

John's mother just found out that her egg and milk allergic son can tolerate these foods in baked form



FOOD ALLERGY

 **ImmunoCAP**[®]
Is it allergy?

Tolerance to egg/milk and underlying proteins

Discover the connection

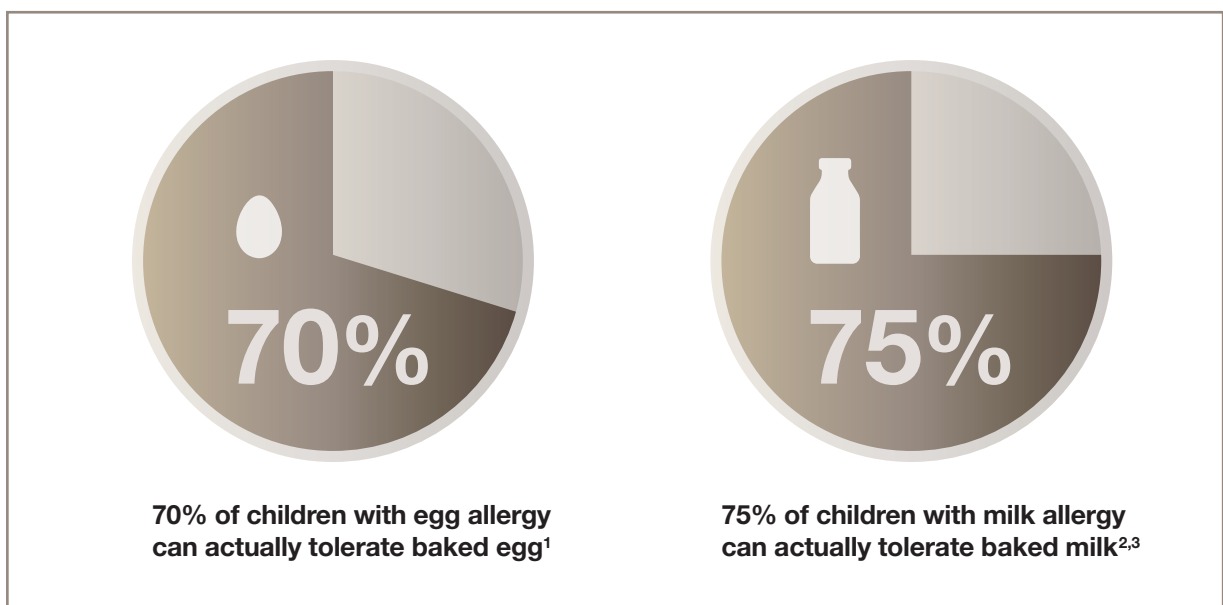
ImmunoCAP[®] Complete Allergens and Allergen Components help you diagnose allergy and prepare a management plan for improved patient well-being

