Integrated Approaches to Food Allergen and Allergy Risk Management

Results in Brief

Food allergy management

In Europe alone, around 20 million people suffer from some form of food allergy. EU-funded researchers are developing evidence-based strategies to optimise food allergy management and minimise risk.

Food allergies are incurable and the only option available is to avoid the ingredient to which we are sensitive. Allergy symptoms range from mild to anaphylaxis, highlighting the need for determining safe levels of allergen contamination in food.

The multidisciplinary 'Integrated approaches to food allergen and allergy risk management' (IFAAM) project will develop evidence-based guidelines to effectively manage food allergies using the informatics platform Allerg-e-lab for complex data analysis.

IFAAM will deliver harmonised integrated approaches through the inclusion of stakeholders such as risk assessors and managers, the food industry, health care practitioners and allergic consumers.

The EuroPrevall birth cohort worked on understanding the incidence of food allergies in newborns and children. IFAAM members developed questionnaires and clinical
protocols to follow up on this cohort and harmonised protocols for diagnosing food allergy. Already, ethical approval has been obtained in five study centres.

Studies on allergen properties, risk factors, candidate biomarkers for severity, proton pump inhibitor interventions and role of mast cells are ongoing. Researchers compared EuroPrevall data with other databases to obtain threshold data on foods such as celery and hazelnut.

Pilot studies on allergic reactions were implemented in the Allerg-e-lab environment. The panel of food ingredients for testing includes milk powder, egg white powder, and walnut, hazelnut and peanut flours.

Through mass spectrometry-based methods, multi-analyte analysis for food allergens was carried out. As a result, the team identified candidate peptide targets and developed novel allergen extraction protocols along with proteolytic digestion protocols. Currently, the immunoglobulin E reactivity of the above ingredients is being evaluated in patients.

Project outcomes will be invaluable in the current scenario of increasing incidence of allergies even in infants. Besides better diagnostic tools, research results will aid in developing effective pan-European food safety regulations to minimise consumer risk. Such measures will also boost the competitiveness of the European food industry.

**Keywords**

Food allergy, allergen, allergy risk, Allerg-e-lab, immunoglobulin E reactivity

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**IFAAM**

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