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Titel des Beitrags: Pectate lyase pollen allergens: sensitization profiles and cross-reactivity pattern.

Abstract: Pollen released by allergenic members of the botanically unrelated families of Asteraceae and Cupressaceae represent potent elicitors of respiratory allergies in regions where these plants are present. As main allergen sources the Asteraceae species ragweed and mugwort, as well as the Cupressaceae species, cypress, mountain cedar, and Japanese cedar have been identified. The major allergens of all species belong to the pectate lyase enzyme family. Thus, we thought to investigate cross-reactivity pattern as well as sensitization capacities of pectate lyase pollen allergens in cohorts from distinct geographic regions. The clinically relevant pectate lyase pollen allergens Amb a 1, Art v 6, Cup a 1, Jun a 1, and Cry j 1 were purified from aqueous pollen extracts, and patients' sensitization pattern of cohorts from Austria, Canada, Italy, and Japan were determined by IgE ELISA and cross-inhibition experiments. Moreover, we performed microarray experiments and established a mouse model of sensitization. In ELISA and ELISA inhibition experiments specific sensitization pattern were discovered for each geographic region, which reflected the natural allergen exposure of the patients. We found significant
cross-reactivity within Asteraceae and Cupressaceae pectate lyase pollen allergens, which was however limited between the orders. Animal experiments showed that immunization with Asteraceae allergens mainly induced antibodies reactive within the order, the same was observed for the Cupressaceae allergens. Cross-reactivity between orders was minimal. Moreover, Amb a 1, Art v 6, and Cry j 1 showed in general higher immunogenicity. We could cluster pectate lyase allergens in four categories, Amb a 1, Art v 6, Cup a 1/Jun a 1, and Cry j 1, respectively, at which each category has the potential to sensitize predisposed individuals. The sensitization pattern of different cohorts correlated with pollen exposure, which should be considered for future allergy diagnosis and therapy.