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Discover the connection

Between proteins and likelihood of tolerance

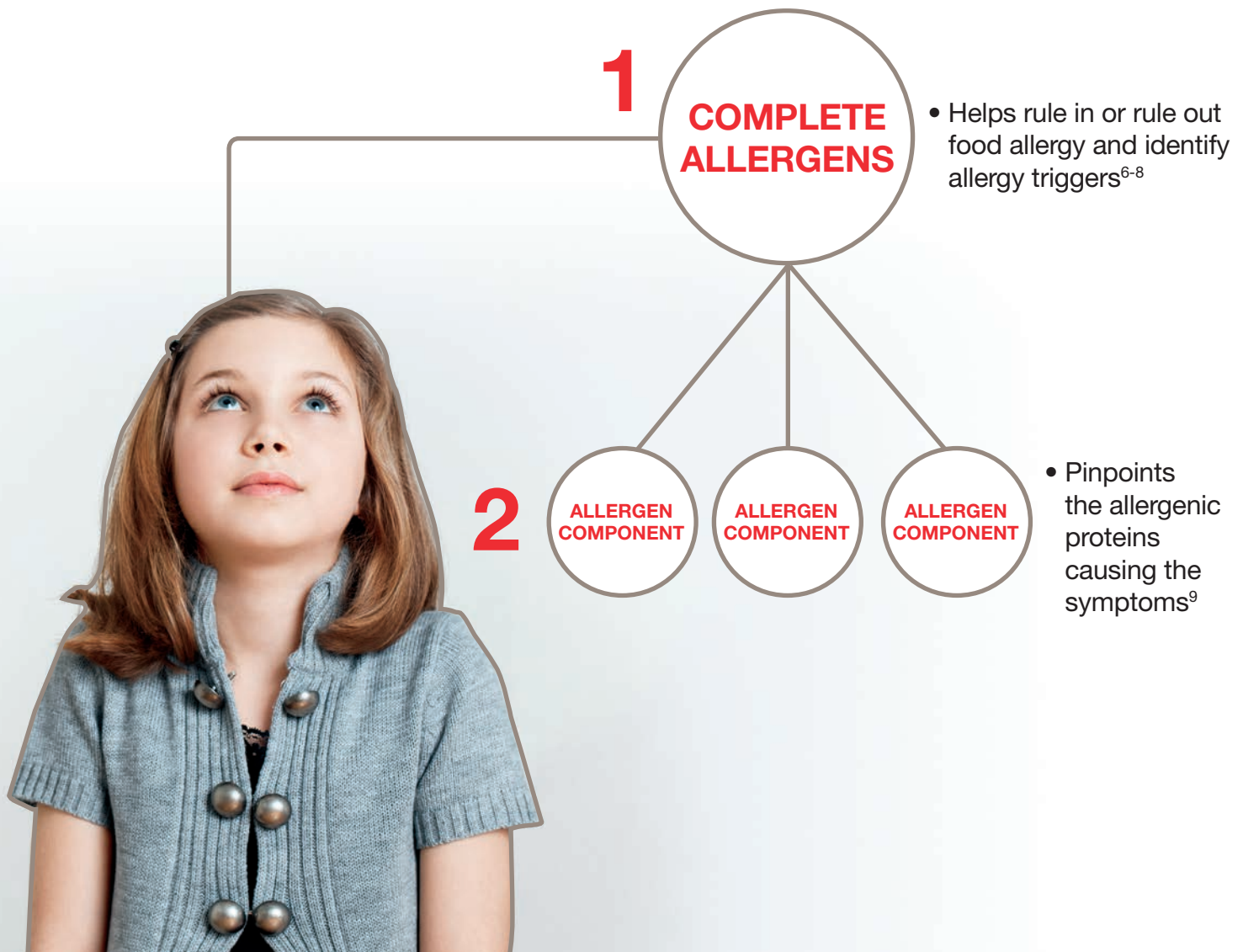
Can your egg or milk allergic patient tolerate these foods in baked form?



ImmunoCAP Allergen Components testing can help you find out

- ImmunoCAP Allergen Component testing helps you assess the likelihood of tolerance to baked egg or milk²⁻⁵

ImmunoCAP provides a two-step approach to support a comprehensive allergy diagnosis



Can John tolerate baked egg?

Can he tolerate baked egg in foods, such as muffins or birthday cakes?

- 70% of children with egg allergy can actually tolerate baked eggs¹

ImmunoCAP Allergen Components can help you find out

- ImmunoCAP Allergen Components help you assess the likelihood for tolerance to baked egg⁴



Recommended test profile

ImmunoCAP Complete Allergens	Egg white			
ImmunoCAP Allergen Components	Gal d 1 Ovomucoid	Gal d 2 Ovalbumin	Gal d 3 Conalbumin	Gal d 4 Lysozyme
	<ul style="list-style-type: none"> • Heat-stable • Risk for reaction to all forms of egg • High levels indicate persistent allergy 	<ul style="list-style-type: none"> • Heat-labile • Risk for clinical reaction to raw or slightly heated egg 	<ul style="list-style-type: none"> • Heat-labile • Risk for reaction to raw or slightly heated egg 	<ul style="list-style-type: none"> • Risk for reaction to raw or slightly heated egg • Lysozyme (E1105) is used as an additive in certain pharmaceutical products and foods

Gal d 1-IgE antibodies (Ovomucoid):

