Conference on

Healthy, Safe and Sustainable Foods of the Future
Can we avoid fuelling the increase in food allergy by introducing new foods?

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New foods introduced to the market

Current food allergies: Nut, Cow’s milk, Shellfish, Hen’s egg, Peanut, Fish

Emerging food allergies: Pea, Chickpea, Lentil, Hemp seed, Sunflower seed, Lupin

What are the future food allergies? Grasshopper, Grass, Fly larva, Mycelium, Seaweed, Rapeseed

Novel food guidelines

Guidance on the preparation and submission of an application for authorisation of a novel food in the context of Regulation (EU) 2015/2283¹ (Revision 1)²

1.10. Allergenicity

Food allergens are mostly proteins. Hence, the allergenic potential of a novel food containing no proteins (or peptides) is very low. An accurate description of the methods used for the analysis of the protein content in the novel food (including the limits of detection and quantification) and the results from these analyses should be provided in Section 5.2.

The default assumption for novel foods containing proteins is that they have allergenic potential. The allergenic potential of the novel food should be explored by considering its composition, particularly its protein(s), its source(s) (including taxonomic relationships), the production process, and available experimental and human data, including information on cross-reactivity. This comprises a comprehensive literature review in order to retrieve available information on sensitisation, case reports of allergic reactions, and/or allergenicity studies (in silico, in animals, in humans) of the novel food and/or its source(s).
De novo sensitisation vs. cross-reactivity

**Protein profiling**

**Protein stability**

**Sequence homology**

**Human serological tests**

**Human cell-based tests**

Maryniak et al. Mol Nutr Food Res, 2022

Ballegaard et al. In prep
De novo sensitisation vs. cross-reactivity

Protein identification

In vitro protein digestibility

In vivo sensitisation model

Non/low-allergenicity

Unknown

High-allergenicity

Gelatine

Spinach

Black soldier fly

Microalgae

Quinoa

Rapeseed

Peanut

De novo sensitising capacity

Maryniak et al. Mol Nutr Food Res, 2022

Zhou, Liguori, Ballegaard, Sancho, Bøgh et al., Unpublished data

In vitro cell-based models (AOP)
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