOINT Study	Joseph Han	• **Introduction:** Tezepelumab, a monoclonal antibody targeting thymic stromal lymphopoietin (TSLP), was evaluated in WAYPOINT (NCT04851964) for its efficacy and safety in adults with severe chronic rhinosinusitis with nasal polyps (CRSwNP). • **Methodology**: In this 52-week, phase 3 trial, adults with severe CRSwNP were randomized (1:1) to receive tezepelumab 210 mg or placebo every 4 weeks. Co-primary endpoints included total nasal polyp score (NPS) and nasal congestion score (NCS). Secondary endpoints included smell loss, SNOT-22, Lund-Mackay (LMK), total symptom score (TSS), and need for nasal polyp (NP) surgery/systemic corticosteroids (SCS). • **Results:** Tezepelumab significantly improved NPS (-2.101, p<0.0001) and NCS (-1.088, p<0.0001) at Week 52. Improvements were observed early (Weeks 4 and 2, respectively). Significant benefits were also seen in smell loss, SNOT-22 (-28.434), LMK (-5.392), and TSS (-7.235) (all p<0.0001). The need for NP surgery/SCS was reduced by 92% (HR: 0.08). Safety was comparable to placebo. • **Conclusions:** Tezepelumab demonstrated robust efficacy in reducing NP severity, improving sino-nasal symptoms, and reducing the need for surgery or SCS in severe CRSwNP.

Notable Presentations at AAAAI 2025
Chronic Rhinosinusitis and Nasal Polyps (4/4)

Date	Title	Author	Summary
02 Mar 2025	Mepolizumab Improves Patient-Reported Outcomes and Reduces Treatment Burden in Patients With Chronic Rhinosinusitis With Nasal Polyps: A Real-World Chart Review Study	Amy Edgecomb	• **Introduction:** Real-world data on mepolizumab in chronic rhinosinusitis with nasal polyps (CRSwNP) remain limited. This study assessed its impact on patient outcomes. • **Methodology**: A retrospective chart review analyzed adults treated with mepolizumab (100 mg) between 07/2021–04/2023, with ≥12 months of records and ≥1 SNOT-22 assessment pre-/post-treatment. • **Results:** Among 150 patients, mean SNOT-22 scores improved from 61 to 28 (Δ -32, $p<0.001$). OCS use decreased by 54% (0.6 to 0.3/year, $p<0.001$), with reductions in median OCS bursts ($p<0.001$) and cumulative OCS dose ($p<0.001$). Surgical interventions declined from 0.2 to 0.1/year. • **Conclusions:** Mepolizumab significantly improved quality of life and reduced corticosteroid and surgical burden in real-world CRSwNP patients
02 Mar 2025	Real-World Effectiveness of Dupilumab Through 18 Months in Patients with CRSwNP and AERD: Results from the Global AROMA Registry	Andrew White	• **Introduction:** Chronic rhinosinusitis with nasal polyps (CRSwNP) significantly impacts quality of life, particularly in aspirin-exacerbated respiratory disease (AERD). This study assessed real-world dupilumab effectiveness in AERD patients. • **Methodology**: AROMA (NCT04959448) is a phase 4, prospective registry tracking CRSwNP patients initiating dupilumab across six countries. Key asthma and CRSwNP-related outcomes were evaluated over 18 months. • **Results:** Among 160 AERD patients, asthma control (ACQ-6) and quality of life (mini-AQLQ) scores improved from baseline to 18 months (ACQ-6: 1.3 to 0.4; mini-AQLQ: 5.3 to 6.3). FeNO levels decreased, and CRSwNP symptoms (nasal congestion, smell loss, SNOT-22) showed progressive improvement. • **Conclusions:** Dupilumab provides sustained real-world effectiveness for AERD, improving both CRSwNP and asthma outcomes.

Notable Presentations at AAAAI 2025
Food Allergy and Immunotherapy (1/4)

Date	Title	Author	Summary
01 Mar 2025	Treatment of Multi-Food Allergy with Omalizumab Compared to Omalizumab-Facilitated Multi-Allergen OIT	Robert Wood	• **Introduction:** Omalizumab and oral immunotherapy (OIT) are used for multi-food allergy, but their comparative efficacy has not been studied. The OUtMATCH Stage 2 trial directly compared these treatments. • **Methodology**: Participants were randomized to receive either multi-allergen OIT with placebo omalizumab or omalizumab with placebo OIT. After 16 weeks of open-label omalizumab, OIT/placebo was initiated and escalated to 1000 mg per allergen. The primary endpoint was tolerance of ≥2000 mg for all three foods. • **Results:** Omalizumab was superior to OIT (36% vs. 19% success, OR 2.6, P=0.031). OIT had higher rates of serious adverse events (0% vs. 30.5%) and epinephrine-treated reactions (6.9% vs. 37.3%). • **Conclusions:** Omalizumab was more effective and better tolerated than OIT for multi-food allergy, with fewer adverse events.
01 Mar 2025	Efficacy of as-needed versus regular administration of an intranasal fixed-dose combination of fluticasone propionate and azelastine in patients with allergic rhinitis: a randomized controlled trial	Worayon Chuerbooncha i	• **Introduction:** The efficacy of as-needed versus regular use of fluticasone propionate (FP) and azelastine (AZ) in moderate-persistent allergic rhinitis remains unclear. This study compared both approaches. • **Methodology**: In a 4-week randomized trial, 36 patients used FP/AZ either as-needed (≤2 sprays/nostril/day) or regularly (1 spray/nostril twice daily). Primary outcome: change in total nasal symptom score (TNSS). Secondary outcomes: nasal minimal cross-sectional area (MCA), nasal flow, resistance, SNOT-22, and miniRQLQ. • **Results:** TNSS improvement was similar between groups (P=0.075), with no significant differences in MCA, nasal flow, or resistance. The as-needed group used less FP/AZ and reported fewer side effects. • **Conclusions:** As-needed FP/AZ was as effective as regular use, with reduced medication use and fewer side effects.

Notable Presentations at AAAAI 2025
Food Allergy and Immunotherapy (2/4)

Date	Title	Author	Summary
02 Mar 2025	Long-Term Assessment of Antibody Profiles after the IMPACT Peanut Oral Immunotherapy Trial: Findings from the IMPACT-PLuS Follow-up	Yamini Virkud	• **Introduction:** The IMPACT trial showed early peanut oral immunotherapy (OIT) could induce desensitization and remission. This study assessed long-term immunologic changes. • **Methodology**: Of 143 IMPACT participants, 51 provided follow-up samples 5–7 years post-study. Plasma peanut-sIgE, peanut-sIgG4, Arah2-sIgE, and Arah2-sIgG4 were measured and compared by treatment, remission status, and peanut consumption. • **Results:** OIT-treated children had lower peanut-sIgE and Arah2-sIgE and higher IgG4:IgE ratios ($p \leq 0.004$). Remission was linked to the lowest sIgE levels. Peanut consumers had higher sIgG4 and lower sIgE ($p < 0.001$). • **Conclusions:** Early peanut OIT led to sustained immunologic differences, supporting long-term immune modulation and improved clinical outcomes.
02 Mar 2025	Randomized Trial of High Dose, Home Measured Peanut Oral Immunotherapy in Children with High Threshold Peanut Allergy	Scott Sicherer	• **Introduction:** Current peanut allergy (PA) treatments target low-threshold individuals, while higher-threshold patients remain understudied. This trial assessed peanut oral immunotherapy (POIT) in high-threshold PA. • **Methodology**: Peanut-sensitized children (4–14 years, IgE >0.35–50 kU/L, reaction at 443–5043 mg) were randomized to POIT (~3400 mg maintenance) or avoidance. The primary endpoint was tolerance of a 2-dose increase or 9043 mg. Sustained unresponsiveness (SU) was assessed after 16 weeks of ad-lib peanut ingestion and 8 weeks of avoidance. • **Results:** 100% on POIT vs. 21% on avoidance met the primary endpoint ($P < 0.001$). SU was achieved in 68.4% (POIT) vs. 8.6% (avoidance, $P < 0.001$). Adverse events were mild. • **Conclusions:** POIT significantly increased desensitization and durable tolerance in high-threshold PA children.

Notable Presentations at AAAAI 2025
Food Allergy and Immunotherapy (3/4)

Date	Title	Author	Summary
02 Mar 2025	First-in-human VLP Peanut Vaccine Candidate: Safety and Tolerability Data from on-going Phase I/IIa Clinical Trial	Roxanne Oriel	• **Introduction:** VLP Peanut is a novel hypoallergenic subcutaneous vaccine candidate for peanut allergy. The PROTECT Phase I/IIa trial evaluates its safety, tolerability, and clinical proof of concept. • **Methodology**: Peanut-allergic (PA) participants were selected based on clinical history, skin prick test (≥8mm), peanut-sIgE (≥5.0 kUA/L), Ara h2-sIgE (≥2 kUA/L), and basophil activation test. Participants received three monthly escalating doses of VLP Peanut or placebo with intensive safety monitoring. • **Results:** Among 12 healthy and 12 PA participants, no systemic adverse events (AEs) occurred in healthy individuals. Two PA participants experienced mild systemic AEs. Local AEs were mostly mild. Vital signs, spirometry, and laboratory assessments remained normal. • **Conclusions:** Preliminary safety data indicate VLP Peanut has a favorable safety profile, supporting its potential as a peanut allergy therapy.
02 Mar 2025	Assessment of efficacy of a novel short course adjuvanted modified grass allergen immunotherapy vaccine compared with two regulatory approved grass immunotherapy products	Lawrence Dubuske	• **Introduction:** Comparing novel allergen immunotherapy (AIT) candidates with approved treatments helps assess efficacy. This study evaluated PQ Grass, a novel subcutaneous immunotherapy (SCIT) vaccine, against registered sublingual immunotherapy (SLIT) products. • **Methodology**: Efficacy results from two PQ Grass trials in the US and EU were compared with Phase III data from approved 5-grass and single-grass SLIT products using a meta-analysis. • **Results:** PQ Grass improved symptom and medication scores by -22.5% and -21.5%, comparable to SLIT. Rhinitis quality-of-life improvements were greater (-0.51 vs. -0.32 to -0.22 for SLIT). • **Conclusions:** PQ Grass demonstrated efficacy comparable to SLIT, offering a biodegradable, aluminum-free, short-course SCIT alternative.

