

Clinical relevance of Amb a 6, the non-specific lipid transfer protein from *Ambrosia artemisiifolia* pollen

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Introduction. Non-specific lipid transfer proteins (nsLTPs) are known food and pollen allergens, capable of inducing a wide range of symptoms from anaphylaxis to allergic asthma.¹ Sensitization to LTPs is often triggered by allergy to plant-based foods, yet in areas with high pollen loads, pollen LTPs are primary sensitizers.²

Aim of this study is to characterize the nsLTP from ragweed by testing the IgE reactivity towards recombinantly produced Amb a 6 with serum from ragweed allergic patients and detecting similar proteins in other allergen sources.

Material and Methods. Amb a 6 was produced in *Spodoptera frugiperda Sf9* cells. IgE binding capacity of Amb a 6 was tested in ELISA with serum from ragweed allergic patients. Allergenicity was tested in a mediator release assay. Rabbit Amb a 6-specific antibodies were produced to detect similar proteins in other allergen sources.

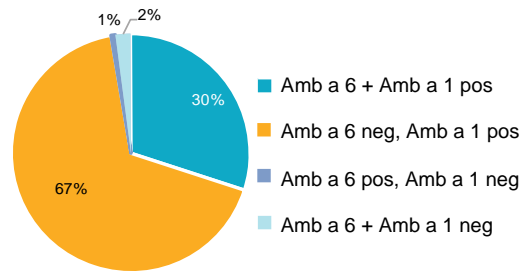


Fig. 1. Pie chart with IgE binding frequency towards Amb a 6 and Amb a 1 among 150 ragweed allergic patients

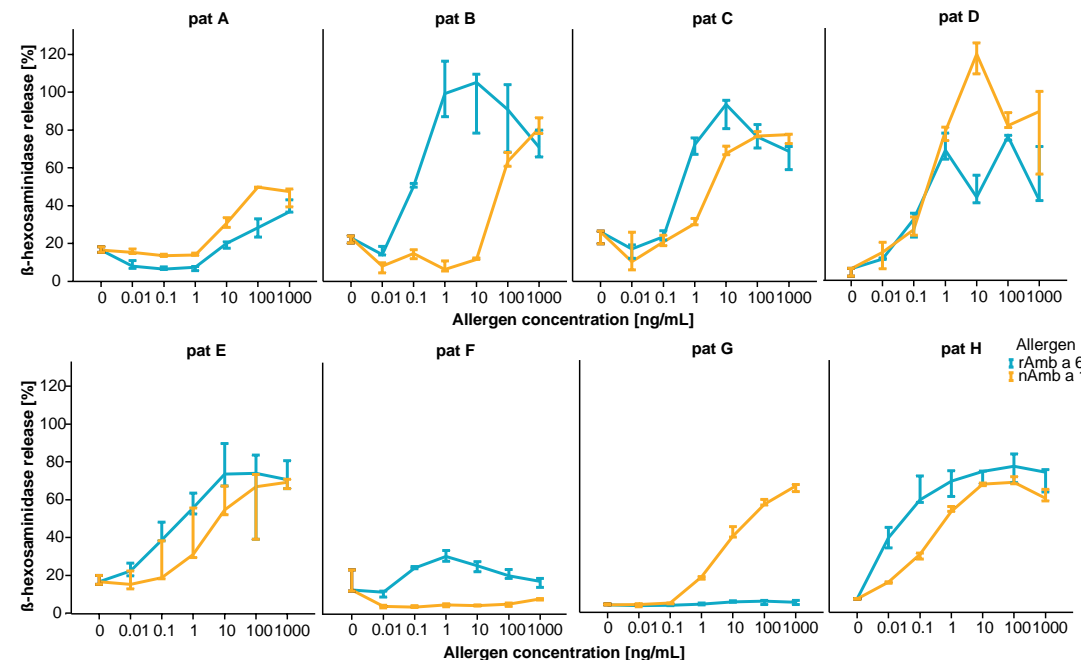


Fig. 3. Allergenicity of Amb a 6 compared to Amb a 1 in a mediator release assay for eight ragweed allergic patients.

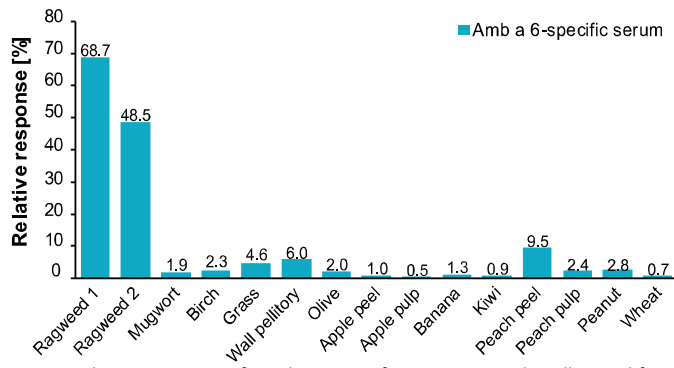


Fig. 2. Relative response of rAmb a 6-specific serum towards pollen and food allergen extracts

Results. Recombinant Amb a 6 bound IgE in 46 out of 150 ragweed allergic patients tested in ELISA, most of them also reacting towards Amb a 1. One patient showed IgE binding towards Amb a 6 and not Amb a 1 (Fig. 1). Rabbit Amb a 6-specific antibodies showed low reactivity towards the tested extracts, except for ragweed (Fig. 2). Amb a 6 and Amb a 1 showed comparable mediator release in a basophil degranulation assay. Amb a 6 induced degranulation in one patient negative towards Amb a 1 (Fig. 3).

Conclusion. Ragweed nsLTP is a clinically relevant allergen, inducing reactivity in the absence of the major allergen. Reactivity with nsLTPs from other allergen sources appears to be limited, yet should not be ignored in diagnosis.

1. Pascal, M., et al *Allergologia et Immunopathologia* 44.4 (2016): 351-358.
 2. Gao, ZS., et al. *Journal of Allergy and Clinical Immunology* 131.1 (2013): 224-226.