REDUCTION IN REACTION SEVERITY FOLLOWING 12 MONTHS OF EPICUTANEOUS IMMUNOTHERAPY WITH PEANUT PATCH IN TODDLERS

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RATIONALE

- Peanut allergy often develops in infancy. Accidental exposures may occur, often resulting in severe reactions, including anaphylaxis[1-3]
- Studies have shown that early oral introduction of peanuts in children could reduce the risk of developing peanut allergy, suggesting that the immune system in young children may be particularly responsive to immunomodulation[4]
- Two major goals of food allergy immunotherapy are to induce desensitization (ie, increase the reaction threshold), thereby reducing reaction risk from accidental ingestion, and reduce reaction severity[5,6]
- There is currently no approved treatment for peanut allergy in children <4 years, demonstrating a strong unmet need for an available treatment[5]
- Viaskin, a patch-based technology platform, is currently being investigated for the treatment of peanut allergy. This novel approach to epicutaneous immunotherapy (EPIT) involves the administration of a patch (VP250) containing 250 µg (~1/1000 of 1 peanut) of peanut allergen to intact skin in order to induce desensitization
- The phase 3 trial EPIT in Toddlers with Peanut Allergy (EPITOPE) (NCT03211247) aimed to assess the efficacy and safety of EPIT with VP250 among children aged 1 to <4 years with peanut allergy
  - The study demonstrated that 12 months of daily EPIT with VP250 was statistically superior to placebo in desensitizing peanut-allergic children aged 1 to <4 years, with 67% in the VP250 group being treatment responders vs 33.5% in the placebo group (difference: 33.4%; 95% CI: 22.4, 44.5 [*P*<0.001])

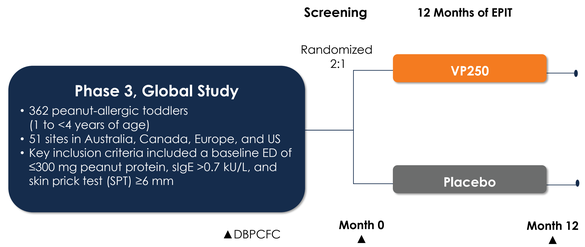
OBJECTIVE

- This poster describes a prespecified outcome, change in severity of symptoms, during the double-blind, placebo-controlled food challenges (DBPCFC) at baseline to Month 12 in the VP250 and placebo groups

METHODS

- EPITOPE was a multicenter, randomized, double-blind, placebo-controlled phase 3 trial designed to evaluate the efficacy and safety of EPIT with VP250 among toddlers aged 1 to <4 years (**Figure 1**)
  - 362 participants were randomized 2:1 to receive either the VP250 patch or the placebo patch daily for 12 months

Figure 1: Study Design Diagram



  - DBPCFCs were conducted per the PRACTALL guidelines[7] using a standardized, blinded food matrix at Month 0 (baseline) and Month 12, and were ended when sufficient signs or symptoms, shown in **Table 1**, met the prespecified stopping criteria
  - Inclusion criteria included a baseline eliciting dose (ED), defined as the dose at which allergic reaction signs/symptoms resulted in ending the DBPCFC, of ≤300 mg peanut protein
  - In a prespecified analysis, the maximum severity of symptoms at baseline and Month 12 was compared between the VP250 and placebo groups
    - Reaction severity was assessed by the investigator by maximum grade of PRACTALL in any PRACTALL symptom domain at each dose (none [0], mild [1], moderate [2], or severe [3])[7]
    - Significance of the difference in reaction severity between treatment groups was assessed using the Cochran-Armitage trend test with a 2-sided exact *P*-value

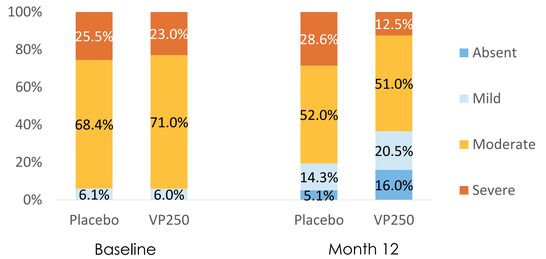
Table 1: Signs/Symptoms Collected During DBPCFC to Determine Stopping Criteria – All Assessable Organ Systems