Notable Presentations at AAAAI 2025
Food Allergy and Immunotherapy (4/4)

Date	Title	Author	Summary
02 Mar 2025	Efficacy and Safety Sublingual Immunotherapy for Dust Mites Allergic Rhinitis in Ukrainian Children under 5 Years Old	Lawrence Dubuske	• **Introduction:** Sublingual allergen immunotherapy (SLIT) is effective for allergic rhinitis, but optimal starting age remains unclear. This study evaluated SLIT safety and efficacy in children aged 2–5 years with dust mite allergy. • **Methodology**: A 12-month study assessed 96 children (mean age 3.8±1.3) sensitized to Der p1, Der p2, Der p23, Der f1, and Der f2. SLIT was prescribed for sensitization class 2–5. Nasal symptoms (VAS) and acute respiratory infection frequency were monitored. • **Results:** Significant nasal symptom improvement ($p<0.05$) was observed at 6 and 12 months. No serious adverse events occurred; 9.4% had transient mild itching, resolving within 4 weeks with antihistamines. • **Conclusions:** SLIT was safe and effective in children under 5, supporting its use in this age group.

Notable Presentations at AAAAI 2025
Atopic Dermatitis and Dermatology (1/4)

Date	Title	Author	Summary
01 Mar 2025	IRL201104, A Novel Immunomodulatory Peptide, Shows Efficacy In An Allergen Driven Model Of Atopic Dermatitis	Jorge De Alba	• **Introduction:** Current atopic dermatitis (AD) treatments are limited. IRL201104, an immunomodulatory peptide, showed efficacy in eosinophilic esophagitis and allergic models. This study assessed its therapeutic potential in AD. • **Methodology**: OVA-sensitized mice underwent repeated topical challenges. IRL201104 (80 µg/kg or 2 mg/kg IV), dexamethasone (3 mg/kg IP), or vehicle were administered (days 18-34). Skin pathology, cytokines, chemokines, and OVA-specific IgE were analyzed on day 35. • **Results:** IRL201104 significantly reduced skin thickness, pathology, cytokines, chemokines, and IgE in a dose-dependent manner, comparable to dexamethasone. • **Conclusions:** IRL201104 demonstrates strong preclinical efficacy, supporting its potential as a first-in-class AD treatment.
02 Mar 2025	Tapinarof Cream 1% Once Daily: Consistent Efficacy Across All Body Regions, Including Head And Neck, In Adults And Children Down To 2 Years Of Age With Atopic Dermatitis	Justin Greiwe	• **Introduction:** Tapinarof cream 1% (VTAMA®) demonstrated significant efficacy in the ADORING 1 and 2 phase 3 trials for atopic dermatitis (AD) in patients aged ≥2 years. This analysis assessed efficacy across different body regions. • **Methodology**: A total of 813 patients were randomized to tapinarof or vehicle once daily for 8 weeks. EASI scores (0–72) were evaluated across four regions: head/neck, trunk, upper extremities, and lower extremities • **Results:** At Week 8, ≥75% EASI improvement was achieved in 55.8–59.1% (tapinarof) vs 21.2–22.9% (vehicle; P<0.0001). Tapinarof significantly improved EASI scores across all regions and was well tolerated. • **Conclusions:** Tapinarof consistently reduced AD severity across body regions, including sensitive areas, supporting its use in young patients.

Notable Presentations at AAAAI 2025
Atopic Dermatitis and Dermatology (2/4)

Date	Title	Author	Summary
02 Mar 2025	Efficacy and Safety of Ruxolitinib Cream Monotherapy in Patients Aged 2 Years and Older With Mild-to-Moderate Atopic Dermatitis: Results From 3 Large Randomized Phase 3 Studies	Eric Simpson	• **Introduction:** Ruxolitinib cream was evaluated for mild-to-moderate atopic dermatitis (AD) in children, adolescents, and adults across three phase 3 trials. This analysis assessed age-based efficacy and safety over 8 weeks. • **Methodology**: Patients (aged ≥2 years) with AD (IGA 2/3, 3%–20% body surface area) were randomized 2:2:1 to receive 0.75% or 1.5% ruxolitinib cream or vehicle twice daily. Efficacy endpoints included Investigator's Global Assessment treatment success (IGA-TS) and ≥75%/≥90% improvement in EASI (EASI-75/EASI-90) at Week 8. • **Results:** At Week 8, IGA-TS (50.6%–56.5%), EASI-75 (60.9%–67.2%), and EASI-90 (39.1%–44.9%) were significantly higher with ruxolitinib 1.5% vs vehicle (P<0.01). Tolerability was favorable, with minimal site reactions and no systemic JAK inhibition signals. • **Conclusions:** Ruxolitinib cream showed consistent, robust efficacy and safety across all age groups, supporting its use in AD treatment.
02 Mar 2025	Lebrikizumab Improves Anxiety and Depression Symptoms of Adolescents with Moderate-to-Severe Atopic Dermatitis: Results from a 52-Week, Open-label, Phase 3 Study	Bob Geng	• **Introduction:** Anxiety and depression are common comorbidities in adolescents with atopic dermatitis (AD), but data on their long-term impact remain limited. This study assessed 52-week patient-reported anxiety and depression outcomes in adolescents treated with lebrikizumab. • **Methodology**: In this phase 3, open-label study (ADore), adolescents received a 500 mg lebrikizumab loading dose at baseline and week 2, followed by 250 mg every two weeks. PROMIS-anxiety and PROMIS-depression scores were assessed at baseline and week 52. • **Results:** Among 206 patients, those with baseline PROMIS scores ≥60 showed a 19.0% (anxiety) and 12.6% (depression) improvement at week 52. By week 52, 68.6% and 52.4% achieved mild or lower anxiety and depression scores, respectively. • **Conclusions:** Lebrikizumab treatment significantly improved anxiety and depression symptoms in adolescents with moderate-to-severe AD over 52 weeks.

Notable Presentations at AAAAI 2025
Atopic Dermatitis and Dermatology (3/4)

Date	Title	Author	Summary
02 Mar 2025	Effect of Abrocitinib and Dupilumab on the Incidence of Conjunctivitis in Patients With Atopic Dermatitis: An Analysis of Abrocitinib Randomized Controlled Phase 3 Studies	Eingun James Song	• **Introduction:** Atopic dermatitis (AD) is associated with an increased risk of conjunctivitis. This study assessed the incidence of treatment-emergent (TE) conjunctivitis in patients receiving abrocitinib or dupilumab. • **Methodology**: A post hoc analysis included moderate-to-severe AD patients from five clinical trials. Incidence rates (IRs) of TE conjunctivitis per 100 patient-years (PY) were analyzed for abrocitinib (200 mg/100 mg), dupilumab (300 mg biweekly), and placebo. • **Results:** Among 2627 patients, 3.8% developed TE conjunctivitis, with IRs higher for dupilumab (17.92) versus abrocitinib 200 mg (6.07), 100 mg (4.38), and placebo (3.69). Affected patients were older, with severe AD and head/neck erythema. • **Conclusions:** Dupilumab had a higher conjunctivitis incidence than abrocitinib or placebo. Study limitations included short treatment duration and a small affected cohort.
02 Mar 2025	The Abnormal Metabolomic Activity in Atopic Dermatitis Skin is Restored With Dupilumab	Elena Goleva	• **Introduction:** Atopic dermatitis (AD) is associated with metabolic abnormalities in the skin, but their role in disease pathobiology and response to treatment remains unexplored. This study assessed skin metabolites in AD before and after dupilumab treatment. • **Methodology**: Skin tape strips (STS) were collected from 20 healthy volunteers and 20 moderate-to-severe AD patients over 16 weeks in BALISTAD (NCT04447417). LC-MS proteomics and targeted metabolomics were performed. • **Results:** AD skin had significantly lower free amino acids and glutathione levels pre-treatment. Dupilumab increased amino acids (from 2 weeks) and glutathione (after 8 weeks). Nucleotide metabolites (guanine, cytidine, xanthine) were elevated in AD but reduced with treatment. • **Conclusions:** AD is characterized by metabolic dysregulation, which is partially corrected by dupilumab treatment.

