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Data Article

Data on the epitope mapping of soybean A2 and A3 glycinin

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ABSTRACT

The data information provided in this article relate to our research article "Using patient serum to epitope map soybean glycinins reveals common epitopes shared with many legumes and tree nuts" (Saeed et al., 2016) [1]. Here we provide western blot detection of glycinin subunits by soy-sensitive human sera, ELISA screens with overlapping synthetic peptides (epitope mapping), and various database/server epitope searches.

Specifications Table

Subject area	Immunology
More specific subject area	Allergy
Type of data	Tables, Graphs, Figures
How data was acquired	Western blots were performed by screening total soy protein on 2D gels with soy-sensitive human sera and detecting with a secondary anti-IgE-HRP antibody. ELISAs were performed by screening a collection of synthetic peptides encompassing the glycinin sequences with soy-sensitive human sera. The IgE binding to the peptides was detected by a secondary anti-IgE-HRP antibody.

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	Epitope sequence similarity searches were done using the SDAP website: (http://fermi.utmb.edu/) B-cell epitope predictions were done using the following servers: ABCpred (http://www.imtech.res.in/raghava/abcpred/) BepiPred 1.0 (http://www.cbs.dtu.dk/services/BepiPred/) SVMTriP (http://sysbio.unl.edu/SVMTriP/)
Data format	Raw, analyzed
Experimental factors	Human serum samples were acquired from individuals that exhibited a sensitivity to soybean and to other legumes/nuts
Experimental features	Western blot, ELISA (epitope mapping)
Data source location	Canada and USA
Data accessibility	Data is provided with this article

Value of the data

- Better understanding of soy storage protein allergens may contribute to allergy management strategies.
- It may also contribute to the generation of hypoallergenic soybean cultivars.
- Provide risk assessment tools for the evaluation and characterization of the allergenicity of novel foods.

1. Data

The data presented here show the western blot detection of A2 or A3 subunits by soy-sensitive human sera (Fig. 1) and ELISA screens (Figs. 2 and 3) of these patient sera with overlapping synthetic peptides (Pepsets). Serum specificity is also confirmed by cross-screening the A2 Pepset with a serum that does not bind to the A2 cluster on western blot (Fig. 4). Also contained in this article is SDAP (Structural Database of Allergenic Proteins) sequence similarity search results (Tables 1 and 2) of the epitopes reported by Saeed et al. (2016) [1] and theoretical B-cell epitope prediction data on the full length sequences of A2 and A3 subunits (Table 3).

2. Experimental design, materials and methods

2.1. Patient serum

Soy-sensitive human sera used in the western blots and epitope mapping are previously described [1].

2.2. Immunoblot analysis

Western blotting of human sera was conducted as previously described [2]. Membranes were hybridized with serum dilutions ranging from 1/50 to 1/500.

2.3. Epitope mapping

Two peptide sets representing the mature amino acid sequences of glycinin A2 (P04405, 90 peptides) and A3 (BAB15802, 104 peptides) were synthesized and biotinylated by Mimotopes (http://