L28 Epicutaneous Immunotherapy (EPIT) Is Effective and Safe to Treat Peanut Allergy: A Multi-National Double-Blind Placebo-Controlled Randomized Phase IIb Trial

Hugh A. Sampson, MD[1], Wence Agbotounou, PhD[2], Claude Thébault[2], Ruban Charles[2], Laurent Martin, PharmD[2], William H. Yang, MD[3], Gordon L. Sussman, FAAAAI[4], Terri F. Brown-Whitehorn, MD[5], Kari C. Nadeau, MD PhD FAAAAI[6], Amarjit Singh Cheema, MD[7], Stephanie A. Leonard, MD[8], Jacqueline A. Pongracic, MD FAAAAI[9], Christine Sauvage[10], Amal H. Assa'ad, MD FAAAAI[11], Frederic de Blay[12], J. Andrew Bird, MD FAAAAI[13], Stephen A. Tilles, MD FAAAAI[14], Franck Boralevi[15], Thierry Bourrier[16], Wayne G. Shreffler, MD PhD FAAAAI[17], Jacques Hébert, MD[18], Todd David Green, MD FAAAAI[19], Roy Gerth van Wijk, MD FAAAAI[20], André C. Knulst[21], Gisèle Kanny, MD, PhD[22], Marek L. Kowalski, MD PhD[23], Lynda C. Schneider, MD FAAAAI[24], Pierre Henri Benhamou, MD[2], Christophe Dupont, MD PhD[25]; [1]Department of Pediatrics, Icahn School of Medicine at Mount Sinai, New York, NY, USA, [2]DBV Technologies, Bagneux, France, [3]University of Ottawa Medical School, Ottawa, ON, Canada, [4]University of Toronto, Faculty of Medicine, Toronto, ON, Canada, [5]The Children's Hospital of Philadelphia, Philadelphia, PA, [6]Pediatric Allergy Immunology, Stanford University, Stanford, CA, [7]Alpha Medical Research, Mississauga, ON, Canada, [8]Rady Children's Hospital/UCSD, San Diego, CA, [9]Ann & Robert H. Lurie Children's Hospital of Chicago, Chicago, IL, [10]Saint Vincent de Paul Hospital, Lille, France, [11]Cincinnati Children's Hospital Medical Center, Cincinnati, OH, [12]CHRU Strasbourg, France, [13]UT Southwestern Medical Center, Dallas, TX, [14]Northwest Asthma & Allergy Center, Seattle, WA, [15]Hôpital Pellegrin-Enfants, Bordeaux, France, [16]Lenval Hospital, Nice, France, [17]Massachusetts General Hospital, Boston, MA, [18]Centre de Recherche Appliquée en Allergie de Québec, Québec City, QC, Canada, [19]Children's Hospital of Pittsburgh of UPMC, Pittsburgh, PA, [20]Erasmus Medical Center, Rotterdam, Netherlands, [21]University Medical Center, Utrecht, Netherlands, [22]CHU Nancy Hopital Central, Nancy, France, [23]Medical University of Lodz, Lodz, Poland, [24]Boston Children's Hospital, Boston, MA, [25]Hopital Necker Enfants Malades, Paris, France.

RATIONALE: To date there is no specific approved treatment for peanut allergy. EPIT is well tolerated and appears promising for the treatment of peanut allergy.

METHODS: In a multicenter double-blind, placebo-controlled phase IIb trial, 221 subjects (6 – 55 years) reacting at a peanut protein (pp) eliciting-dose (ED) ≤300mg during DBPCFC were randomized to 1 year Viaskin® Peanut (VP), at different doses (50μg, 100μg, 250μg pp), or Viaskin®placebo. The primary efficacy endpoint at 1 year was the proportion of responders with a pp ED 10-fold greater than the pp ED at entry or achieving a post-treatment ED ≥1000mg. Cumulative reacting dose (CRD) of pp was also measured. Immunologic studies were performed at entry, 3, 6 and 12 months.

RESULTS: The overall primary efficacy endpoint was met, with VP250 showing best results: 50.0% responders *vs* 25.0% with placebo, p=0.0108; children (6-11 years) exhibited 53.6% responders *vs* 19.4% for placebo, p=0.0076. In children, the mean CRD showed a VP dose-dependent response: +61mg, +471mg, +570mg and +1121mg for placebo, VP50, VP100 and VP250 respectively. Children's immunological responses were robust: with VP250 - PN-IgE exhibited a median increase ≥50 kU_A/L at 3 months and decreased back to baseline at 12 months; median PN-IgG4 at 12 months increased in a dose-dependent fashion: 5.5-, 7.2- and 19.1-fold for VP50, VP100 and VP250, respectively. Compliance was >95%, dropout for adverse events <1%, and there were no serious adverse events related to treatment.

CONCLUSIONS: In peanut allergy, EPIT appears safe and effective; the CRD was dose-dependent and maximum efficacy was seen with VP250.

L29 Natural History of Peanut Allergy and Predictors of Persistence in the First 4 Years of Life: A Population-Based Assessment

Rachel L. Peters, MPH[1,2], Katrina Jane Allen, FRACP, PhD, FAAAAI[3], Shyamali Dharmage, MD PhD[1], Jennifer Koplin, PhD[4], Thahn Dang, PhD[4], Adrian Lowe, PhD[1,2], Mimi L. K. Tang, FRACP, PhD, FAAAAI[3,5], Lyle Gurrin, PhD[1,2]; [1]University of Melbourne, Victoria, Australia, [2]Murdoch Childrens Research Institute, Victoria, Australia, [3]Royal Children's Hospital and Murdoch Childrens Research Institute, Melbourne, Australia, [4]Murdoch Childrens Research Institute, Australia, [5]Murdoch Children's Research Institute, Melbourne, Australia.

RATIONALE: There is no prospectively collected data available on the natural history of peanut allergy in early childhood. Previous studies have been biased by failure to challenge high-risk children when IgE antibody levels are high, potentially biasing towards persistent allergy. We sought to describe the natural history of peanut allergy between ages 1 and 4 years and develop thresholds for skin prick test (SPT) and serum specific-IgE (sIgE) that have 95% positive predictive value (PPV) to persistent peanut allergy.

METHODS: Challenge-confirmed peanut allergic 1-year-old infants (n=156) from the population-based, longitudinal HealthNuts Study (n=5276) were followed up at 4 years of age with repeat oral food challenge, SPT and sIgE (n=103). Challenges were undertaken at both ages 1 and 4 years, irrespective of risk profile.

RESULTS: Peanut allergy resolved in 22% (95% CI 14-31%) of children by age 4 years. Falling wheal size predicted tolerance while increasing wheal size was associated with persistence. Thresholds for SPT and sIgE at age 1 with 95% PPV to persistent peanut allergy are SPT ≥ 13mm and sIgE ≥ 5.0 kU/L. Thresholds for SPT and sIgE at age 4 with 95% PPV to persistent peanut allergy are SPT ≥ 8mm and sIgE ≥ 2.1 kU/L. Ara h2, tree nut and house dust mite sensitisation, coexisting food allergies, eczema and asthma were not predictive of persistent peanut allergy.

CONCLUSIONS: These thresholds are the first to be generated from a unique dataset where all participants underwent OFC at both diagnosis and follow-up, irrespective of SPT and sIgE.