Eastern Food Allergy & Comorbidity Conference
January 9-12, 2025 ~ Palm Beach, FL

Not for CME Credit

Scientific Posters will be on display in Ponce 5 and 6 during the coffee breaks,
Friday from 9:30-10:15AM and Saturday from 9:30-10:15AM

1. Pharmacokinetics and Pharmacodynamics of Epinephrine Following Administration via Sublingual Film, Autoinjector, or Manual Injection
   Funded by Aquestive Therapeutics
2. Pharmacokinetics and Pharmacodynamics following repeat dosing of ARS-1 (epinephrine nasal spray) versus intramuscular injection during induced allergic rhinitis
   Funded by ARS Pharmaceuticals
3. Successful administration of ARS-1 (epinephrine nasal spray) when provided with a two-dose carrying case – a human factor study
   Funded by ARS Pharmaceuticals
4. ARS-1 (epinephrine nasal spray) development, from pharmacokinetics and pharmacodynamics to real-world data in pediatric food allergy patients
   Funded by ARS Pharmaceuticals
5. Protocol of ALLIANCE, a Phase I/II Trial of Peanut Sublingual Immunotherapy Tablet
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6. A rare case of Transplant acquired Allergy- Anaphylaxis Post Renal Transplant
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7. Increase in maximum tolerated dose and decrease in symptom severity during food challenge in a clinical trial of oral immunotherapy for peanut allergy in children aged 1 to 3 years
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9. Dupilumab improves histologic, symptomatic, and endoscopic outcomes in children with eosinophilic esophagitis in the EoE KIDS study, regardless of history of elimination diet or concomitant food allergy
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10. Hyper-IgE Syndrome Presenting as Peanut Allergy
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11. Changes in Biomarkers During Epicutaneous Immunotherapy for Peanut Allergy in Toddlers
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13. EPOPEX, Efficacy and Safety of Epicutaneous Immunotherapy in Peanut-allergic Toddlers: Results After 3 Years of Treatment
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14. Dupilumab is Effective in Treating Eosinophilic Esophagitis (EoE) in Patients Weighing 15 Kg and above: Results from the Phase 3 KIDS Study
    Funded by Sanofi

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Pharmacokinetics and Pharmacodynamics of Epinephrine Following Administration via Sublingual Film, Autoinjector, or Manual Injection

David Golden MD, Jay Lieberman MD, David Bernstein MD, John Oppenheimer MD, Mark L. Freedman MD, Carl Kraus MD, Steve Wargacki PhD

Rationale: AQST-109, a sublingual film containing a novel prodrug of epinephrine (DESF), is under development for the emergency treatment of Type 1 allergic reactions. The final formulation of AQST-109 was compared with epinephrine delivered by two different approved autoinjectors (EpiPen and Auvi-Q) or by manual injection (IM).

Methods: Data integration was performed across clinical studies, in which healthy volunteers meeting the same exclusion/inclusion criteria received either AQST-109 12mg, or 0.3 mg EpiPen, 0.3mg Auvi-Q and 0.3mg IM. Both studies were randomized, open-label crossover trials evaluating pharmacokinetic and pharmacodynamic parameters for at least 240 minutes post-dose.

Results: Delivery of AQST-109 resulted in comparable epinephrine pharmacokinetics to EAIs or IM. Geometric mean epinephrine Cmax was 457 pg/mL for AQST-109 and 628, 646, and 344 pg/mL for EpiPen, Auvi-Q, and IM, respectively. Median Tmax (minutes) for AQST-109 (15) was most similar to EpiPen (10), with Auvi-Q (30) and IM (50) Tmax being higher. Area under the curve for AQST-109 was between the IM and EAI values for all timepoints between 8 and 60 minutes post-dose. AQST-109 induced a similar PD response across all parameters (systolic blood pressure, diastolic blood pressure and pulse) when compared to either EAI and to IM.

Conclusion: The PK and PD of AQST-109 delivered epinephrine within range of the approved epinephrine manual IM and EAI products. These results demonstrate that the sublingual administration of the novel prodrug in AQST-109 shows promise as a viable needle-free alternative for treatment of Type I allergic reactions.

