



POSTER PRESENTATION

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Genetically modified α -amylase inhibitor peas are not specifically allergenic in mice

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Background

Weevils can devastate food legumes in developing countries, but genetically modified peas (*Pisum sativum*), chick-peas and cowpeas expressing the gene for alpha-amylase inhibitor-1 (α AI) from the common bean (*Phaseolus vulgaris*) are completely protected from weevil destruction. α AI is seed-specific, accumulated at high levels and undergoes post-translational modification as it traverses the seed endomembrane system. This modification was thought to be responsible for the reported allergenicity in mice of the transgenic pea but not the bean.

Methods

To evaluate whether consumption of bean and α AI pea seed meals generated allergic responses to α AI, we fed mice α AI transgenic peas, non-transgenic (nGM) peas, Tendergreen bean (source of α AI gene) and Pinto bean. Mice received raw or heat-treated seed meal diluted in PBS twice weekly for 4 consecutive weeks, followed by 50 μ g of α AI i.n. We then measured allergic airway and lung inflammation, mucus hypersecretion and antibody production.

Results

In this study we observed that both the transgenic legumes and non-transgenic beans were allergenic in BALB/c mice. Even consuming non-transgenic peas lacking α AI led to an anti- α AI response due to a cross-reactive response to pea lectin. Our data demonstrate that α AI transgenic peas are not more allergenic than beans or non-transgenic peas in mice.

Conclusion

This study illustrates the importance of repeat experiments in independent laboratories and the potential for unexpected crossreactive allergic responses upon consumption of plant products in mice.

Disclosure of interest

None declared.

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