Notable Presentations at AAAAI 2025
Atopic Dermatitis and Dermatology (4/4)

Date	Title	Author	Summary
02 Mar 2025	Pediatric Atopic Dermatitis is Associated With More Rapid Recovery of Protein Bound Ceramides After Treatment With Dupilumab	Evgeny Berdyshev	• **Introduction:** Stratum corneum (SC) protein-bound lipids are crucial for skin barrier function, but their response to dupilumab in atopic dermatitis (AD) remains unexplored, particularly in children. This study examined SC lipid changes in pediatric vs. adult AD patients on dupilumab. • **Methodology**: AD patients (pediatric: 6–11 years, n=23; adolescent/adult: 12–65 years, n=26) were treated with dupilumab for 16 weeks (PELISTAD: NCT04718870; BALISTAD: NCT04447417). SC samples were analyzed via skin tape stripping and mass spectrometry. • **Results:** At baseline, AD patients had lower SC [O][C20S] and [O][C22S] ceramides vs. healthy controls, with greater reductions in adults. Dupilumab restored ceramides in pediatric AD within 4–8 weeks but was less effective in adults. Pediatric SC ceramide levels correlated with SDR9C7 lipoxygenase (r=0.518, p=0.011). • **Conclusions:** Dupilumab rapidly restores SC ceramides in pediatric AD but is less effective in adults, suggesting early intervention may enhance long-term treatment outcomes.
02 Mar 2025	Growth Analysis in Children Aged 6 to 11 Years and Adolescents Aged 12 to 17 Years With Moderate-To-Severe Atopic Dermatitis and Impact of 16 Weeks of Dupilumab Treatment on Height	Alan Irvine	• **Introduction:** Adolescents with moderate-to-severe atopic dermatitis (AD) have a higher likelihood of being below the 25th height percentile. This study evaluated whether dupilumab treatment improves height percentile in children with severe AD**.** • **Methodology**: Height and weight data from children (6–11 years, AD PED, NCT03345914) and adolescents (12–17 years, AD ADOL, NCT03054428) were analyzed. The proportion achieving ≥5 percentile height improvement with dupilumab vs. placebo was assessed. • **Results:** More children <25th percentile at baseline improved with dupilumab vs. placebo (girls: 36.7% vs. 18.2%; boys: 25.0% vs. 5.0%). Too few adolescents showed change, suggesting limited growth potential beyond 12 years. • **Conclusions:** Early and effective treatment with dupilumab may improve growth outcomes in younger children with severe AD, reducing long-term height deficits.

Notable Presentations at AAAAI 2025
Drug Hypersensitivity and Allergy Testing (1/2)

Date	Title	Author	Summary
01 Mar 2025	Development and Validation of a Cephalosporin Allergy Clinical Decision Rule – CEPH-FAST.	Jason Trubiano	• **Introduction:** Penicillin allergy decision rules (CDRs) exist, but their applicability to cephalosporin allergy remains unclear. This study validated a cephalosporin allergy CDR based on PEN-FAST. • **Methodology**: Patients with self-reported cephalosporin allergy (2015–2024) underwent skin and/or direct oral challenge. CEPH-FAST performance was assessed using AUROC, sensitivity, specificity, and predictive values. External validation was conducted in North American cohorts. • **Results:** Among 228 Australian and 167 North American patients, CEPH-FAST had an AUROC of 0.921. A score <3 had a 5.7% allergy test positivity rate, NPV 94.3%, sensitivity 93.4%, and specificity 72.3%. • **Conclusions:** CEPH-FAST is a reliable tool to assess cephalosporin allergy risk, supporting direct oral challenge use.
01 Mar 2025	Functional Divergence of HLA-A in HLA-A*32:01 Positive Vancomycin DRESS Cases and Tolerant Controls	Matthew Krantz	• **Introduction:** Functional divergence (FD) measures diversity across HLA alleles, influencing immune response breadth. While HLA class I-risk allele homozygosity is linked to drug hypersensitivity, FD's impact remains unclear. This study examined FD in HLA-A*32:01–restricted vancomycin-induced DRESS. • **Methodology**: Prospective vancomycin DRESS cases and vancomycin-tolerant controls with HLA-A*32:01 were identified via HLA typing and SNP2HLA imputation. FD was calculated and categorized by decile. Logistic regression assessed risk across FD categories. • **Results:** Among 67/94 DRESS cases and 128/2301 controls, lower FD significantly increased DRESS risk (OR 4.8, p=0.02, bottom vs. top decile; OR 3.12, p=0.02, bottom vs. intermediate). • **Conclusions:** Lower FD in HLA-A*32:01 is associated with increased vancomycin DRESS risk, supporting FD's role in refining HLA-based screening strategies.

Notable Presentations at AAAAI 2025
Drug Hypersensitivity and Allergy Testing (2/2)

Date	Title	Author	Summary
01 Mar 2025	Immunogenic Profiling of Vancomycin: Detecting Vancomycin-Specific IgG in Patients With and Without Vancomycin Infusion Reactions	Santiago Alvarez-Arango	• **Introduction:** Vancomycin-induced immediate drug reactions (IDRs) are often misclassified as IgE-mediated, despite limited serological evidence. This study assessed vancomycin-specific IgG (vancomycin-sIgG) as a potential marker of immunogenicity. • **Methodology**: An ELISA assay quantified vancomycin-sIgG in vancomycin infusion reaction (VIR) and vancomycin-tolerant subjects, using vancomycin-naïve controls and competitive binding for assay specificity. • **Results:** Among 18 subjects (8 VIR, 10 tolerant), no significant vancomycin-sIgG responses were detected. In 7 cases, weak or nonspecific binding was observed, with free vancomycin reducing absorbance by only 10–30%. Rabbit controls showed much higher absorbance. • **Conclusions:** No strong vancomycin immunogenicity profile was identified, supporting the rarity of IgE-mediated vancomycin reactions. Further longitudinal studies are needed.
01 Mar 2025	Efficiency of Evaluating Antibiotic Allergy Labels in The Solid Organ Transplant (SOT) Population Using a Same-Day Multiple Antibiotic Evaluation Strategy (MAES)	Cosby Stone	• **Introduction:** Transplant patients often have multiple antibiotic allergy labels (AALs), limiting first-line antibiotic use. This study evaluated a multiple antibiotic evaluation strategy (MAES) for efficient AAL delabeling in a single clinic visit. • **Methodology**: A retrospective cohort study of 204 transplant patients at Vanderbilt (2014–2024) assessed same-day testing and challenges for low-risk AALs. • **Results:** Among 131 solid-organ transplant patients, 78 penicillin, 22 cephalosporin, 53 sulfonamide, and 4 fluoroquinolone AALs were delabeled in one visit. Delabeling rates exceeded 80% across all transplant groups. • **Conclusions:** MAES enabled rapid, effective first-line AAL delabeling, improving antibiotic access in transplant patients.

Notable Presentations at AAAAI 2025
Biologics and Novel Therapies (1/2)

Date	Title	Author	Summary
01 Mar 2025	Superior Efficacy of Epinephrine Nasal Spray for the Relief of Symptoms Following an Oral Food Challenge	Kyohei Takahashi	• **Introduction:** Neffy® (epinephrine nasal spray) is a novel, needle-free treatment for severe allergic reactions/anaphylaxis. This study compared symptom resolution following neffy administration versus other treatments. • **Methodology**: A phase 3 trial (jRCT2031230143) assessed 15 patients (age 6–17) with anaphylaxis symptoms (≥grade 2) treated with neffy, compared to 15 matched controls (age 6–20) receiving standard treatment. Symptom progression was analyzed using mixed-effects models for repeated measures. • **Results:** Neffy-treated patients had significantly fewer skin symptoms at 15–30 min, respiratory symptoms at 5–15 min ($p<0.01$), and gastrointestinal symptoms at 5–15 min ($p<0.05/p<0.01$). Total symptom scores were lower at 10–15 min ($p<0.05/p<0.01$). • **Conclusions:** Neffy provided faster symptom relief than standard treatments, supporting its role as a viable needle-free anaphylaxis management option.
01 Mar 2025	Dupilumab Effectiveness Through Two Years in Patients with CRSwNP Treated in Real-World Practice: Results from the Global AROMA Registry	Anju Peters	• **Introduction:** Chronic rhinosinusitis with nasal polyps (CRSwNP) significantly impacts quality of life. While clinical trials demonstrated dupilumab's efficacy, real-world evidence remains limited. This study assessed dupilumab's long-term effectiveness in real-world CRSwNP patients. • **Methodology**: AROMA (NCT04959448) is a phase 4, prospective, global registry including CRSwNP patients initiating dupilumab in the USA, Canada, Germany, Italy, Japan, and the Netherlands. Symptom severity and quality of life were assessed over 24 months. • **Results:** Among 691 patients, nasal congestion scores improved from 1.8 at baseline to 0.5 at 24 months, with similar reductions in loss of smell and SNOT-22 scores. "No symptoms" reports increased from 3.3% to 42.9%. Safety was consistent with known dupilumab profiles. • **Conclusions:** Dupilumab provided sustained symptom relief and improved quality of life over 24 months, reinforcing its long-term efficacy in real-world CRSwNP management.

