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**Peanut components causing peanut allergy in Iceland**

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**Background and Aims:** Sensitivity to peanut allergens varies between countries, reflecting environmental factors such as local pollen and genetics. Ara h 1, 2, and 3 are considered the major peanut allergens whereas Ara h 8 is a homologue of the birch pollen allergen Betv1 and is not associated with severe allergic reaction. Ara h 6 is cross-reactive with Ara h 2 but may also be a single sensitizer. The aims were to determine the component pattern of peanut sensitization in Iceland and relate to the history of allergic reaction to peanuts as well as to pollen allergy.

**Methods:** Serum samples from 220 individuals obtained during a 25 month study period and were positive for peanut specific IgE (Pn-IgE) were used to measure by ImmunoCAP (Thermo Fisher Scientific, Uppsala, Sweden); Ara h 1, Ara h 2, Ara h 3, Ara h 8, and Betv1-IgE. Information on age, gender, personal- and family history of atopy and skin prick tests were obtained from medical records. Ara h 2-IgE negative individuals were interviewed and invited to an open peanut challenge. Those who reacted to peanuts were evaluated for Ara h 6-IgE by ISAC (Thermo Fisher Scientific, Uppsala, Sweden).

**Results:** The main atopic findings within the study cohort of 220 Pn-IgE positive individuals included history of eczema (75.5%), asthma (65.5%), and allergic rhinitis (65.5%). Ara h 2-IgE was negative in 52.3% (115/220). Of those, 24.3% (28/115) were already consuming peanuts, 29.6% (34/115) had a negative challenge, 5.2% (6/115) had a positive challenge and 2.6% (3/115) had an inconclusive one. Forty four (38.3%) rejected or were unable to undergo a challenge. Of the Ara h 2 negative and challenge positive individuals, three were sensitive to Ara h 6, (one single-sensitive), two were sensitive to Ara h 1 and 3 and one was borderline sensitive to Ara h 1, 2 and 3. Two inconclusive cases were positive to Ara h 6. Those who were challenge positive had a higher Ara h 1-IgE.

**Conclusions:** Peanut sensitized individuals in Iceland are highly atopic and half of them are not sensitized to the major allergen Ara h 2. This is only partly explained by birch sensitization and sensitization to other components such as Ara h 1 and Ara h 6 is important.