- High levels indicate allergy to all forms of egg^{1,10}
- Low or undetectable levels indicate tolerance to extensively heated egg^{1,10,11}
- Tolerance development can be detected by following the Gal d 1-IgE levels over time¹²

The connection: John's case

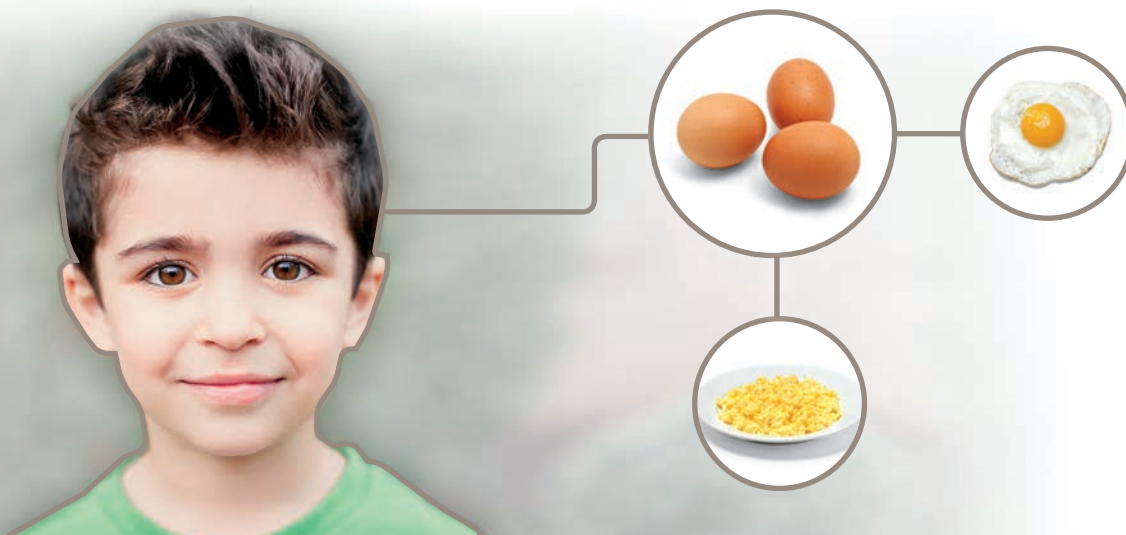
John, 4 years old – case history:

- Suffering from eczema since he was an infant
- When his parents introduced eggs into his diet they noticed that the eczema became worse and he experienced stomach ache
- Doctor suspects egg allergy and recommends eliminating eggs from his diet
- Doctor ordered an ImmunoCAP test to help rule in or out allergy

ImmunoCAP Complete Allergen results:

Egg white 3.7 kU_A/l

The test result supports the suspicion of egg allergy. To evaluate if John can tolerate eggs in cooked or baked form, his doctor orders ImmunoCAP Allergen Component tests.



ImmunoCAP Allergen Component results (kU_A/l):

Gal d 1 Ovomucoid	Gal d 2 Ovalbumin	Gal d 3 Conalbumin	Gal d 4 Lysozyme
<0.10	3.5	0.15	<0.10

Interpretation:

- John's test results show that he is sensitized to ovalbumin (Gal d 2), which is associated with clinical reactions to raw egg
- The absence of sIgE to ovomucoid (Gal d 1) suggests that John has a good chance of tolerating foods with baked eggs

Doctor's recommendations:

- Doctor suggests to do a provocation test in his office with a muffin containing baked egg
- John passes the challenge without any symptoms
- Parents are advised to give him only extensively heated eggs, such as cakes or baked foods

John tolerates foods made with baked eggs

Can Alice tolerate baked milk?

Can she tolerate baked milk in foods, such as muffins or cookies?

