Food allergens: a risk to swallow?

Allergies to food components are experienced by many, with symptoms ranging from a transient rush in the throat to the life-threatening symptoms of an anaphylactic shock. Researchers from five Fraunhofer institutes are now addressing this topic in a combined effort, developing novel assays for food allergy diagnostics and allergen detection, and procedures to produce well-tasting food ingredients with a reduced allergenic potential from known food allergens as soy, pea and lupin.

The joint project FoodAllergen is aiming to enable an integrated management of food allergies by providing tools for the medical diagnostics, food analysis and food processing industries.

FoodAllergen – A Joint Project of the Fraunhofer-Zukunftsstiftung

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**Medical Diagnostics**

**IMAGINE…**

… a novel type of technology to diagnose allergies, covering a broad range of plant food allergens. Improved assay specificity, due to knowledge of cross reactivity, will allow the physician a better discrimination between inhalant-induced and food-specific allergies. The technology of epitope-resolved diagnostics will take serological analysis to a new level. It also will facilitate improved prediction of silent vs. clinical relevant sensitization against food allergens.

The specificity of the assays is enhanced by incorporation of selected sets of small, epitope-like molecules. These will be complemented by control proteins produced in a plant expression system, ensuring correct protein folding and glycosylation.

Epitope identification and assay development are supported by a large biobank containing sera of well-characterized patients with food allergies.

**Food Analysis**

**IMAGINE…**

… new assays for food allergen detection and quantification, based on sets of highly specific and sensitive monoclonal antibodies. In contrast to current tests, they will allow to specifically detect selected allergenic protein components, and to address molecular structures with defined properties as sensitivity/insensitivity to food processing procedures or allergenicity. This will allow to generate assays tailor-made for specific analytical tasks.

Several allergenic proteins will be available as recombinant and purified proteins, to be used as reference and standard materials.

These tools will allow to improve allergen testing and allergen reduction in the production of food ingredients, and will help to define, establish and verify maximal acceptable concentration values for several food allergens.

**Food Ingredients**

**IMAGINE…**

… food processing procedures that allow the production of food ingredients with optimized sensory properties, good functional quality and reduced allergenic potential. The reduced allergenicity is measured and confirmed by certified assays reliably quantifying the presence, or absence, of known allergenic structures (epitopes) in the final product. Such products could improve food safety and reduce the risk for those being prone to the development of allergies.

**We are addressing…**

… the medical diagnostic and medical device industries
… manufacturers and users of analytical food tests
… manufacturers of food ingredients

**Join us to set and reach new standards!**