

Publication

A proteomic study to identify soya allergens - the human response to transgenic versus non-transgenic soya samples

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BACKGROUND: In spite of being among the main foods responsible for allergic reactions worldwide, soybean (*Glycine max*)-derived products continue to be increasingly widespread in a variety of food products due to their well-documented health benefits. Soybean also continues to be one of the elected target crops for genetic modification. The aim of this study was to characterize the soya proteome and, specifically, IgE-reactive proteins as well as to compare the IgE response in soya-allergic individuals to genetically modified Roundup Ready soya versus its non-transgenic control. **METHODS:** We performed two-dimensional gel electrophoresis of protein extracts from a 5% genetically modified Roundup Ready flour sample and its non-transgenic control followed by Western blotting with plasma from 5 soya-sensitive individuals. We used peptide tandem mass spectrometry to identify soya proteins (55 protein matches), specifically IgE-binding ones, and to evaluate differences between transgenic and non-transgenic samples. **RESULTS:** We identified 2 new potential soybean allergens—one is maturation associated and seems to be part of the late embryogenesis abundant proteins group and the other is a cysteine proteinase inhibitor. None of the individuals tested reacted differentially to the transgenic versus non-transgenic samples under study. **CONCLUSION:** Soybean endogenous allergen expression does not seem to be altered after genetic modification. Proteomics should be considered a powerful tool for functional characterization of plants and for food safety assessment.

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