Notable Presentations at AAAAI 2025
Biologics and Novel Therapies (2/2)

Date	Title	Author	Summary
02 Mar 2025	Long-Term Safety and Disease Control of Ruxolitinib Cream in Children Aged 2 to 6 and 7 to 11 Years: Results From the TRuE-AD3 Study	Weily Soong	• **Introduction:** Ruxolitinib cream showed efficacy and safety at 8 weeks in children with mild-to-moderate atopic dermatitis (AD). This study evaluated long-term disease control and safety across age subgroups. • **Methodology**: Children aged 2–11 years (IGA 2/3, 3%–20% BSA) were randomized to twice-daily ruxolitinib cream (0.75%/1.5%) or vehicle for 8 weeks, followed by a 44-week as-needed treatment period. Disease control (IGA 0/1, BSA%) and safety were assessed. • **Results:** Among 282 patients, ruxolitinib was well tolerated with no serious treatment-related adverse events. At Week 52, IGA 0/1 rates were 72.1%–82.9%, and mean BSA was reduced to 1.8%–2.2%, demonstrating sustained disease control. • **Conclusions:** Ruxolitinib cream provided long-term efficacy and safety in children with mild-to-moderate AD, regardless of age subgroup.
02 Mar 2025	Patients With Moderate-to-Severe Asthma Receiving Dupilumab Are More Likely to Meet 4 Key Clinical Remission Criteria: Results From the VESTIGE Trial	Mario Castro	• **Introduction:** Clinical remission is emerging as a key treatment goal in asthma management, particularly with biologics. This analysis from VESTIGE (NCT04400318) evaluated the proportion of patients achieving clinical remission and reduced airway inflammation after 6 months of dupilumab treatment. • **Methodology**: Patients (18–70 years) with uncontrolled, moderate-to-severe asthma and elevated type 2 biomarkers were randomized (2:1) to dupilumab 300 mg (n=72) or placebo (n=37) every two weeks for 24 weeks. Clinical remission was defined by four criteria: no severe exacerbations, no systemic corticosteroid use, Asthma Control Questionnaire (ACQ-5) score <1.5, and improved FEV_1. FeNO <25 ppb was also assessed. • **Results:** At Week 24, 38.9% of dupilumab recipients met all remission criteria vs 18.9% on placebo (OR 2.83, P<0.05). Among these patients, FeNO <25 ppb was achieved in 53.6% vs 14.3% (dupilumab vs placebo). • **Conclusions:** Dupilumab significantly increased the likelihood of achieving clinical remission and reduced airway inflammation, supporting its role as an effective treatment for moderate-to-severe asthma.

Notable Presentations at AAAAI 2025
Pediatric Allergy and Immunology (1/2)

Date	Title	Author	Summary
02 Mar 2025	Pediatric Obesity Is Associated With Increased Risk Of New-Onset Allergic Rhinitis	Hayley Baker	• **Introduction:** Obesity is a known risk factor for asthma and other atopic diseases. This study assessed whether higher BMI is associated with an increased risk of new-onset allergic rhinitis (AR) in children. • **Methodology**: A retrospective cohort study used the TriNetX U.S. Collaborative platform to compare children (2–19 years) with obesity (BMI ≥95th percentile) to normal-weight peers (BMI 5th–85th percentile). The primary outcome was new-onset AR at 1- and 3-year follow-ups. Propensity matching controlled for age and sex. • **Results:** Among 810,784 matched patients per cohort, obesity increased AR risk at 1 year (RR 1.24, 95% CI 1.21–1.26) and 3 years (RR 1.22, 95% CI 1.20–1.24). • **Conclusions:** Pediatric obesity is linked to increased AR risk. Prospective studies are needed to confirm causality and mechanisms.
02 Mar 2025	Stepwise oral immunotherapy in children with hen' s egg allergy in Thailand	Darin Munyuen	• **Introduction:** Egg oral immunotherapy (OIT) is effective but has a high discontinuation rate due to adverse reactions. This study evaluated the safety of stepwise egg OIT, which gradually increases egg protein intake. • **Methodology**: A retrospective study included 11 children (1–18 years) with confirmed egg allergy who started stepwise egg OIT (August 2023–October 2024). Data on specific IgE levels (egg white, egg yolk, ovomucoid) and adverse reactions were collected. • **Results:** Mild reactions occurred in 36% (eczema, itchy throat, perioral redness). No severe reactions or discontinuations were reported. Most (72.7%) progressed through the protocol, with a median treatment duration of 7.2 months. • **Conclusions:** Stepwise egg OIT was well tolerated, with no severe reactions, supporting its safety in egg allergy treatment.

Notable Presentations at AAAAI 2025
Pediatric Allergy and Immunology (2/2)

Date	Title	Author	Summary
02 Mar 2025	Persistent Reactivity: Oral Food Challenge Outcomes in Food Protein Induced Enterocolitis Syndrome (FPIES)	Vivian Szeto	• **Introduction:** Food protein-induced enterocolitis syndrome (FPIES) is an underdiagnosed, non-IgE-mediated food reaction. Current management involves food avoidance and oral food challenges (OFCs) after 12–18 months, but optimal timing remains unclear. • **Methodology**: A retrospective chart review analyzed 47 FPIES OFCs in 32 pediatric patients at McMaster University Medical Centre. Patient demographics, trigger foods, atopic history, and OFC outcomes were assessed. • **Results:** Common triggers included eggs (23%), oats (14.9%), and rice (12.8%). OFCs occurred ~34 months after initial reaction, yet 27.6% of patients reacted. Atopy was common (56.3% had atopic dermatitis). • **Conclusions:** Nearly 28% of patients reacted despite prolonged avoidance, suggesting current OFC timing may be inadequate. Further studies are needed to optimize FPIES management.
03 Mar 2025	Long-Term Efficacy Results of Epicutaneous Immunotherapy With VIASKIN® Peanut Patch in Peanut-Allergic Children Aged 4-11 Years in the Phase 3 PEOPLE Study	David Fleischer	• **Introduction:** The VIASKIN® peanut patch (VP250) has shown sustained efficacy and safety over 36 months. This study reports final 60-month results from the PEOPLE open-label extension. • **Methodology**: Children aged 4–11 years with peanut allergy were randomized to VP250 or placebo in PEPITES. Eligible participants continued open-label VP250 in PEOPLE for up to 60 months. Efficacy outcomes included treatment responders, eliciting dose (ED) ≥1000 mg, and peanut-specific IgE/IgG4 trends. • **Results:** Among 298 participants, 87 completed 60 months. Response rates increased from 39.1% (PEPITES) to 73.3% (M60). ED ≥1000 mg improved from 33.3% to 66.7%. Peanut-specific IgE decreased, IgG4 increased, and compliance remained high (93%). • **Conclusions:** Long-term VP250 treatment demonstrated sustained clinical benefit and high adherence in peanut-allergic children.

Notable Presentations at AAAAI 2025
Miscellaneous Topics in Immunology (1/4)

Date	Title	Author	Summary
01 Mar 2025	Dupilumab Efficacy In Adolescents And Adults With Eosinophilic Esophagitis With And Without Concurrent Elimination Diet: Post Hoc Analysis Of LIBERTY EoE TREET At 52 Weeks	Antonella Cianferoni	• **Introduction:** Eosinophilic esophagitis (EoE) is a chronic type 2 inflammatory disease treated with food elimination diets (FEDs) and medications. This analysis assessed whether concurrent FED impacts dupilumab efficacy. • **Methodology**: In LIBERTY EoE TREET (NCT03633617), patients received dupilumab 300 mg weekly or placebo (Part B, 24 weeks), followed by continued or new dupilumab treatment (Part C, 52 weeks). Patients on FED at screening continued their diet. Key endpoints included histologic (≤6 eos/hpf), symptomatic (DSQ), and endoscopic (EREFS, EoE-HSS) outcomes. • **Results:** At Week 24, histologic remission was similar in patients with (61.3% dupilumab vs 3.4% placebo) and without FED (57.1% vs 8.0%). DSQ, EREFS, and EoE-HSS improved comparably across groups. Improvements persisted at Week 52. • **Conclusions:** Dupilumab efficacy in EoE is independent of concurrent FED, supporting its use across dietary management approaches.
01 Mar 2025	Dupilumab Is Efficacious in Children With Eosinophilic Esophagitis (EoE) Weighing ≥15kg Independent of Individual Atopic Comorbidity History: 16-Week Results From the Phase 3 EoE KIDS Study	Seema Aceves	• **Introduction:** Eosinophilic esophagitis (EoE) is a type 2 inflammatory disease often coexisting with atopic comorbidities. This analysis from the EoE KIDS trial assessed dupilumab efficacy in children (1–11 years, ≥15kg) with EoE, stratified by atopic comorbidities. • **Methodology**: In this phase 3 trial, patients received weight-tiered dupilumab or placebo for 16 weeks. Key endpoints included peak eosinophil count (PEC) ≤6 and <15 eos/hpf, Endoscopic Reference Score (EREFS), and Histology Scoring System (HSS) changes. • **Results:** At baseline, 96.6% (84/87) of patients had ≥1 atopic comorbidity. Dupilumab improved PEC ≤6 eos/hpf regardless of atopic comorbidity (AD: 73.7%, asthma: 53.7%, AR: 60.1%, FA: 61.0%). Improvements in PEC <15 eos/hpf, EREFS, and HSS were observed across subgroups. Safety was consistent with dupilumab's known profile. • **Conclusions:** Dupilumab effectively improved EoE outcomes in young children, irrespective of atopic comorbidities.