Skin	• Erythematous rash (and % of rash area concerned) • Pruritus • Urticaria/angioedema
Upper Respiratory	• Sneezing/itching • Nasal congestion • Rhinorrhea • Laryngeal
Lower Respiratory	• Wheezing
Gastrointestinal	• Diarrhea • Vomiting • Abdominal pain
Cardiovascular	• Tachycardia • Bradycardia • Hypotension • Collapse
Eyes	• Conjunctivitis

RESULTS

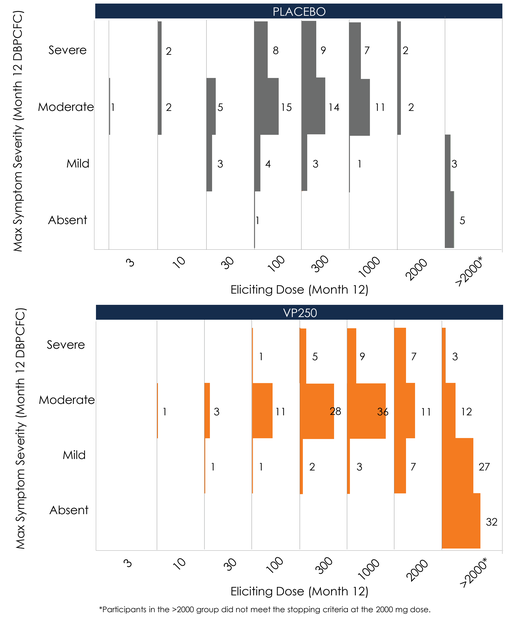
- Among all participants, 200/244 randomized to VP250 and 98/118 randomized to placebo completed both the baseline and Month 12 DBPCFC and were included in this analysis
- Baseline demographic characteristics for the VP250 and placebo groups were balanced
- At baseline DBPCFC, the proportions of reaction severity (based on objective signs/symptoms) were balanced between VP250 and placebo (**Figure 2**)
  - A similar percentage of participants in the VP250 and placebo groups had a maximum symptom severity of "severe" (23.0% and 25.5%, respectively)
- At Month 12, the distribution of maximum symptom severity was significantly shifted toward less severe symptoms in the VP250 group relative to placebo (*P*<0.001) (**Figure 2**)

Figure 2: Maximum Symptom Severity During DBPCFC



  - Only 12.5% of participants in the VP250 group vs 28.6% in the placebo group had a maximum symptom severity of "severe"
  - Nearly twice as many participants in the VP250 group (36.5%) had a maximum symptom severity score of "absent" or "mild," as compared to the participants in the placebo group (19.4%)
  - There were no significant changes in maximum symptom severity for the placebo group between baseline and at Month 12
- The shift toward reaction severity reduction coincided with an increase in ED and a greater proportion of responders in the VP250 group vs placebo (**Figure 3**)
  - The median change in ED from baseline to Month 12 was 900 mg for the VP250 group vs 0 mg in the placebo group

Figure 3: Maximum Symptom Severity by Month 12 ED



*Participants in the >2000 group did not meet the stopping criteria at the 2000 mg dose.

CONCLUSIONS

- This analysis suggests that, in addition to achieving desensitization in peanut-allergic children 1 to <4 years, EPIT with a patch containing 250 µg peanut protein may also reduce the severity of allergic reactions
- Moreover, the results of this study showed a shift toward a reduction in reaction severity that coincided with an increase in ED and a greater proportion of treatment responders in the VP250 group vs placebo
- The study results suggest that VP250 treatment has the potential to help address dual goals of immunotherapy: decreasing the likelihood of reactions to accidental ingestion of allergens and reducing reaction severity

Viaskin (VP250) is an investigational agent and it has not yet been approved by the U.S. FDA or any other regulatory authority.

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