



INVITED SPEAKER PRESENTATION

Open Access

Protein or no protein? Using PCR for detecting allergens in foods

Martin Röder*, Stefan Vieths, Thomas Holzhauser

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

The latest amendment (2007/68/EC) of annex IIIa of the European Directive 2000/13/EC currently requires 14 groups of allergenic food ingredients to be mandatory labelled. The labelling does not refer to a certain compound of an allergenic food but the allergenic food itself. Thus, every method that has been demonstrated to reliably detect the target food is applicable. State of the art in the detection of allergenic foods has been the protein based Enzyme-Linked Immuno Sorbent Assay (ELISA) and meanwhile, numerous studies have demonstrated good correlation between protein based ELISA and DNA based Polymerase Chain Reaction (PCR) methods. Even in protein enriched isolates or concentrates DNA has been proven to be an alternative molecular marker for the presence of an allergenic food. Since 2005 the number of scientific publications on PCR for allergen detection has increased tremendously, of which real-time PCR with sequence specific fluorescent probes is considered state-of-the-art technology. Both ELISA and PCR exhibit strengths and limitations: ELISA are considered a quantitative methodology with high sensitivity at a level of 1-10 mg/kg. However, known cross-reactivity to phylogenetically closely related foods or ingredients thereof may lead to false-positive results. By contrast PCR offers unparalleled specificity to avoid complaints or potentially expensive food recalls due to false-positives. For PCR, a sensitivity below 10 mg/kg, which is considered sufficient in comparison to known clinical threshold data, is feasible. Moreover, real-time PCR allows multi-allergen screening in one run. In addition, first PCR methods with quantitative features have been published and more are expected in the near future. Thus, PCR may complement or even substitute ELISA depending on the allergenic food to detect.

Published: 12 August 2011

doi:10.1186/2045-7022-1-S1-S81

Cite this article as: Röder et al.: Protein or no protein? Using PCR for detecting allergens in foods. *Clinical and Translational Allergy* 2011 **1** (Suppl 1):S81.

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



Paul-Ehrlich-Institut, Langen, Germany



© 2011 Röder et al; licensee BioMed Central Ltd. This is an open access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/2.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.