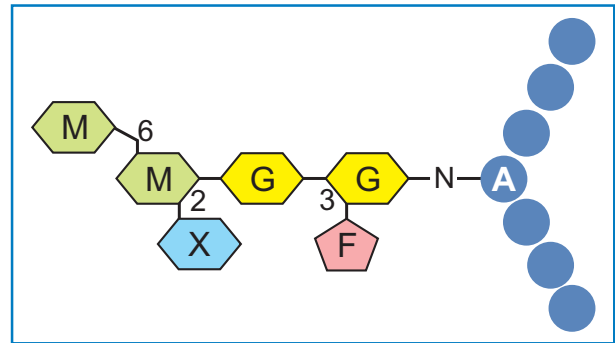


ImmunoCAP™ Allergen Ro214 CCD; MUXF3 from Bromelin



Cross-reactive carbohydrate determinants (CCD)

Many allergens are glycoproteins, i.e. they contain one or several complex oligosaccharide chains linked to the peptide structure of the protein. Studying the structure of allergens and their IgE antibody binding epitopes several research groups have searched for a role of the carbohydrate moieties of allergenic molecules. Since glyco-epitopes can share significant structural homologies beyond the limits of protein families they are prone to extensive cross-reactivity and they have been called Cross-reactive Carbohydrate Determinants or CCDs.

Whether or not IgE antibodies against carbohydrate epitopes on glycoproteins have a clinical role is debated, but data supporting a clinical effect are emerging. As long as the demonstration of a clear *in vivo* effect remains to be confirmed, we must consider the sometimes confusing role of these epitopes in serum-based IgE antibody assays.

Testing for CCD-specific IgE reactivity

A CCD test could be useful when *in vitro* results do not match the clinical picture (symptoms, skin tests), especially when numerous results are found positive without obvious clinical symptoms to all these allergens. Checking the possible presence of anti-CCD IgE is advisable in three types of situations:

- Sensitization to foods of plant origin, mainly vegetables and fruits, but could also be useful with seeds such as peanuts.
- Sensitization to hevea latex in a pollen allergic patient without occupational risk factors.
- In subjects tested positive both for honeybee and for wasp venoms.

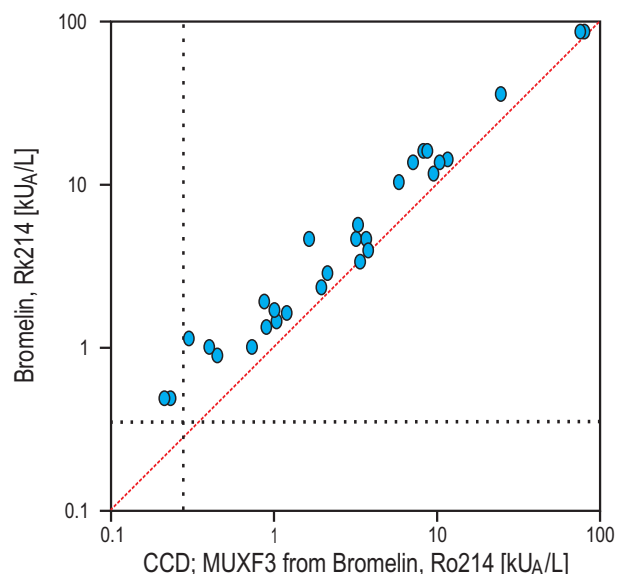
A simple way to point out a possible IgE reactivity to CCD in an *in vitro* IgE assay is to perform an ImmunoCAP™ CCD test.

Pharmacia Diagnostics offers two different ImmunoCAP™ with CCD structures that can be used for this purpose:

- 14-5127-10 ImmunoCAP™ Allergen Bromelin, Rk202
- 14-5339-10 ImmunoCAP™ Allergen CCD; MUXF3 from Bromelin, Ro214

Bromelin is a glycoprotein extracted from pineapple. Bromelin has widely been used for checking the cross-reactivity between a glycan and other glycoproteins since its MUXF3 carbohydrate chain is found in many plant proteins. True allergy to bromelin is also very rare.

The new ImmunoCAP™ Allergen, CCD; MUXF3 from Bromelin, is a pure CCD reagent containing only the MUXF3 carbohydrate epitope, thus avoiding IgE antibody binding to other bromelin epitopes. The MUXF3 carbohydrate epitope is purified from digested bromelin.



CCD; MUXF3, Ro214 and Bromelin, Rk202 show good correlation. Rk202, containing the complete bromelin glycoprotein, gives slightly higher results than the Ro214 containing only the MUXF3 carbohydrate chains.

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