Notable Presentations at AAAAI 2025
Miscellaneous Topics in Immunology (2/4)

Date	Title	Author	Summary
01 Mar 2025	Sensitization profile and contact dermatitis in patients with chronic ulcers: a customized patch test series proposal	Alice De Magalhaes	• **Introduction:** Contact dermatitis (CD) in chronic ulcer patients may result from wound-care products. This study identified allergens and proposed a standardized patch test series. • **Methodology**: A retrospective and prospective study evaluated 15 patients with ulcers (>6 weeks) using a customized patch test. Demographics, ulcer duration, treatments, and CD history were assessed. • **Results:** Most patients were female, aged >56 years, with ulcers lasting ~8 years. Nitrofurazone and fragrance mix II were the most common allergens. Six allergens would have been missed with standard tests. Polysensitization was more frequent in long-duration ulcers. • **Conclusions:** Customized patch testing enhances allergen detection, supporting early diagnosis and prevention to reduce CD-related morbidity and costs.
02 Mar 2025	Development of Pan-H5 Vaccines Against Avian Influenza Developed Using Computational Biology to Mitigate Future Pandemics	Ronald Moss	• **Introduction:** Avian influenza (H5Nx) poses a pandemic risk, with current vaccines offering limited cross-clade protection. This study assessed the DIOSynVax pan-H5Nx mRNA vaccine. • **Methodology**: Mice received DIOSynVax pan-H5Nx mRNA or WIV H5 clade 1/2.3.4.4b. Serum neutralization titers were measured using pMN, pELLA, and HAI assays. • **Results:** DIOSynVax induced potent neutralization (IC50 ~10^3-10^4) with broad H5 interclade coverage (clades 2.3.4.4a–h), surpassing WIV vaccines. It also generated stronger neuraminidase inhibition against N1 variants. • **Conclusions:** DIOSynVax pan-H5Nx provided broad immune protection and represents a promising approach for future avian influenza pandemics.

Notable Presentations at AAAAI 2025
Miscellaneous Topics in Immunology (3/4)

Date	Title	Author	Summary
02 Mar 2025	Association between dietary supplements and asthma: a cross-sectional study in South Korea	Eunkyung Lee	• **Introduction:** Limited evidence exists on the relationship between dietary supplements and asthma. This study examined associations between supplement use and asthma prevalence in Korean adults. • **Methodology**: A cross-sectional analysis of the Korea National Health and Nutrition Examination Survey (KNHANES, 2018–2020) included adults ≥30 years. Multivariable logistic regression assessed asthma diagnosis against supplement intake, adjusting for socioeconomic, lifestyle, and dietary factors. • **Results:** Among 14,541 adults (mean age: 52.47 years), asthma prevalence was 1.43%. Supplement use was lower in asthma patients (61.19% vs. 73.11%). Vitamin A/lutein users had significantly higher asthma odds (adj.OR: 4.78, 95% CI: 2.22–10.27), while other supplements showed no association. • **Conclusions:** Vitamin A/lutein supplementation was positively associated with asthma in Korean adults.
02 Mar 2025	The Gastrointestinal Tract-Restricted Helminth H. polygyrus bakeri Protects Against SARS-CoV-2-Induced Lung Disease in Mice	Courtney Karl	• **Introduction:** Helminth infections may reduce SARS-CoV-2 severity. This study examined whether Heligmosomoides polygyrus bakeri (Hpb) protects against SARS-CoV-2 in mice. • **Methodology**: C57BL/6J mice were coinfected with Hpb and SARS-CoV-2 (MA10). Lung function, immune responses, and viral load were assessed. Knockout mice helped identify protective mechanisms. • **Results:** Hpb coinfection reduced SARS-CoV-2-induced weight loss and mortality, increased eosinophil infiltration, and improved lung function without significantly lowering viral load. IL-5 knockout mice showed partial loss of protection, suggesting IL-5 involvement. • **Conclusions:** Helminth-induced IL-5 may modulate SARS-CoV-2 immune responses. Ongoing studies will further define the mechanism of protection.

Notable Presentations at AAAAI 2025
Miscellaneous Topics in Immunology (4/4)

Date	Title	Author	Summary
02 Mar 2025	Real-time Transepidermal Water Loss Monitoring During Oral Food Challenge Leads to Decreased Anaphylaxis: A Randomized Control Trial	George Freigeh	• **Introduction:** The oral food challenge (OFC) is the gold standard for diagnosing food allergies but is limited by perceived risks. Transepidermal water loss (TEWL) rises during anaphylaxis and may aid in safer OFC adjudication. • **Methodology**: A randomized controlled trial in children (6 months–5 years) with peanut allergy compared standard OFC stopping criteria (CoFAR) to TEWL-based stopping criteria. TEWL-based challenges stopped at a TEWL rise of 1 g/m²/h plus an objective allergic symptom or CoFAR criteria. • **Results:** Among 40 participants, anaphylaxis rates were lower in the TEWL group (63% vs. 100%, p=0.01), as was epinephrine use (50% vs. 86%, p=0.04). • **Conclusions:** TEWL monitoring reduced anaphylaxis and epinephrine use, improving OFC safety and accessibility.
02 Mar 2025	Preclinical data supporting the differentiated profile of STAR-0310, a novel OX40 antagonistic monoclonal antibody	Chunxia Zhao	• **Introduction:** STAR-0310 is an affinity-matured, YTE-modified monoclonal antibody targeting OX40 with increased binding affinity and extended half-life, potentially enabling less frequent dosing for atopic dermatitis and other immunologic diseases. • **Methodology**: Binding affinity to human OX40 was measured using surface plasmon resonance. Cytokine release inhibition and antibody-dependent cellular cytotoxicity (ADCC) were assessed. Pharmacokinetics were evaluated in cynomolgus monkeys after a single subcutaneous dose (20 mg/kg, N=3). • **Results:** STAR-0310 exhibited an 8-fold increase in OX40 binding affinity versus telazorlimab, broader cytokine inhibition, and lower ADCC activity compared to rocatinlimab analogues. In cynomolgus monkeys, STAR-0310 demonstrated a mean half-life of 26 days. • **Conclusions:** STAR-0310's enhanced potency and extended half-life support its continued development for atopic dermatitis and other immune-mediated diseases.

Key Sponsored Symposia Information (Industry and non industry)

AAAAI 2025 Key Industry Sponsored Symposia Information (1/4)

Date	Sponsor	Title
27 Feb 2025	ARS Pharmaceuticals	Reimagining Epinephrine Administration with Epinephrine Nasal Spray
28 Feb 2025	Blueprint Medicines	From Ally to Adversary: The Mast Cell Journey and Systemic Mastocytosis
28 Feb 2025	AstraZeneca	Stories Behind the Science in EGPA: Updated Strategies for Diagnosis, Treatment, and Reducing the Steroid Burden in Patients
28 Feb 2025	GSK	Can Your Patients with Recurrent CRSwNP Benefit From Adding a Biologic?
28 Feb 2025	AstraZeneca	One Approach, Many Patients: Addressing Eosinophilic Inflammation
28 Feb 2025	Sanofi / Regeneron	Two Diseases, One Pathway: Explore a Treatment Option for Multiple Respiratory Diseases
28 Feb 2025	Blueprint Medicines	Patient Journey with Indolent Systemic Mastocytosis (ISM)

AAAAI 2025 Key Industry Sponsored Symposia Information (2/4)

Date	Sponsor	Title
28 Feb 2025	AstraZeneca	Epithelial Cytokines and Chronic Airway Diseases: A Closer Look at Chronic Rhinosinusitis With Nasal Polyps
28 Feb 2025	Ionis	Feuding With Hereditary Angioedema: Silencing Attacks With Cutting-Edge Advances
28 Feb 2025	Genentech	The Next Chapter in Food Allergy Treatment: Integrating Latest Advances Into Practice
01 Mar 2025	Blueprint Medicines	Managing Nonadvanced Systemic Mastocytosis: An Expert Roundtable Session
01 Mar 2025	KalVista Pharmaceuticals	Closing Gaps in HAE Management: Understanding What Control Means for Your HAE Patients
01 Mar 2025	DBV Technologies	From Trigger to Tolerance: Harnessing the Skin's Dual Role with Epicutaneous Immunotherapy
01 Mar 2025	AstraZeneca	AIRSUPRA® (albuterol 90 mcg/budesonide 80 mcg): The Paradigm Has Shifted

AAAAI 2025 Key Industry Sponsored Symposia Information (3/4)

Date	Sponsor	Title
01 Mar 2025	Sanofi / Regeneron	Chronic Spontaneous Urticaria: An Introduction to the Disease Features, Pathophysiology, and Management of Chronic Spontaneous Urticaria (CSU)
01 Mar 2025	CSL	Activated Factor XII: Examining a New Pharmacologic Target in Hereditary Angioedema
01 Mar 2025	Amgen / Kyowa Kirin	Discover the OX40 Receptor: A New Frontier in Moderate-to-Severe Atopic Dermatitis Heterogeneity and Chronicity
01 Mar 2025	Sanofi Opella	Paving the Way for an Optimal Allergy Management
02 Mar 2025	Eli Lilly	Taking Aim at AD With IL-13 Targeted Therapies
02 Mar 2025	Amgen / AstraZeneca	Unlock a Fresh Perspective on CRSwNP and Airway Diseases: Epithelial Cytokines Unleashed
02 Mar 2025	Sanofi / Regeneron	How much do you REALLY know about the type 2 cytokine-mediated effects in CRSwNP?

