



**EGG**

Molecular Allergology



Precise results for safe and  
**accurate decisions**

How to improve characterization and manage egg allergic patients

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# Take the diagnosis and management of egg allergic patients to a whole new level

## Improved risk assessment with allergen components

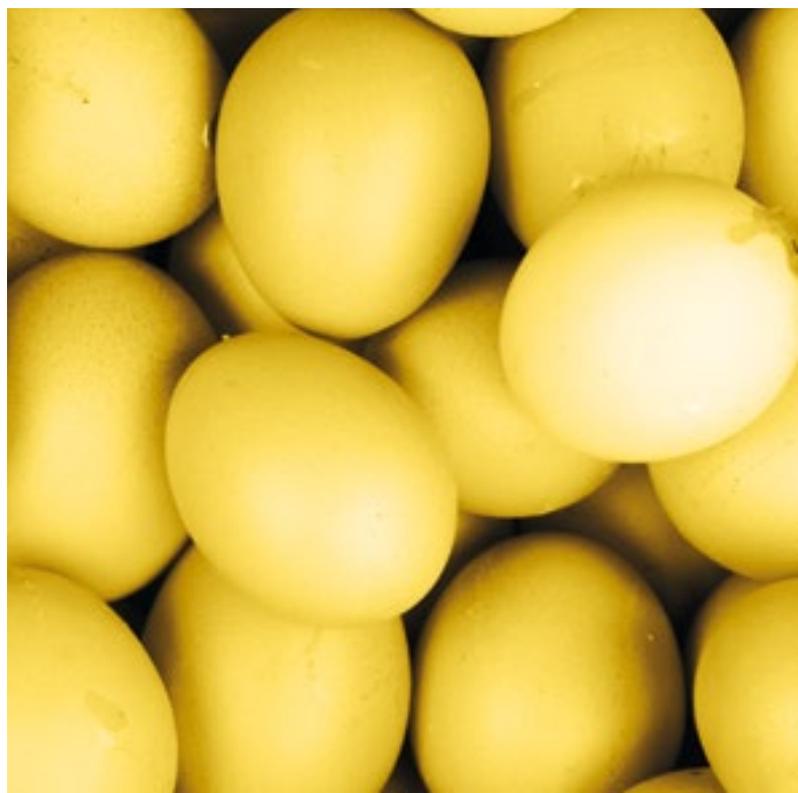
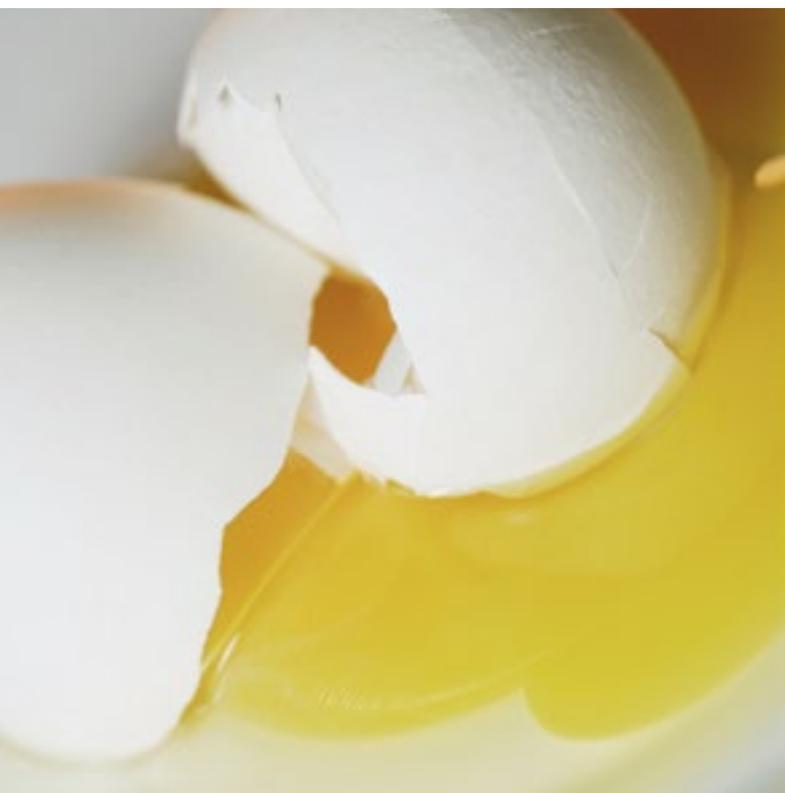
- Significant levels of specific IgE antibodies to Gal d 1 indicate a risk for clinical reactions to raw and cooked egg.<sup>1,2,3</sup>
- Low or undetectable levels of IgE antibodies to Gal d 1 suggest tolerance to extensively heated egg e.g. in cakes and cookies.<sup>1,2</sup>

