Characterization of Mite Allergens for House Dust Mite Allergy Therapy
Specific IgE Antibody Reactivities to Group 1 and Group 2 Allergens

Reese G; Nandy A; Kappes A; Narkus A; Klysner S.
Allergopharma GmbH & Co. KG, Reinbek, Germany

Background

The aim of this study was to investigate whether concurrent IgE reactivities to group 1 and group 2 allergens of Dermatophagoides pteronyssinus and Dermatophagoides farinae are based on cross reactivity or arises from independent sensitization.

Methods

In total, 381 serum samples were tested for specific IgE to extracts of *D. pteronyssinus*, *D. farinae*, recombinant group 1 allergens rDer p 1.0105 SS4G and rDer f 1.0107 N53W, and group 2 allergens rDer p 2.0101, rDer p 2.0114, rDer f 2.0106, rDer f 2.0108 and rDer f 2.0103. The IgE antibody levels were measured using extract-coated paper disks, purchased from Omega Diagnostics (Reinbek, Germany). Paper disks coated with Der p 1, Der f 1, Der p 2 or Der f 2 isoallergens were prepared at Allergopharma.

Results

Of these 381 sera, 318 sera had specific IgE to any of the test antigens, and 304 sera had IgE to any of the two group 1 and five group 2 isoallergens tested. Of these 304 sera, 232 (76.3%) had IgE to at least one group 1 allergen, and the majority (n=182, 78.4%) reacted to both Der p 1 and Der f 1. Exclusive reactivity to Der p 1 and Der f 1 was observed in 36 (15.5%) and 14 (6.0%) sera, respectively. All these sera with exclusive IgE reactivity to either Der p 1 or Der f 1 had low specific IgE (EAST class ≤ 3) to these allergens.

Of the 304 sera with IgE to any of the two group 1 and five group 2 allergens tested, 293 (96.4%) had IgE to any of the two Der p 2 and the three Der f 2 isoforms. Of those 293 sera 290 (99.0%) reacted to any Der p 2 isoform and 292 (99.7%) reacted to any Der f 2 isoform. 284 (96.6%) of these 293 sera had similar IgE levels (= identical EAST classes) to all five group 2 isoforms of both mite species.

The observed similarities in IgE reactivity patterns of group 1 and group 2 isoallergens irrespective of species indicate allergen cross-reactivity rather than independent, species-specific sensitization.

Conclusion

The observed similarities in IgE reactivity patterns of group 1 and group 2 isoallergens irrespective of species indicate allergen cross-reactivity rather than independent, species-specific sensitization.