AAAAI 2025 Key Industry Sponsored Symposia Information (4/4)

Date	Sponsor	Title
02 Mar 2025	BioCryst Pharmaceuticals	The Real-World Impact of ORLADEYO® (berotralstat): A Clinician's Perspective in Practice
02 Mar 2025	Novartis	Unlocking Chronic Spontaneous Urticaria (CSU): Exploring the Role of Bruton's tyrosine kinase (BTK) in Pathophysiology, Unmet Needs, and Disease Burden
02 Mar 2025	Amgen / AstraZeneca	Beyond the Surface: A Case Study on the Impact of Triggers and Drivers of Severe Asthma
02 Mar 2025	Ionis / Pharming Healthcare	Case Challenges in Hereditary Angioedema: Innovative Therapeutic Strategies for a Normal Life
02 Mar 2025	Sanofi / Regeneron	CSU Situation Room: Next-Generation Therapies to Manage Patients Unresponsive to Antihistamines

AAAAI 2025 Key Non-Industry Symposia Information (1/6)

Date	Author	Title
28 Feb 2025	Kim Mudd Sharmilee Nyenhuis Karen Gregory	Allied Health: An Overview of Allergic Rhinitis and the Impact of Climate Change on Allergies
28 Feb 2025	Kim Mudd Ruchi Gupta Charles Schuler	Insights into the Mechanisms of Anaphylaxis
28 Feb 2025	Michael Schatz Anna Wolfson Luisa Karla Arruda	Emerging Issues in Women's Health
28 Feb 2025	Margee Louisias Tina Hartert Tamara Perry	Progress and Innovations in Addressing Asthma Disparities Through Social and Environmental Context
28 Feb 2025	Amber Patterson Pal Johansen Mohamed Shamji	Immunotherapy Unleashed: Exploring Next-Gen Allergen Immunotherapy
28 Feb 2025	Karla Adams Sara Barmettler Sara Anvari	Calling the Shots: Factors Influencing Vaccine Immune Responses, Adverse Effects of Vaccination and Vaccinating Vulnerable Populations
28 Feb 2025	William Sheehan Jill Poole Donata Vercelli	Innovative Approaches to Tackle Environmental and Occupational Respiratory Diseases

AAAAI 2025 Key Non-Industry Symposia Information (2/6)

Date	Author	Title
28 Feb 2025	Praveen Akuthota Daniel Jackson Marc Rothenberg	International Eosinophil Society Program: Emerging Classes of Eosinophil Directed Precision Therapy: Current and Future Usage and Development
28 Feb 2025	Lanny Rosenwasser Alessandro Fiocchi Motohiro Ebisawa	International Update on Food Allergy in 2025
28 Feb 2025	Megan Lewis Marciarose Winston Kim Mudd	Allied Health Plenary: A Quarter Century of Lessons Learned Since the Millennium: Looking Towards the Next 25
01 Mar 2025	Marek Jutel Ibon Eguiluz Ioana Agache	New European Academy of Allergy and Clinical Immunology (EAACI) Guidelines
01 Mar 2025	William Sheehan Tina Hartert Kirsi Jarvinen-Seppo	Lifestyle is the Key to Allergic Diseases: Lessons Learned from the Asthma and Allergic Diseases Cooperative Research Centers (AADCRC)
01 Mar 2025	Tolly Epstein Desiree Larenas Linnemann Aarti Pandya	What's New in Safety from the Updated Immunotherapy Practice Parameter (2024)
01 Mar 2025	Allison Ramsey Mariana Castells Philip Li	International Approaches to Drug Allergy Today

AAAAI 2025 Key Non-Industry Symposia Information (3/6)

Date	Author	Title
01 Mar 2025	Cherie Zachary Alan Kaplan Anne Maitland	The Role of Artificial Intelligence/Informatics in Asthma Detection and Management
01 Mar 2025	Bruce Zuraw Pedro Giavina-Bianchi Timothy Craig	Exploring Hereditary Angioedema: Diagnosis, Prophylaxis and Treatment Strategies
01 Mar 2025	Artemio Jongco Joud Hajjar Sneha Suresh	Not One Size Fits All: Considerations in the Management of Disadvantaged Populations
01 Mar 2025	David Hill Alfred Doyle Antonella Cianferoni	Eosinophilic Gastrointestinal Diseases (EGID): Year in Review
01 Mar 2025	Nora Barrett Vijay Ramakrishnan Brian Schwartz	New Insights into Chronic Rhinosinusitis
01 Mar 2025	Elizabeth Matsui Kimberley Geissler	Novel Approaches to Health Equity for Asthma
02 Mar 2025	Rory Nicolaides Rosalind Wright Carla Davis	How to ACE Overcoming ACE: The Impact of Adverse Childhood Experiences (ACEs) and Social Determinants of Health (SDOH) on Children with Allergic Diseases and How You Can Address Health Disparities in Your Practice

AAAAI 2025 Key Non-Industry Symposia Information (4/6)

Date	Author	Title
02 Mar 2025	Seema Aceves Sergio Chiarella Jocelyn Farmer	Research from the 2022 AAAAI Foundation Faculty Development Awardees
02 Mar 2025	Peggy Lai Luz Cladio Wanda Phipatanakul	The Impact of School Environments on Students' and Teacher's Respiratory Health
02 Mar 2025	Julie Wang Derek Chu Matthew Greenhawt	Work in Progress: The Joint Task Force on Practice Parameters Food Allergy GRADE Guideline
02 Mar 2025	Kenji Kabashima Michihiro Hide Motohiro Ebisawa	Japanese Society of Allergology (JSA): Hot Topics in Skin Allergy
02 Mar 2025	Jaclyn Bjelac Marcus Shaker Elissa Abrams	It's the Quality, Not the Quantity, of Care
02 Mar 2025	Angela Haczku Stanley DeVore Vadim Pivniouk	Breaking Barriers: Not Always a Good Idea: Lessons Learned from the Asthma and Allergic Diseases Cooperative Research Centers (AADCRCs)
02 Mar 2025	Susan Waserman Sarbjit Saini Jonathan Bernstein	Optimal Management of Urticaria: New Evidence Addressing Controversies and Emerging Paradigms

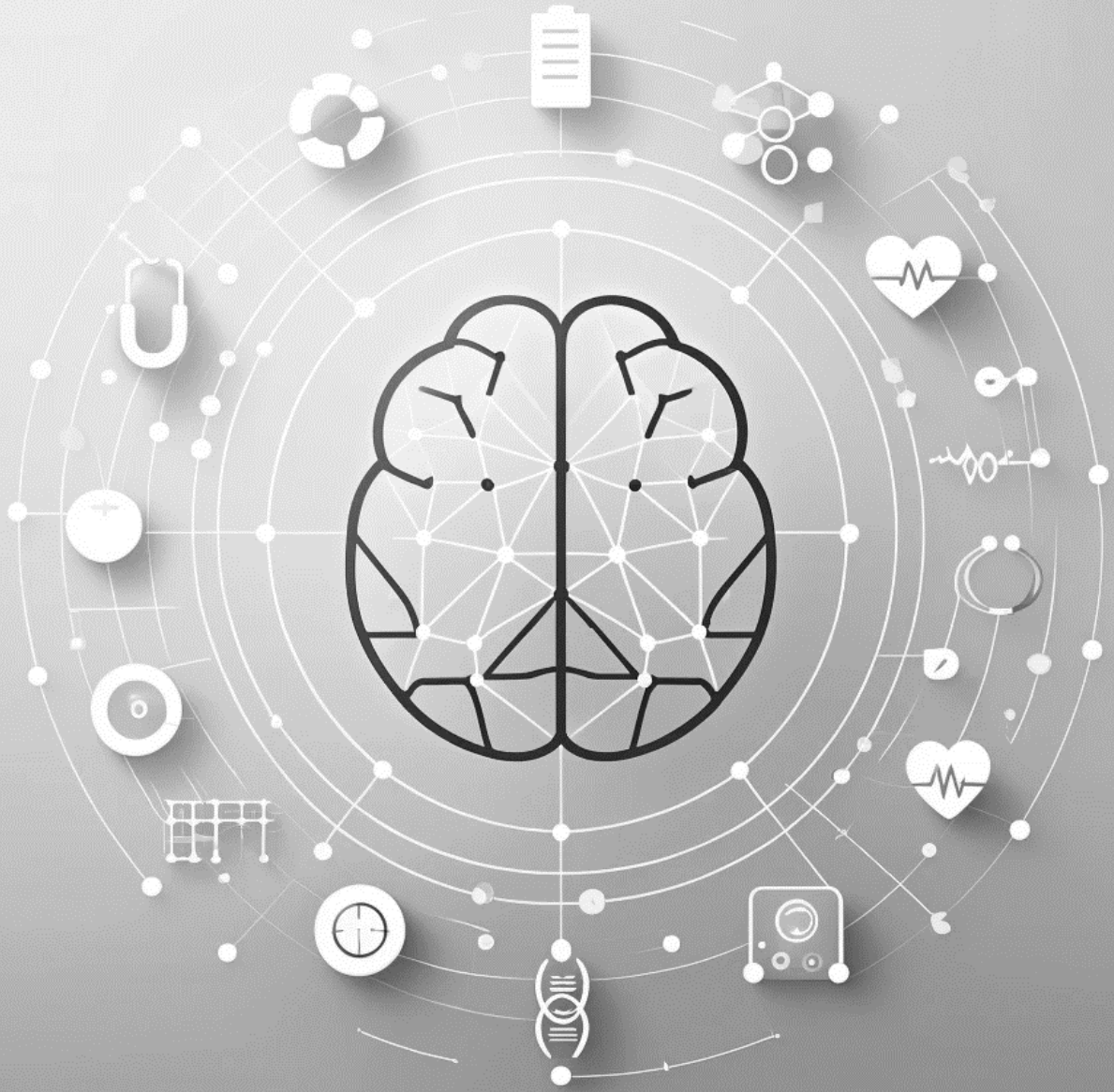
AAAAI 2025 Key Non-Industry Symposia Information (5/6)