## Better characterization of egg allergic patients

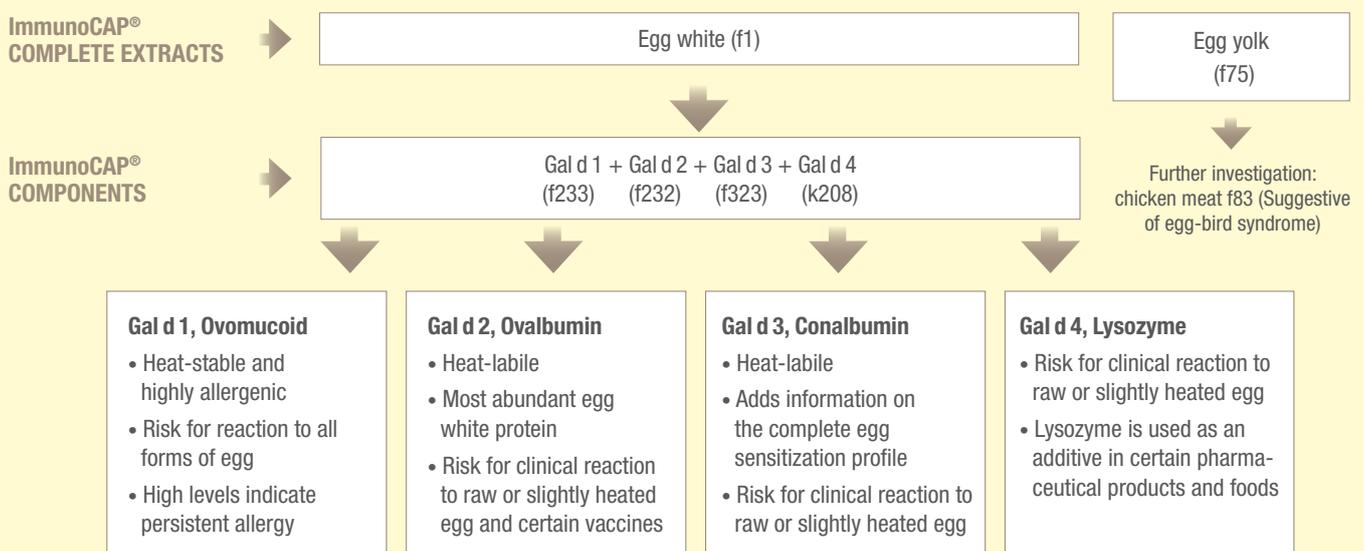
- Component testing helps in identifying children that are likely to outgrow their egg allergy; by following Gal d 1 IgE levels over time tolerance development may be detected.<sup>4</sup>
- Low levels of specific IgE antibodies to Gal d 1 in early infancy suggest a good prognosis for outgrowing the egg allergy.<sup>5</sup>
- In cases of low levels to Gal d 1, sensitization to egg components Gal d 2, Gal d 3 and/or Gal d 4 can cause clinical reactions to raw and slightly heated egg.
- Egg allergic patients sensitized to Gal d 2 may experience allergic reactions upon influenza and Yellow Fever vaccinations.<sup>6</sup>
- Egg allergic patients with specific IgE antibodies to Gal d 4 may react when unexpectedly exposed to egg lysozyme in hidden forms in pharmaceutical products and foods.<sup>7,8</sup>

## Improve patient management:

- Evaluate the risk for persistent egg allergy – high levels of specific IgE antibodies to Gal d 1 indicate persistent egg allergy.<sup>4,9,10</sup>
- Detect signs of tolerance development by following the Gal d 1 specific IgE levels which generally decrease as tolerance develops.<sup>4,5</sup>
- Quantification of Gal d 1-specific IgE can be useful in guiding the physician in the decision when to perform a challenge test.<sup>1</sup>



