



POSTER PRESENTATION

Open Access

Cross-reactivity of pollen and food allergens: soybean Gly m 4 is a member of the Bet v 1 superfamily and closely resembles yellow lupine proteins

Paul Rösch^{1*}, Hanna Berkner¹, Philipp Neudecker¹, Diana Mittag², Barbara Ballmer-Weber², Peter Lehn³, Kristian Schweimer¹, Stefan Vieths⁴

From Food Allergy and Anaphylaxis Meeting 2011
Venice, Italy. 17-19 February 2011

In many cases, patients allergic to birch pollen also show allergic reactions after ingestion of plant-derived food. This observation is explained on the molecular level by cross-reactivity of IgE antibodies induced by sensitization to the major birch pollen allergen Bet v 1 with homologous food allergens. As IgE antibodies recognize conformational epitopes, a precise structural characterization of the allergens involved is necessary to understand cross-reactivity and thus to develop new methods of allergen-specific immunotherapy for allergic patients. Here we present the three-dimensional solution structure of the soybean allergen Gly m 4, a member of the superfamily of Bet v 1 homologous proteins and a cross-reactant with IgE antibodies originally raised against Bet v 1, as shown by immunoblot inhibition and histamine release assays. Although the overall fold of Gly m 4 is very similar to that of Bet v 1, the three-dimensional structures differ in detail. The Gly m 4 local structures that display those differences are also found in proteins from yellow lupine. The three-dimensional structure of Gly m 4 in combination with immunological data allows us to propose surface patches that might represent cross-reactive epitopes.

Author details

¹Universität Bayreuth, Biopolymere, Bayreuth, Germany. ²University Hospital, Dermatology, Zürich, Switzerland. ³Universitätsklinikum Regensburg, Klinische Chemie und Laboratoriumsmedizin, Regensburg, Germany. ⁴Paul-Ehrlich-Institut, Allergologie, Langen, Germany.

¹Universität Bayreuth, Biopolymere, Bayreuth, Germany
Full list of author information is available at the end of the article

Published: 12 August 2011

doi:10.1186/2045-7022-1-S1-P6

Cite this article as: Rösch et al.: Cross-reactivity of pollen and food allergens: soybean Gly m 4 is a member of the Bet v 1 superfamily and closely resembles yellow lupine proteins. *Clinical and Translational Allergy* 2011 **1**(Suppl 1):P6.

Submit your next manuscript to BioMed Central and take full advantage of:

- Convenient online submission
- Thorough peer review
- No space constraints or color figure charges
- Immediate publication on acceptance
- Inclusion in PubMed, CAS, Scopus and Google Scholar
- Research which is freely available for redistribution

Submit your manuscript at
www.biomedcentral.com/submit