Funded by: Aquestive Therapeutics

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Pharmacokinetics and Pharmacodynamics following repeat dosing of ARS-1 (epinephrine nasal spray) versus intramuscular injection during induced allergic rhinitis

John Oppenheimer MD, Thomas Casale MD, Jonathan Spergel MD, PhD, David Bernstein MD, Carlos A. Camargo, Jr., MD, DrPH, Anne Ellis MD, Richard Lowenthal, MS, Sarina Tanimoto MD, PhD

Introduction: While most patients respond to a single dose of epinephrine for anaphylaxis, approximately 10% require a second dose. The pharmacokinetics and pharmacodynamics of repeat dosing of ARS-1 in seasonal allergic rhinitis (SAR) patients after nasal allergen challenge (NAC), a potential impediment to epinephrine delivery, was investigated.

Methods: This was a randomized, crossover study in 43 SAR patients with screening Total Nasal Symptom Scores and congestion scores of $\geq$5/12 and $\geq$2/3, respectively after a NAC. The pharmacokinetics and pharmacodynamics of repeat dosing of ARS-1 2.0 mg were compared to repeat doses of IM epinephrine 0.3 mg during rhinitis induced by NAC. ARS-1 was administered to the same naris (right/right) or alternate naris (right/left).

Results: Compared to IM epinephrine, ARS-1 (right/right) resulted in higher mean epinephrine concentrations through 240-minutes post-dose and ARS-1 (right/left) resulted in higher mean epinephrine concentrations through 45 minutes post-dose, with greater mean peak concentration, C_{max}, than that of IM (852/581 vs. 495; $p<.05$, $p>.05$). The mean changes in systolic blood pressure and pulse rate were greater following ARS-1 (right/right)(right/left) through 60 minutes post-dose and Emax (21/18 mmHg vs. 13; $p<0.01$, $p<0.05$ and 22/22 vs. 14 bpm; $p<0.001$, $p<0.01$). All adverse events were mild.

Conclusion: Following twice dosing under SAR conditions, ARS-1's pharmacokinetic and pharmacodynamic profiles were comparable to or better than IM regardless of naris delivery method. These findings are consistent with prior reports and suggest that ARS-1 will be a safe and effective treatment option even in those with allergic rhinitis.

Funded by: ARS Pharmaceuticals

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Successful administration of ARS-1 (epinephrine nasal spray) when provided with a two-dose carrying case – a human factor study

Vivian Hernandez-Trujillo MD, Joel Brooks DO, Raffi Tachdjian MD, MPH, Brian Dorsey MSc, Richard Lowenthal MSc, Sarina Tanimoto MD, PhD

Rationale: ARS-1 is an epinephrine nasal spray for the treatment of severe allergic reactions. Severe allergic reactions primarily occur outside of a hospital setting and epinephrine is typically administered by patients or caregivers. Human factor (HF) studies are required to ensure that the products can be administered safely and effectively. Four HF-studies (n=188) which have demonstrated that patients, caregivers, passer-byes, and children can administer ARS-1 during a simulated allergy emergency without prior training were previously conducted. A supplemental fifth study was conducted using the optional carrying case that was designed to hold two ARS-1 sprayers.

Methods: This supplemental HF-study included 16 untrained subjects (eight adults and eight juveniles). Adults included both Type 1 allergy patients or caregivers, while the juveniles group included Type 1 allergy patients aged 10 to 17 years. Related tasks included loading the carry case, correctly opening the case during a simulated allergy emergency, and removing the sprayers and administering the product both once and twice (10 minutes apart) in the same nostril.

Results: All (100%) of adults and juvenile participants were able to successfully complete all tasks during a simulated severe allergic reaction without any use errors.

Conclusions: The ARS-1 carrying case enables patients and caregivers to always have two ARS-1 sprayers available and easily accessible. The results of this study demonstrated that untrained patients can properly follow written instructions. This study confirms that the user-friendly ARS-1 carry case is also suitable for use by both adults and children.