Date	Author	Title
02 Mar 2025	Darryl Zeldin Maureen Lichtveld Ilona Jaspers	Emerging Environmental Threats and Allergy, Asthma and Respiratory Viral Infection
02 Mar 2025	Paul Williams Nick Rider Christopher Chang	PRACTALL 2024: Artificial Intelligence (AI) in Allergy/Immunology (A/I): Practice, Research and Education
02 Mar 2025	Robert Wood Jennifer Dantzer Robert Wood	OUtMATCH 2025: The Potential to Introduce Allergenic Foods after Omalizumab and A Direct Comparison of Omalizumab to Multi-food OIT
03 Mar 2025	Perdita Permaul Juan Celedon Meera Gupta	Obesity, Metabolic Dysregulation and Uncontrolled Asthma: Cause and Consequence
03 Mar 2025	Teresa Tarrant Karin Chen Paul Maglione	Environmental Factors, Microbiome and Epigenetics in Immune Dysregulation: Exploring the Links
03 Mar 2025	Amal Assa'ad Gideon Lack Isabel Skypala	The Global Impact of Climate Change on Food Allergy
03 Mar 2025	Yoon-seok Chang Ignacio Ansotegui Sandra Gonzalez Diaz	Allergen Immunotherapy: The Future is Now

AAAAI 2025 Key Non-Industry Symposia Information (6/6)

Date	Author	Title
03 Mar 2025	Onyinye Iweala Soman Abraham Clare Lloyd	Recent Insights into the Role of Mast Cells in Allergic Disease Pathogenesis
03 Mar 2025	David Reeder Mahboobeh (maha) Mahdavinia Tara Carr	Personalized Treatment of Chronic Rhinosinusitis (CRS): Microbiome, Immune Deficiency and Biomarkers for Biologic Therapy
03 Mar 2025	Maria Crain M. Elizabeth Younger Nicole Soucy	Allied Health: Immunodeficiency: Real Life Questions, Everything You Want to Know

Noteworthy AI / ML presentations at AAAAI 2025



Themes from key AI / ML presentations at AAAAI 2025 (1/2)

- **AAAAI 2025 will reflect how AI and machine learning are transforming allergy, asthma, and immunology by enhancing disease prediction, optimizing patient management, and addressing healthcare disparities, but real-world validation and equity-driven implementation remain critical**
- Check out the key AI / ML themes at AAAAI 2025 below:

- **AI-Driven Environmental Health and Respiratory Disease Prediction:**
  - AI models integrate pollution, climate, and disease data to predict respiratory disease prevalence. Automated forecasting enhances policy decisions and emergency responses, improving public health strategies
- **Machine Learning for Allergy and Asthma Management:**
  - ML-assisted models optimize allergen exposure reduction, thunderstorm asthma detection, and oral immunotherapy (OIT) education. AI-driven pollen detection achieves 94.7% accuracy, supporting proactive allergic disease management

Themes from key AI / ML presentations at AAAAI 2025 (2/2)

- **AI in Early Disease Detection and Risk Prediction:**
  - AI models analyzing EHRs improve early systemic mastocytosis (SM) screening and oral food challenge (OFC) predictions. Personalized ML models enhance allergic rhinitis (AR) forecasting, supporting individualized treatment strategies
- **AI-Enhanced Clinical Decision-Making and Patient Support:**
  - AI-driven chatbots and predictive tools improve emergency response guidance for food allergies, asthma exacerbations, and weight management. However, disparities in AI assistant performance highlight gaps in healthcare solutions
- **Equity and Fairness in AI-Based Asthma Care:**
  - Race-neutral AI models improve fairness in asthma hospitalization predictions, addressing disparities in healthcare access and treatment outcomes for underrepresented populations
- **Optimizing AI for Real-World Allergy and Immunology Applications:**
  - AI-based allergen forecasting reveals inconsistencies in consumer weather apps, underscoring the need for more accurate real-time pollen and air quality reporting for asthma and allergy patients

Noteworthy AI / ML presentations at AAAAI 2025 (Detailed Summaries)

Notable Presentations at AAAAI 2025
AI / ML (1/7)

Date	Title	Author	Summary
01 Mar 2025	Climate change and Health; Predicting allergic and non-allergic respiratory diseases outbreaks in correlation with air pollution by leveraging Artificial Intelligence in Gulf Cooperation Council (GCC) countries	Samia Al-Shouli	• **Introduction**: Climate change impacts respiratory diseases globally, with air pollution exacerbating asthma and allergies. GCC countries face increasing disease burdens due to deteriorating air quality. This study aims to develop AI-driven predictive models for air pollution and respiratory disease correlations • **Methodology**: A unified platform will integrate historical and real-time climate, pollution, and disease data from GCC countries. Advanced AI/ML techniques will be employed to build predictive models correlating air quality fluctuations with respiratory disease incidence • **Results:** The study expects to create an automated data integration system for accurate forecasting, linking pollution trends to disease prevalence. • **Conclusions:** AI-driven air quality prediction can inform policy decisions, optimize responses to pollution emergencies, and enhance public health strategies
01 Mar 2025	Evaluation of Temperature-Controlled Laminar Airflow Technology (TLA) to Filter Aeroallergen-Contaminated Ambient Air in Environmental Exposure Chamber (EEC)	Alina Gherasim	• **Introduction**: Targeted Lung Allergy (TLA) therapy reduces airborne allergens in the breathing zone, potentially improving allergic disease symptoms. This study evaluates TLA's efficacy in reducing allergen exposure under controlled conditions • **Methodology**: In the ALYATEC Environmental Exposure Chamber (EEC), cat dander (Fel d 1), Timothy grass (Phl p 5), and house dust mite (Der p 1) allergens were nebulized at standardized concentrations. Airsonett Air4, a TLA device, assessed airborne particle and allergen reduction. ELISA quantified allergen concentrations • **Results:** TLA achieved a 99.95–99.99% reduction in particles (0.5–10µm). Allergen levels in the breathing zone fell below detection limits, correlating with particle reduction. • **Conclusions:** TLA effectively removes airborne allergens, supporting its role in mitigating allergic disease symptoms

Notable Presentations at AAAAI 2025
AI / ML (2/7)

Date	Title	Author	Summary
01 Mar 2025	The impact of artificial intelligence (AI) on parent education in oral immunotherapy (OIT).	Jana Abi Rafeh	• **Introduction**: Oral Immunotherapy (OIT) lacks standardized management guidelines, creating challenges for families. This study evaluates ChatGPT's potential as an educational tool for OIT-related parental inquiries • **Methodology**: Fourteen common OIT-related questions were input into ChatGPT-3.5. Responses were assessed by allergy/immunology experts from Montreal, Toronto, and Texas using a 10-point Likert Scale. Readability and understandability were also analyzed • **Results:** ChatGPT's responses scored 7.97 (basic), 7.61 (advanced), and 7.15 (medical) on the Likert scale. Over 80% of participants favored ChatGPT for patient education, though readability scores indicated poor accessibility • **Conclusions:** ChatGPT effectively answers OIT-related questions, but readability concerns highlight the need for refinement in patient communication
01 Mar 2025	PREDICT-SM: Development of Machine Learning Models to Support Screening for Undiagnosed Systemic Mastocytosis	Daniel Herman	• **Introduction**: Systemic mastocytosis (SM) is underdiagnosed due to its diverse clinical presentation. AI-driven models can enhance early identification by analyzing electronic health records (EHRs) for predictive markers • **Methodology**: A dataset of 46,543 patients from Penn Medicine with ≥2 SM-associated clinical factors was analyzed. Machine learning models, including logistic regression (LASSO), were trained on EHR data comprising diagnosis codes (n=172), prescriptions (n=41), and symptoms (n=25). The model aimed to predict elevated ambulatory blood tryptase with an NNT target of 10 • **Results:** The model, incorporating 26 predictors (flushing, itching, hypotension, H2 blocker use), achieved an AUC of 0.74, sensitivity of 0.40, and identified all confirmed SM cases • **Conclusions:** AI models leveraging EHR data can effectively flag patients for SM screening, though further validation is required for clinical deployment

Notable Presentations at AAAAI 2025
AI / ML (3/7)

Date	Title	Author	Summary
02 Mar 2025	Automated Pollen Detection Device (APDD) using Holographic Artificial Intelligence	Sean Enright	• **Introduction**: Climate change is altering pollen and spore levels, impacting environmental health. Current pollen counting (PC) methods are manual and inefficient. This study develops an Automated Pollen Detection Device (APDD) for real-time, high-precision PC • **Methodology**: The APDD integrates collection, imaging, data transmission, and power subsystems. Lens-free digital holography (405 nm laser) captures particle images, processed using MATLAB and analyzed via YOLO-SOD. Five pollen types were tested, with 720 images analyzed at 60 frames/s • **Results:** The APDD accurately detected particles (10-120 µm) with 94.7% accuracy at a 7 cm/s flow rate. It autonomously functioned outdoors, wirelessly transmitting data via solar power • **Conclusions:** Holographic imaging enables real-time, automated PC. Further enhancements in processing speed, tracking, and calibration will optimize accuracy and deployment
02 Mar 2025	Smartphone-Based Artificial Intelligence Conversational Agents and Responses to Questions About Food Allergy Emergencies	Mina Dimova	• **Introduction**: Food allergy emergencies frequently lead to ER visits. Many patients rely on smartphone-based conversational agents for immediate guidance. This study evaluates the accuracy and relevance of AI-driven responses to food allergy emergencies • **Methodology**: Seven conversational agents (Google, ChatGPT, Microsoft Copilot, Perplexity, Claude, Apple Siri, Amazon Alexa) were tested with four emergency queries: "I have a food allergy reaction," "I have an allergic reaction," "I have anaphylaxis," and "I need an EpiPen." Responses were recorded and analyzed for relevance • **Results:** Google, ChatGPT, Microsoft Copilot, Perplexity, and Claude recognized all queries and provided urgent care recommendations. Apple Siri and Amazon Alexa failed to recognize key queries, offering inadequate responses • **Conclusions:** AI-based assistants have improved significantly since 2016, but Apple Siri and Amazon Alexa underperformed, highlighting the need for enhanced emergency response capabilities