## Recommended test profile



### Did you know that?

- Gal d 1 is the dominant egg allergen; it is highly allergenic and very stable to heat.<sup>10</sup>
- Gal d 2 is the most abundant protein in egg, but is easily denatured when heated.<sup>11</sup>
- Influenza & Yellow Fever vaccines are produced in chick embryos, and some vaccines may contain low levels of egg proteins, mainly Gal d 2.<sup>6</sup>
- Gal d 3 is also known as ovotransferrin. Many egg-allergic patients are sensitized to this heat-labile component.<sup>12</sup>
- Lysozyme (Gal d 4) is used as a preservative – declared as E1105 – in some ripened cheese, wine and pharmaceutical products.<sup>7</sup>
- The presence of sIgE antibodies to Egg Yolk may indicate a syndrome called the bird-egg syndrome. The patients experience symptoms from eating egg yolk and birds' meat, but also when exposed to birds' feathers and dust.<sup>13</sup>

## Make a precise assessment

ImmunoCAP Allergen Components help you differentiate between "true" allergies and cross-reactivity

## Make a substantiated decision

A better differentiation helps you give relevant advice and define the optimal treatment

## Make a difference

More informed management helps you improve the patient's well-being and quality of life

**References:** 1. Ando H, Moverare R, Kondo Y, Tsuge I, Tanaka A, Borres MP, Urisu A. Utility of ovomucoid-specific IgE concentrations in predicting symptomatic egg allergy. *J Allergy Clin Immunol* 2008;122:583–8. 2. Lemon-Mule H, Sampson HA, Sicherer SH, Shreffler WG, Noone S, Nowak-Wegrzyn A. Immunologic changes in children with egg allergy ingesting extensively heated egg. *J Allergy Clin Immunol* 2008;122:977–83. 3. Urisu A, Ando H, Morita Y, Wada E, Yasaki T, Yamada K, Komada K, Torii S, Goto M, Wakamatsu T. Allergenic activity of heated and ovomucoid-depleted egg white. *J Allergy Clin Immunol* 1997;100:171–6. 4. Bernhisel-Broadbent J, Dintzis HM, Dintzis RZ, Sampson HA. Allergenicity and antigenicity of chicken egg ovomucoid (Gal d III) compared with ovalbumin (Gal d I) in children with egg allergy and in mice. *J Allergy Clin Immunol* 1994;93:1047–59. 5. Montesinos E, Martorell A, Félix R, Cerdá JC. Egg white specific IgE levels in serum as clinical reactivity predictors in the course of egg allergy follow up. *Pediatr Allergy Immunol* 2010;21:634–639. 6. Clarke AT, Skypala I, Leech SC, Ewan PW, Dugué P, Brathwaite N, Huber PAJ, Nasser SM. British Society for Allergy and Clinical Immunology guidelines for the management of egg allergy. *Clin Exp Allergy* 2010;40:1116–1129. 7. Frémont S, Kanny G, Nicolas JP, Moneret-Vautrin DA. Prevalence of lysozyme sensitization in an egg-allergic population. *Allergy* 1997;2:224–228. 8. Pérez-Calderón R, Gonzalo-Garijo MA, Lamilla-Yerga A, Mangas-Santos R, Moreno-Gastón I. Recurrent Angioedema Due to Lysozyme Allergy. *J Investig Allergol Clin Immunol* 2007;17(4):264–266. 9. Jarvinen KM, Beyer K, Vila L, Bardina L, Mishoe M, Sampson HA. Specificity of IgE antibodies to sequential epitopes of hen's egg ovomucoid as a marker for persistence of egg allergy. *Allergy* 2007;62:758–65. 10. Benhamou AH, Caubet JC, Eigenmann PA, Nowak-Wegrzyn, Marcos CP, Reche M and Urisu A. State of the art and new horizons in the diagnosis and management of egg allergy. *Allergy* 2010; 65; 283–289. 11. Mine Y, Zhang JW. Comparative Study on Antigenicity and Allergenicity of native and denatured egg white proteins. *J Agric Food Chem* 2002;50:2679–2683. 12. Everberg H, Brostedt P, Oman H, Bohman S, Movérare R. Affinity purification of egg-white allergens for improved component-resolved diagnostics. *Int Arch Allergy Immunol* 2011;154:33–41. 13. Quirce S, Marañón F, Umpiérrez A, de las Heras M, Fernández-Caldas E, Sastre J. Chicken serum albumin (Gal d 5) is a partially heat-labile inhalant and food allergen implicated in the bird-egg syndrome. *Allergy*. 2001;56:754–62.

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