Funded by: ARS Pharmaceuticals

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ARS-1 (epinephrine nasal spray) development, from pharmacokinetics and pharmacodynamics to real-world data in pediatric food allergy patients

Motohiro Ebisawa, MD, PhD, David M. Fleischer, MD, H Henry Li, MD, PhD, Michael Kaliner, MD, Richard Lockey, MD, Neetu Talreja MD Richard Lowenthal MSc, Sarina Tanimoto MD, PhD

Introduction: No clinical trials were conducted to support pediatric doses of epinephrine injection products for the treatment of severe allergic reactions. Instead, FDA approval was based on epinephrine's well-established safety and efficacy. During the development of ARS-1, a pharmacokinetic/pharmacodynamic study and an oral food challenge (OFC) study in pediatric patients were conducted.

Methods: The pharmacokinetic/pharmacodynamic study was a Phase 1, single-dose, open label study with allergy patients aged 4 to 17 (N=42). The OFC study was a Phase 3 study in food allergy patients aged 6 to 17 who received ARS-1 following onset of moderate anaphylaxis symptoms (N=15). In both studies, patients received ARS-1 1 mg (15-30 kg) or 2 mg ($\geq$30 kg).

Results: Mean epinephrine concentration-time profiles were similar between 1 and 2 mg (C_{max} of 690 and 651 pg/mL, respectively). Median time to resolve moderate anaphylaxis symptoms was 16 minutes, with no patient requiring a second dose of ARS-1. One patient developed a biphasic reaction 2 hours and 45 minutes following ARS-1 administration and received intramuscular epinephrine. Pharmacodynamic data from these studies were similar, except for a more pronounced decrease in diastolic blood pressure at early time points in younger patients in the OFC study. Adverse events were mild/moderate and resolved quickly.

Conclusion: ARS-1 is the first epinephrine nasal product studied in pediatric patients. Pharmacodynamic data were consistent between studies, and the OFC study demonstrated that ARS-1 can resolve anaphylaxis symptoms. ARS-1 is expected to be a safe and effective needle-free treatment option for pediatric allergy patients.

Funded by: ARS Pharmaceuticals

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Protocol of ALLIANCE, a Phase I/II Trial of Peanut Sublingual Immunotherapy Tablet

Edwin H. Kim, MD, MS; Sherry Zhou, MD, MS; Maja-Lisa Clausen, MD, PhD

Introduction: Sublingual allergy immunotherapy (SLIT)-tablets may be a viable treatment option for peanut allergy. SLIT-tablets for respiratory allergens are an effective, safe, and well tolerated allergy immunotherapy treatment for allergic rhinitis. The ALLIANCE trial has been designed to evaluate the safety, tolerability, and efficacy of a once-daily peanut SLIT-tablet in adults, adolescents, and children with peanut allergy.

Methods: The trial (NCT05440643) is a phase I/II, 3-part, dose-escalation, multi-site trial in subjects ages 4-65 years with peanut allergy confirmed by double-blind, placebo-controlled food challenge (DBPCFC), peanut-specific serum IgE, and positive skin prick test to peanut. In Part 1, adults and adolescents received once-daily SLIT tablet for 2 weeks to determine the entry dose of the up-dosing regimen (UDR). In Part 2, the safety and tolerability of the UDR are being investigated in a staggered fashion based on age and eliciting dose at screening DBPCFC. Each dose will be taken once-daily for 2 weeks, with the first tablet intake of each dose-step under medical supervision. Different doses covering a 4000-fold increase were included. Safety assessments include adverse events, gastrointestinal symptoms, and asthma exacerbations. In Part 3, primarily adolescents and children will be randomized 1:1:1 to placebo or two regimens of SLIT-tablet UDR plus 24 weeks of maintenance doses.

Results: The primary endpoint for Part 1 and 2 will be dose tolerability, a binary endpoint where the subject has either tolerated or not tolerated a specific dose of the peanut SLIT-tablet. The primary endpoint for Part 3 is TD-600, a binary endpoint where the subject is considered a responder if they can consume 600 mg peanut protein without dose-limiting symptoms at the exit DBPCFC.