Notable Presentations at AAAAI 2025
AI / ML (4/7)

Date	Title	Author	Summary
02 Mar 2025	Prediction of oral food challenge outcome using machine learning methods	Tomoyuki Arima	• **Introduction**: Oral food challenge (OFC) aids in reintroducing hen's egg (HE) to allergic children, preventing unnecessary elimination. Predicting OFC outcomes is complex, necessitating AI-driven risk assessment models • **Methodology**: OFC data from Mie National Hospital's electronic health records were analyzed. A dataset of 496 cases (mean age: 3 years) was split into training, validation, and test sets. Due to a low 11% positive OFC rate, data augmentation was applied. A Light Gradient Boosting Machine (LGBM) model trained on 27 clinical parameters was validated on test data • **Results:** The model achieved an accuracy of 0.9 (training) and 0.88 (test), with NPV of 0.94/0.92 and PPV of 0.5/0.38, effectively identifying negative OFC outcomes • **Conclusions:** Machine learning enhances OFC prediction, improving safety by accurately identifying children unlikely to react
02 Mar 2025	Characterization of Pollen Integrity and Species Identification Using Machine Learning Techniques	Nicholas Ogrodnik	• **Introduction**: Climate change is expected to increase aeroallergen concentrations and exacerbate thunderstorm asthma (TA) by promoting pollen rupture. This study develops AI-driven tools for automated pollen classification and rupture detection in an Allergen Exposure Chamber (AEC) • **Methodology**: Timothy grass and ragweed pollen were aerosolized in the EnviroGold™ AEC at 40-55% relative humidity. Rotational impact samplers (RIS) collected samples, which were stained and imaged via digital microscopy. Two neural networks, YOLOv8 and MobileNetV1, were trained using transfer learning to classify pollen species and detect rupture • **Results:** While aerosolization did not cause significant rupture, RIS collection and staining induced mechanical and osmotic rupture. MobileNetV1 classified rupture with 92% accuracy (F1: 0.99 intact, 0.89 burst). YOLOv8 classified grass and ragweed pollen with F1 scores of 0.97 and 0.90, respectively • **Conclusions:** AI models successfully automated pollen monitoring and rupture detection, offering a proactive approach for identifying potential TA events. Future work will expand aeroallergen classification and enhance model accuracy

Notable Presentations at AAAAI 2025
AI / ML (5/7)

Date	Title	Author	Summary
02 Mar 2025	Predictive Modelling for Allergic Rhinitis: A Real-World Study on the Association Between Level of Allergens and Symptoms Occurrence & Severity	David Peden	• **Introduction**: Allergic rhinitis (AR) symptoms are influenced by allergens, pollutants, and personal activity. This study evaluates machine learning (ML) models for predicting AR symptom severity and pre-symptomatic changes • **Methodology**: A 16-week observational study (spring 2020) collected data from moderate-to-severe AR sufferers in the US via online surveys, Fitbit wearables, and environmental monitoring. ML models predicted allergy days using two approaches: a future prediction model leveraging individual history and a generalizable model trained on broader user data. Model performance was evaluated using AUROC • **Results:** Personalized baseline data (symptoms, demographics, environment) improved AUROC by 11-13%. The future prediction model outperformed the generalizable model (AUROC: 0.91 vs 0.67). Key predictors included Total Nasal Symptom Scores, Rhinosinusitis Disability Index, step count, and sleep patterns • **Conclusions:** Personalized ML models integrating passive digital data enhance AR prediction, supporting proactive self-care strategies
02 Mar 2025	Fairness in precision medicine: Evaluating algorithmic bias in length of stay and readmission for asthma in the All of Us Research Program	Esteban Correa-Agudelo	• **Introduction**: Racial disparities in asthma hospitalization predictions remain understudied due to limited diverse datasets and insufficient fairness validation. This study assesses racial and ethnic fairness in predictive models for asthma readmission • **Methodology**: Machine learning models were developed to evaluate fairness in asthma hospitalization outcomes using data from the All of Us Research Program (82,188 encounters). Baseline models were compared to race-neutral advanced models, assessing AUROC, sensitivity, and proportional parity. Strategies to mitigate bias were implemented • **Results:** Baseline models performed similarly across racial groups in AUROC and specificity but showed poor sensitivity and proportional parity for Asian, Hispanic/Latino (HL), and Middle Eastern/North African (MENA) patients. Race-neutral models improved sensitivity (36%-50%) and proportional parity (22%-35%) for these groups • **Conclusions:** Classical race-based models exhibit racial unfairness in asthma readmission predictions. Advanced modeling techniques enhance fairness, improving equitable healthcare outcomes for underrepresented populations

Notable Presentations at AAAAI 2025
AI / ML (6/7)

Date	Title	Author	Summary
02 Mar 2025	Asthma management in obesity: Identifying the gap between evidence and practice	Oluwatobi OIayiwola	• **Introduction**: Obesity exacerbates asthma, and guidelines recommend weight management as part of asthma care. However, clinical translation remains unclear, and provider adherence is understudied. This study examines weight management inclusion in asthma treatment plans • **Methodology**: Outpatient notes (1/2020–9/2023) from primary care, allergy/immunology, and pulmonary providers at Mass General Brigham were analyzed using GPT-4o. Documentation of asthma and weight management was assessed across 86,604 encounters involving 29,887 patients with asthma and obesity. Model performance was validated via chart review • **Results:** While 96.1% of encounters discussed asthma management, only 8.6% included weight management (subspecialty: 11.4%, primary care: 7.4%). Strategies included exercise (77.5%), diet (64.9%), and weight loss education (24.7%) • **Conclusions:** Despite guideline recommendations, weight management is rarely integrated into asthma care. AI-driven analysis highlights the need for interventions to enhance provider adherence to obesity-related asthma care
02 Mar 2025	Decomposing the Impact of Neighborhood Deprivation Index (NDI) on Asthma Exacerbation Risk in Adult Patients with Mild Asthma	Stanley Xu	• **Introduction**: Asthma exacerbation (AE) risk is higher among adults with mild asthma (MA) in socioeconomically deprived areas. This study investigates risk factors contributing to this disparity • **Methodology**: Data from 79,562 Kaiser Permanente Southern California members (2013–2018) were analyzed. The Oaxaca-Blinder decomposition estimated contributions of 13 factors, including demographics, comorbidities, and prior AE history, to AE risk disparity between the most (Q5) and least (Q1) deprived areas • **Results:** Q5 patients were younger, more often female, Black or Hispanic, obese, and had a higher AE history. The 13 factors explained 56.5% of the AE risk difference. Race/ethnicity, obesity, and prior AE contributed most, reducing disparity by 25.1%, 19.7%, and 18.3%, respectively, while age differences increased it by 13.4% • **Conclusions:** Identifying modifiable risk factors can inform targeted interventions to reduce AE risk in disadvantaged MA patients

Notable Presentations at AAAAI 2025
AI / ML (7/7)

Date	Title	Author	Summary
02 Mar 2025	Examining the Concordance of Local Pollen Data from Popular Weather Apps and a Pollen Counter	Freddy Gonzalez	• **Introduction**: Outdoor allergens, including pollen and mold, trigger asthma and rhinitis. Many patients rely on consumer weather apps for allergen monitoring, yet the accuracy of these sources remains unclear • **Methodology**: Daily pollen count data (tree, grass, weeds, mold) were collected from AccuWeather, Weather Channel, and PollenWise (which uses a pollen counter) in Chicago, IL (7/8/24–8/26/24). Concordance was measured as the percentage of days the consumer apps matched PollenWise classifications (low, moderate, high, very high) • **Results:** Weather Channel showed the highest concordance with PollenWise for grass (42%) and ragweed (40%) but lacked mold data. AccuWeather had poor concordance for grass (10%) and ragweed (31%) but performed better for mold (64%). Neither consumer app aligned with PollenWise on tree pollen (0%) • **Conclusions:** Poor concordance between consumer weather apps and direct pollen counter data suggests a need for improved allergen reporting to better support asthma and rhinitis management

Notable Presentations Information At AAAAI 2025
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Date	Author	Title
28 Feb 2025	Sindhura Bandi	Information Technology and Quality Improvement in Today's World: An Introduction
28 Feb 2025	Thinh Nguyen	Integrating Machine Learning (ML) and Artificial Intelligence (AI) in Environmental Health Science and Allergic Diseases
28 Feb 2025	Michael Serazio	Solutions for the Burden of Patient Messaging: Can AI Help
01 Mar 2025	NA	Health Informatics, Technology & Education Committee (HITE)
01 Mar 2025	Alan Kaplan	Use of AI in Asthma Management and Treatment Decisions
01 Mar 2025	Christopher Chang	Role of AI in Early Detection of Asthma and Adherence to Asthma Guidelines
01 Mar 2025	Jean Bousquet	Artificial Intelligence and Mobile Health in ARIA Development

Notable Presentations Information At AAAAI 2025
AI / ML (2/2)

Date	Author	Title
02 Mar 2025	Nick Rider	How Do We Optimize the Use of AI in Clinical Practice, Now and in the Future
02 Mar 2025	Mohamed Shamji	How AI Can Improve and Innovate Research
02 Mar 2025	Adnan Custovic	Leveraging Artificial Intelligence for Asthma Research and Clinical Care in the United States and the World: The Good, the Bad and the Ugly

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