- 75% of children with milk allergy can actually tolerate baked milk^{2,3}

ImmunoCAP Allergen Components can help you find out

- ImmunoCAP Allergen Components help you assess the likelihood for tolerance to baked milk^{2,3,5}



Recommended test profile

ImmunoCAP Complete Allergens	Cow's milk			
ImmunoCAP Allergen Components	Bos d 4 α -lactalbumin	Bos d 5 β -lactoglobulin	Bos d 6 BSA*	Bos d 8 Casein
	<ul style="list-style-type: none"> • Heat-labile • Risk for reactions to fresh milk • IgE levels fall as tolerance develops 	<ul style="list-style-type: none"> • Heat-labile • Risk for reactions to fresh milk • IgE levels fall as tolerance develops 	<ul style="list-style-type: none"> • Heat-labile • Risk for reactions to fresh milk • The main allergen in beef 	<ul style="list-style-type: none"> • Heat-stable • Risk for reactions to all forms of milk • High levels are connected with persistent milk allergy • IgE levels fall as tolerance develops

* Bovine Serum Albumin.

Bos d 8-IgE antibodies (Casein):

- High levels indicate allergy to all forms of milk^{3,5}
- Low or undetectable levels indicate tolerance to baked milk^{3,5}
- Tolerance development can be detected by following the Bos d 8-IgE levels over time¹³

The connection: Alice's case

Alice, 2 years old – case study:

- Alice has suffered from eczema since early infancy
- For the last couple of months, she has been experiencing gastrointestinal distress, vomiting, and hives
- Doctor suspects egg or milk allergy, and orders ImmunoCAP Complete Allergen tests to help rule in or rule out these allergies

ImmunoCAP Complete Allergen results:

Cow's milk: 12.3 kU_A/l

Egg white: <0.1 kU_A/l

The test results show that Alice is allergic to milk, but not to egg. To evaluate if Alice can tolerate baked milk, her doctor orders ImmunoCAP Allergen Component tests.



ImmunoCAP Allergen Component results (kU_A/l):

Bos d 4 α-lactalbumin	Bos d 5 β-lactoglobulin	Bos d 6 BSA	Bos d 8 Casein
2.2	<0.1	<0.1	8.5

Interpretation:

- Her test results show IgE sensitization to Casein (Bos d 8), which indicates that she may react to any form of milk—both fresh and baked in foods
- Alice is also sensitized to Bos d 4 which further confirms the diagnosis of milk allergy

Doctor's recommendations:

- Her parents are advised not to give Alice any form of cow's milk—fresh or baked
- He also suggests to follow her milk and casein IgE antibody levels every six months to help understand when she may tolerate cooked milk or has outgrown her milk allergy on the whole

Alice should avoid milk and foods prepared with milk

You've discovered the connection

Now see the benefits of

ImmunoCAP allergy blood testing

ImmunoCAP Allergen Components help pinpoint proteins causing the symptoms

- Can help assess risk for systematic reactions and explain symptoms due to cross-reactivity⁹
- Assess tolerance to baked foods²⁻⁵
- Can help you decrease the need for provocation testing and improve recommendations for allergen avoidance⁹

References: 1. Lemon-Mule H, et al. *J Allergy Clin Immunol.* 2008;122:977-83 e1. 2. Nowak-Wegrzyn A, et al. *J Allergy Clin Immunol.* 2008;122:342-7, 7 e1-2. 3. Caubet JC, et al. *J Allergy Clin Immunol.* 2013;131:222-4 e1-4. 4. Jarvinen KM, et al. *Allergy.* 2007;62:758-65. 5. Ford LS, et al. *J Allergy Clin Immunol.* 2013;131:180-6 e1-3. 6. Duran-Tauleria E, et al. *Allergy.* 2004;59 Suppl 78:35-41. 7. Niggemann B, et al. *Pediatr Allergy Immunol.* 2008;19:325-31. 8. Eigenmann PA, et al. *Pediatr Allergy Immunol.* 2013;24:195-209. 9. Canonica GW, et al. *World Allergy Organ J.* 2013;6:17. 10. Ando H, et al. *J Allergy Clin Immunol.* 2008;122:583-8. 11. Haneda Y, et al. *J Allergy Clin Immunol.* 2012;129:1681-2. 12. Benhamou AH, et al. *Allergy.* 2010;65:283-9. 13. James JM, et al. *J Pediatr.* 1992;121:371-7.

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