Conclusion: This first-ever clinical trial of a SLIT-tablet for peanut allergy will provide information on dosing to be used in larger phase III trials and preliminary efficacy data.

Funded by: ALK

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A rare case of Transplant acquired Allergy- Anaphylaxis Post Renal Transplant

Bakhtawar A. Ali, MD, Nikhil Chowdary Peddi, MD, Jenny Shliozberg, MD

Introduction: Food allergies are immune mediated adverse reactions. Transplant acquired food allergies are becoming increasingly recognised. The mechanism of food allergies in solid organ transplantation can be multifactorial however there is a correlation between severity of food allergy and tryptase levels. More individuals have reported food allergies after liver transplantation than renal transplants.

Case Description: A 28 year old female with a PMH of ESRD who underwent solid organ transplant has a history of perioral itch to strawberries, kiwis, oranges, as well as hives with grapes and carrots since her early teen years. However, after her first renal transplant in 2017, she experienced her first ever episode of throat closing with Avocados which she was able to eat in the past. But since 2021, she has had an increased number of episodes of waking up from sleep due to her throat closing up, difficulty breathing and hives, which resolve with IV benadryl in the ED or oral benadryl at home and has not required IM epinephrine. Her allergy evaluation showed elevated tryptase (19) levels. Her food allergy to avocado was confirmed by elevated IgE levels to Avocado. The environmental panel showed sensitization to grass and ragweed which cross react with mentioned food modalities.

Discussion: Transplant-acquired Atopy and Allergy (TAA) has become a recent diagnosis with new number of cases being diagnosed each year. Clinical signs of anaphylaxis and elevated tryptase seen after solid organ transplantation without prior history of anaphylaxis, highlights the correlation between solid organ transplant and incidence of severe food allergies.

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Increase in maximum tolerated dose and decrease in symptom severity during food challenge in a clinical trial of oral immunotherapy for peanut allergy in children aged 1 to 3 years

Kirsten Beyer, MD, Antoine Deschildre, MD, Jonthan O. Hourihane, MD, George Du Toit. MD, Katharina Blumchen, MD, Anne-Marie Irani, MD

Background: Oral immunotherapy with defatted powder of *Arachis hypogaea* L., semen (peanuts) (PTAH) is approved in Europe and the United States (US) for treating patients aged 1–17 years with a confirmed diagnosis of peanut allergy. The POSEIDON study (NCT03736447) evaluated PTAH's efficacy and safety in younger children (1–3 years). The US primary endpoint was the proportion tolerating ≥600 mg peanut protein during exit double-blind, placebo-controlled food challenge (DBPCFC) with no more than mild symptoms. Here, we present secondary efficacy outcomes.

Method: POSEIDON was a global, double-blind, placebo-controlled, randomized phase 3 trial involving children with peanut allergy aged 1–3 years. Children with dose-limiting symptoms after ingesting peanut protein >3 mg to ≤300 mg during screening DBPCFC were randomized 2:1 to daily PTAH or placebo (PBO) for ~12 months.

Results: Among 146 participants (PTAH, 98; PBO, 48) with approximately equal distribution in the 1-, 2-, and 3-year age groups, 68.4% of PTAH-treated participants tolerated 1000 mg peanut protein (2043 mg cumulative) compared to 4.2% for placebo at exit DBPCFC (difference, 64.2%; 95% CI, 47.0–81.4; $P<0.0001$). Median maximum tolerated dose increased 66-fold in the PTAH group (30 mg to 2000 mg) versus no change in placebo. At challenge, symptoms were none-to-mild in PTAH-treated participants and mild-to-moderate in placebo ($P<0.001$). Among completers, 13.3% of PTAH participants experienced moderate symptoms at 2000 mg (4043 mg cumulative), while none experienced severe symptoms. By comparison, 42.2% of placebo participants reported moderate symptoms, and 4.4% severe symptoms. Younger participants (1 year) reported milder symptoms than older groups.

Conclusion: Most PTAH-desensitized children aged 1–3 years experienced no more than mild symptoms when challenged with up to 2000 mg (4043 mg cumulative) of peanut protein, compared to moderate or severe symptoms in nearly half of placebo-treated participants. Younger children appear to respond best to treatment.

