

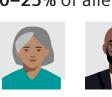
# Liquid-phase technologies minimize the likelihood of false-positive results caused by cross-reactive carbohydrate determinants (CCDs)

### Anti-CCD IgE: Prevalence

Anti-CCD IqE are cross-reactive.



Anti-CCD IgE antibodies can be found in 20-25% of allergy patients.<sup>1</sup>







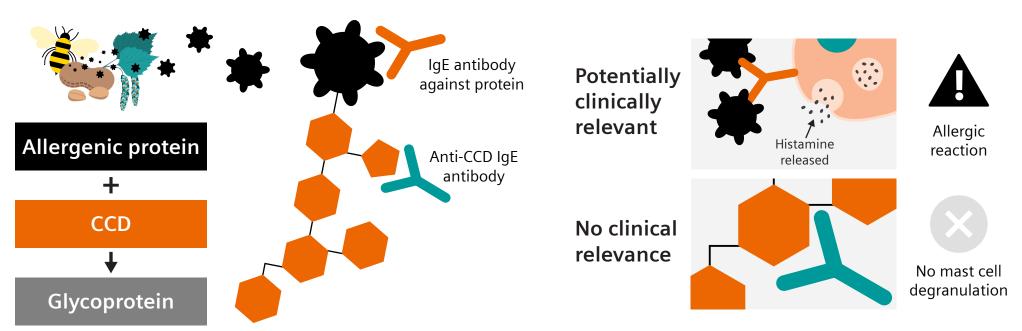




may be diagnosed and treated incorrectly.

#### Carbohydrate structures that contribute to false-positive results

CCDs are carbohydrate molecules present on proteins from plants, insects, and microorganisms. It is widely accepted that sensitization to CCDs is of no clinical relevance. However, IgE antibodies directed against CCDs bind to a ubiquitous epitope and are thus cross-reactive.<sup>2</sup>

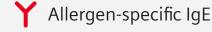


## **Anti-CCD IgE in** allergy blood tests

CCDs can be a confounding factor in in vitro allergy diagnostics. If present, anti-CCD IgE may produce false-positive results.<sup>2</sup>

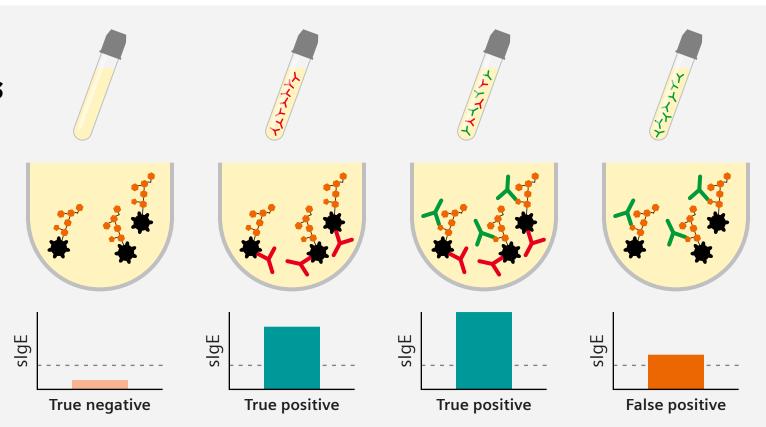


CCD-specific IgE



Allergen



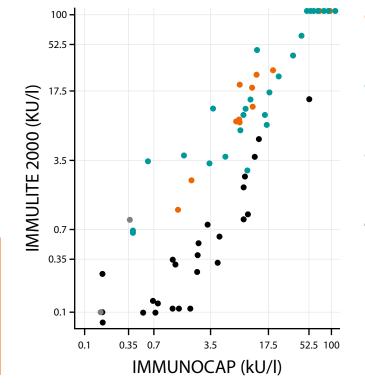


CCD sensitization is often measured using MUXF from bromelain, horseradish peroxidase, ascorbate oxidase, or bromelain.<sup>5,6</sup>

#### Diagnostic impact of CCDs in different allergy blood testing technologies

Liquid-phase allergy diagnostic procedures are often less affected by anti-CCD IgE.<sup>6</sup> The cellulose used as a carrier material in solid-phase technologies may have residual CCDs on the surface. Patients with anti-CCD IgE tested with solid-phase technologies are at risk of being diagnosed with elevated IgE titers for individual allergens.<sup>6,7</sup>

IMMULITE® 3gAllergy™ liquid allergen technology is a bead-based approach that reduces the need for additional allergy testing and the risk of false-positive results.



- la: peanut-allergic patients without symptoms related to pollen
- Ib: peanut-allergic patients with grass pollen sensitization
- Ila: control patients not sensitized to any pollen
- IIb: control patients with hay fever

Peanut-specific IgE may be elevated in patients with hay fever who are not allergic to peanuts when tested with a cellulose-based solid-phase technology.

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- 6. Guilloux L, Morisset M, Codreanu F, Parisot L, Moneret-Vautrin DA. Peanut allergy diagnosis in the context of grass pollen sensitization for 125 patients: roles of peanut and cross-reactive carbohydrate determinants specific IgE. Int Arch Allergy Immunol. 2009;149(2):91-7.
- with high anti-CCD IgE antibody levels. J Allergy Clin Immunol. 2018;141(1):372-81.e3. 3gAllergy, IMMULITE, and all associated marks are trademarks of Siemens Healthcare Diagnostics Inc., or its affiliates. All other trademarks and brands are the property of their respective owners. Product availability

7. Hemmer W, Altmann F, Holzweber F, Gruber C, Wantke F, Wöhrl S. ImmunoCAP cellulose displays cross-reactive carbohydrate determinant (CCD) epitopes and can cause false-positive test results in patients

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