



Interest of 2D Immunoblot and mass spectrometry in the diagnosis of wheat allergy <u>J. Courtois¹</u>, C. Bertholet², E. Cavalier^{2,3}, N. Gillard⁴, S. Tollenaere⁵, B. Quinting⁵, R. Gadisseur² 1: CRIG Liège, Belgium; 2: CHU Liège, Belgium; 3: University of Liège, Belgium; 4: CER Group Marloie, Belgium; 5: HELMo Liège, Belgium

Aim of the project :

Wheat is a complex allergenic food containing a lot of different proteins that are difficult to isolate and to identify. Specific molecular IgE detection in wheat allergic patients is limited since only a few molecular allergens are available on the market. Hence this research aimed to develop a diagnostic method linking a patients' specific allergenic 2D western blot profile to a particular clinical symptom in wheat allergy. Afterwards, mass spectrometry (LC-MS/MS) was used to identify the specific molecular allergens.

Methods :

A total protein extract of wheat seeds was separated on the basis of the isoelectric point and the molecular weight of the proteins. Twenty-five patients presenting positive specific IgE (sIgE) for wheat were classified into 3 different phenotypes: wheat dependent exercise induced anaphylaxis (WDEIA), atopic dermatitis (AD) and pollen rhinitis (PR). Their sera were analyzed by 2D immunoblotting on a standardized wheat seeds extract in order to evaluate their sIgE reactivity against the protein spots. Their sIgE sensitization profiles were compared and protein spots of interest were identified by LC-MS/MS.



Conclusion :

At this stage, specific sensitization profiles were identified for the 3 phenotype groups (WDEIA, AD, PR). The protein spots of interest detected by sIgE concern one or more allergens. Some wheat allergens were identified by LC-MS/MS. Preliminary results show that Tri a 26 seems to be specific to the AD patient group. All four AD patients have Tri a 26 specific IgE. At the end of the study, it will be possible to establish a link between all specific symptomatologies and the newly identified responsible allergens.

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