Funded by: Stallergenes Greer

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Exposure-adjusted safety of peanut (arachis hypogaea) allergen powder-dnfp oral immunotherapy in individuals with peanut allergy aged 1–3 years (Poseidon Trial)

George Du Toit, MD, Kirsten Beyer, MD, Katharina Blumchen MD, Jonathan O. Hourihane, MD, Antoine Deschildre, MD, Anne-Marie Irani, MD

Background: Oral immunotherapy with defatted powder of *Arachis hypogaea* L., semen (peanuts) (PTAH) is approved in Europe and the United States (US) for treating patients aged 1 to 17 years with a confirmed diagnosis of peanut allergy. The POSEIDON study (NCT03736447) assessed the efficacy and safety of PTAH in children aged 1–3. This analysis evaluates the safety results of POSEIDON adjusted for exposure to the study drug.

Method: POSEIDON was a double-blind, placebo-controlled, randomized phase 3 trial involving children aged 1–3 years with dose-limiting symptoms after ingesting peanut protein >3 mg to ≤300 mg during screening double-blind, placebo-controlled food challenge (DBPCFC). Participants were randomized 2:1 to daily PTAH or placebo (PBO) and treated for a total of ~12 months. The US primary efficacy endpoint was the proportion tolerating ≥600 mg peanut protein during exit DBPCFC. All treatment-emergent adverse events (AEs) were recorded.

Results: Among 146 participants (98 to PTAH; 48 to PBO), AEs occurred in 98.0% (PTAH) and 97.9% (PBO). The most reported AEs were gastrointestinal disorders. Treatment-related AEs (TRAEs) were reported in 75.5% (n=74) of PTAH-treated participants and 58.3% (n=28) of PBO-treated participants; none were serious or severe. TRAEs were most common in the skin and subcutaneous tissue disorders (48 [49.0%] PTAH; 18 [37.5%] PBO), gastrointestinal disorders (45 [45.9%] PTAH; 10 [20.8%] PBO), and respiratory, thoracic, and mediastinal disorders (34 [34.7%] PTAH; 12 [25.0%] PBO). Most AEs occurred during the up-dosing phase of treatment. Adjusting for exposure, the rates of both all-cause and treatment-related AEs were highest during Initial Dose Escalation and lowest during Maintenance phase.

Conclusion: No serious or severe TRAEs occurred in POSEIDON. Adjusted for exposure to the study drug, AE rates were highest during Initial Dose Escalation and decreased as treatment continued, suggesting PTAH may be associated with improvements in tolerability with continued treatment.

Funded by: Stallergenes Greer

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Dupilumab improves histologic, symptomatic, and endoscopic outcomes in children with eosinophilic esophagitis in the EoE KIDS study, regardless of history of elimination diet or concomitant food allergy

Jonathan M. Spergel MD, PhD, Antonella Cianferoni MD, PhD, Mirna Chehade MD, MPH, Changming Xia PhD, Lacey Robinson MD, MPH, Jennifer Maloney MD, Margee Louisias MD, MPH, Allen Radin MD

Background: This study aims to assess dupilumab efficacy in children with eosinophilic esophagitis (EoE) with/without a history of food elimination diet and concomitant food allergy at baseline in the Phase 3 EoE KIDS study.

Methods: Eligible patients were aged 1-<12 years with EoE unresponsive to proton-pump inhibitors. In Part A, patients were randomized to weight-tiered dupilumab higher-exposure (HE) or placebo (two groups), through to Week(W) 16. In Part B, patients receiving dupilumab HE continued the same regimen, and patients in placebo groups switched to dupilumab HE through to W52.Participants on a food elimination diet at baseline remained on the same diet throughout. Efficacy was assessed by history of food elimination diet and concomitant food allergy at W16 and W52.

