Contribution of CCD's on RAST scores and an inhibition RAST with anti HRP (CCD) antibodies as a possible way to prevention of false-positive diagnostic results

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Abstract

It is known that specific IgE antibodies recognizing an asparagine-N linked glycan moiety of plant glycoproteins (CCD), composed of a typical oligo mannose type glycan moiety of Man3GlcAc2 backbone with the beta1-2xylose branch and /or beta1-2xylose and alph1-3 fucose branches, occurs in patients' sera and may give the false-positive test results in conventional RAST-type diagnostic methods, however, the clinical relevance of the CCD's-directed IgE antibodies in food allergy is still remaining uncertain. We tried to estimate the contribution of glycan-specific IgE antibodies on the RAST scores using the combination of several procedures such as affinity chromatography techniques, the inhibition-blotting method and an inhibition RAST with anti HRP(CCD) antibodies, which contain IgG antibodies recognizing above mentioned glycan moieties (Figs 1 and 2). It was found that the contribution of glycan moieties on RAST scores vary among patients, from very small to almost 90 %. It was demonstrated that about 75% of IgE antibodies specific to major allergen of soybean, Gly m Bd 30K, present in the patient allergic to soybean recognized epitopes of glycan moiety of the allergen and only 25% of IgE antibodies bound to peptide backbones as epitopes on the protein. These facts clearly suggested that CCD might be one of the possible factors giving false positive diagnostic results. Accordingly, the inhibition-RAST technique using anti-HRP (CCD) antibodies can provide an effective way, but crude, to the screening of the relevant patient's sera.