Results: Of the 102 patients who entered the study,88.2%had a history of food elimination diets and 82.4% had a concomitant food allergy at baseline. At W16, proportion of patients with ≤6 eosinophils per high-power field in patients with/without a history of elimination diet was 69.7%/50.0% in the dupilumab HE group and 3.3%/0% in the placebo group; in patients with/without food allergy at baseline, proportions were 67.7%/66.7% in the dupilumab HE group and 3.6%/0% in the placebo group. Overall, improvements in histologic, endoscopic, and symptomatic outcomes were observed across patients regardless of history of food elimination diet or concomitant food allergy, although patient numbers were small in the subgroups without history of food elimination diet or concomitant food allergy. Efficacy was maintained at W52 with dupilumab HE, while improvements were observed in patients who switched from placebo to dupilumab HE at W16, with an acceptable safety profile.

Conclusion: Dupilumab HE showed sustained improvements in histologic, symptomatic, and endoscopic aspects of EoE regardless of history of food elimination diet or concomitant food allergy.

Funded by: Sanofi

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Hyper-IgE Syndrome Presenting as Peanut Allergy

Constance Bindernagel, DO, Monica Hajirawala, MD, and Panida Sriaroon, MD

Introduction: A 10-year-old male presented for concern of peanut allergy. When he was 3 years old, he had a peanut butter sandwich and developed hives on his face. The family strictly avoided peanut in all forms. Skin prick testing demonstrated 4+ peanut sensitization. In vitro testing demonstrated a total peanut IgE of 14.2 kU/L and AraH2 component testing of 2.50 kU/L. He was diagnosed with peanut allergy and advised on continued avoidance. The history was also concerning for recurrent candida skin infections, sinopulmonary infections, cold abscesses, extensive eczema, and diffuse lymphadenopathy. After further evaluation, the patient was diagnosed with Hyper-IgE syndrome (HIES). The purpose of this case report is to describe how food allergy could be a presenting feature of immunodeficiency.

Methods: This case report was written using the documentation from the Johns Hopkins Food Allergy Center and the University of South Florida Allergy and Immunology clinic.

Results: After the patient was initially assessed, he was admitted to the hospital for necrotizing multifocal pneumonia and a methicillin resistant staphylococcus aureus left groin abscess. This immune evaluation was significant for elevated IgM of 395 mg/dL (normal 52-242), elevated IgE of 34,560 IU/mL (normal 0.98-570.6), low strep pneumonia titers (4/23 protective) with an inadequate response to Pneumovax, and near absent lymphocyte proliferation to candida and tetanus. Genetic testing demonstrated a pathogenic mutation in STAT3 consistent with HIES. HIES is an immunodeficiency that has the clinical features and laboratory findings described above.

Conclusions: This patient presented initially for peanut allergy but was ultimately found to have HIES. Allergist and Immunologist should keep such a disease on their differential for food allergy cases if there are additional clinical features that are suggestive of greater, overarching concern.

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Changes in Biomarkers During Epicutaneous Immunotherapy for Peanut Allergy in Toddlers

Edwin Kim, MD, Jay Lieberman, MD, Lynda Schneider, MD, Timothée Bois, MSc, Todd D. Green, MD, A. Wesley Burks, MD

Introduction: Previous studies have demonstrated biomarker changes (peanut-specific [ps] IgE, psIgG4, and skin prick test [SPT] wheal size) during epicutaneous immunotherapy (EPIT) with the VIASKIN® peanut patch containing 250 µg peanut protein (VP250). We assessed changes in these biomarkers after 12 months of VP250 in participants initially randomized to placebo in EPITOPE.

Methods: In EPITOPE, a phase 3 study in 362 peanut-allergic toddlers aged 1 through 3 years, 12 months of VP250 was superior to placebo in desensitizing participants to peanut. Participants receiving placebo in EPITOPE who enrolled in the ongoing open-label extension (OLE) study are receiving VP250 for up to 3 years. psIgE, psIgG4, and SPT were measured at regular intervals during EPITOPE and the OLE and results are presented for participants with evaluable data at all time points.

Results: Of 118 EPITOPE placebo participants, 91 entered the OLE. While receiving placebo (n=47), median psIgE increased from 12.0 to 19.7 kUA/L between EPITOPE baseline and Month 12 (M12). After starting VP250 in the OLE, psIgE initially increased to 27.6 kUA/L at Month (M) 15, then decreased to 20.6 and 22.3 kUA/L at M18 and M24, respectively. Median psIgG4 levels during placebo (n=48) were 0.30 mg/L and 0.65 mg/L at baseline and M12, respectively, then steadily increased to 1.72, 2.77, and 3.95 mg/L at M15, M18, and M24, respectively, during the OLE. Mean SPT wheal size (n=61) remained stable between baseline (10.6 mm) and M12 (9.5 mm), then decreased to 8.6 and 7.7 mm at M15 and M24, respectively, during the OLE.

Conclusions: Following 1 year of placebo treatment, 1 year of EPIT with VP250 resulted in decreases in psIgE and SPT wheal size, as well as increases in IgG4, indicating immune modulation resulting from treatment. These changes were similar to results seen in participants initially randomized to VP250 in EPITOPE and are consistent with other allergen immunotherapies.

Funded by: DBV Technologies

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VP250 Average Daily Wear Time: Impact on Efficacy and Safety in the Phase 3 EPITOPE Study

Edwin H. Kim, MD; David M. Fleischer, MD; Stephanie Leonard, MD; J. Andrew Bird, MD; Rachel G. Robison, MD; Henry T. Bahnson, MPH; Katharine J. Bee, PhD; Todd D. Green, MD; A. Wesley Burks, MD

Introduction: In EPITOPE, epicutaneous immunotherapy with a patch containing 250 µg peanut protein (VP250) was statistically superior in desensitizing peanut-allergic toddlers aged 1-3 years vs placebo (67% vs 33.5%). Here we characterize patch wear-time experience, including association with treatment benefit.

Methods: The protocol-specified targeted VP250 daily wear time was 24±4 hours (excluding initiation dosing Days 1-28). Patch wear time (assessed daily by caregivers) was averaged over the 12-month study and over days 29-90 for each participant. Among VP250 participants, a logistic regression model was used to predict the primary responder endpoint based on average daily wear time (ADWT) during days 29-90. Efficacy and safety were compared for VP250 participants according to an ADWT cutoff ≥20 hours.

Results: 167/244 (68.4%) VP250 participants had an ADWT ≥20 hours, with median ADWT (22.9 hours) similar to placebo (23.7 hours). 77/244 (31.6%) participants had an ADWT <20 hours (median: 16.7 hours). ADWT during the first 90 days on treatment was highly predictive of ADWT over the 12-month treatment period (r=0.81). Participants with ADWT ≥20 vs <20 hours during the first 90 days showed higher Month 12 efficacy, according to responder rates (75.7% vs 47.3%), eliciting dose (ED) ≥1000 mg (71.9% vs 42.9%), and ED ≥2000 mg (40.1% vs 28.6%). Rates of key safety outcomes of interest were lower in participants with ADWT ≥20 vs <20 hours, based on treatment-related: epinephrine use (0.6% vs 2.6%), anaphylaxis (0.6% vs 3.9%), and permanent treatment discontinuations (0.6% vs 7.8%).

Conclusions: In EPITOPE, the majority of VP250 participants achieved an ADWT ≥20 hours, with higher efficacy and a more favorable safety profile versus those with <20 hours. If approved, ADWT within the first 90 days of VP250 treatment could be an effective marker of future clinical response.

Funded by: DBV Technologies

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EPOPEX, Efficacy and Safety of Epicutaneous Immunotherapy in Peanut-allergic Toddlers: Results After 3 Years of Treatment

Matthew Greenhawt, MD, Julie Wang, MD, George Du Toit, MBBCh, Michael O'Sullivan, MD, Terri Brown-Whitehorn, MD, Timothée Bois, MSc, Katharine J. Bee, PhD, Dianne E. Campbell, MD, Hugh A. Sampson, MD, A. Wesley Burks, MD

Introduction: The phase 3, double-blind, placebo-controlled EPITOPE study showed epicutaneous immunotherapy with a patch containing 250 µg peanut protein (VP250) resulted in a statistically significant treatment response vs placebo (responder rate: 67.0% vs 33.5%) in 1 through 3-year-old peanut-allergic toddlers, with continued increases in treatment effect and no new safety signals in the first year of the open-label extension (OLE). Here we report results from OLE Year 2.

Methods: After 12 months of VP250 or placebo, EPITOPE participants enrolled in the OLE for up to 3 total years of treatment, with annual double-blind placebo-controlled food challenges (DBPCFC) and safety assessments.

Results: 266 EPITOPE participants enrolled in the OLE; 211 underwent Month 36 DBPCFC (n=149 VP250; n=62 placebo). After 3 years of VP250, 83.5% of participants reached an eliciting dose (ED) ≥1000 mg, an increase from 64.2% at M12. A similar increase was observed for ED ≥2000 mg (37.0% M12; 72.7% M36) and those completing the DBPCFC without meeting stopping criteria (30.7% M12; 68.2% M36). Continued reductions in DBPCFC reaction severity occurred, with 66.5% having no/mild symptoms at M36 vs 40.2% at M12. No treatment-related anaphylaxis or serious treatment-related TEAEs occurred in Year 3. Local application-site reactions occurred less frequently in Year 3 vs Years 1 and 2. In placebo-treated EPITOPE participants, outcomes after 24 months of VP250 in the OLE were consistent with 24-month results in EPITOPE VP250 participants.

Conclusion: Three years of VP250 in 1 through 3-year-old peanut-allergic toddlers resulted in continued accumulation of treatment benefit without any new safety signals.

Funded by: DBV Technologies

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Dupilumab is Effective in Treating Eosinophilic Esophagitis (EoE) in Patients Weighing 15 Kg and above: Results from the Phase 3 KIDS Study

Mirna Chehade MD, MPH, Salvatore Oliva MD, PhD, Antonella Cianferoni MD, PhD, Changming Xia PhD, Sherif Zaghloul MSc, MD, Bram Raphael MD, Amr Radwan MA, MBBCh, James Angello PharmD

Background: Dupilumab (DPL) is approved in the USA and EU for the treatment of patients (pts) with EoE aged ≥1 year, weighing ≥15kg. The objective of this study is to evaluate DPL efficacy by previous treatment history, focusing on the approved pediatric population weighing ≥15kg.

Methods: The study comprised a double-blind placebo (PBO)-controlled period (Part A) where pts were randomized 2:2:1:1 to receive DPL higher-exposure (HE) or lower-exposure (LE), or PBO (2 groups) for 16 weeks (wks), and a 36-wk extension period where all pts received DPL-HE or LE (Part B). Endpoints evaluated in this analysis were the primary endpoint of the KIDS study; proportion of pts achieving ≤6 eosinophils per high-powered field (eos/hpf); and two key secondary endpoints; <15 eos/hpf, and Endoscopic Reference Score (EREFS) scores. Treatment efficacy was analysed in 3 subgroups: prior use of swallowed topical corticosteroids (STCs), treatment with concomitant proton-pump inhibitors (PPIs), and history of food elimination (FE) diet.

Results: In pediatric pts weighing ≥15kg, DPL-HE improved rates of histologic remission vs PBO at Wk16, regardless of prior STC use (yes:59.3% vs 0.0%, no:100.0% vs 20.0%), treatment with concomitant PPIs (yes:82.4% vs 0.0%, no:46.7% vs 4.8%), or history of FE diet (yes:67.9% vs 4.0%, no:50.0% vs 0.0%). Responses were maintained at Wk52 in pts continuing DPL-HE and improved in pts who switched from PBO to DPL-HE, regardless of prior STC use, treatment with concomitant PPIs, or history of FE diet, although pt numbers in some subgroups were small. A similar pattern of improvement regardless of subgroup was observed in pts achieving <15 eos/hpf and in total EREFS score, in pts weighing ≥15kg. DPL was generally well tolerated.

Conclusions: DPL demonstrated improvements vs PBO in histologic and endoscopic aspects of EoE in the ≥15kg population up to Wk52, regardless of prior treatment history.

Funded by: Sanofi