



MILK

Molecular Allergology



Precise results for safe and accurate decisions

How to improve characterization and manage milk allergic patients

Thermo
SCIENTIFIC

Take the diagnosis and management of milk-allergic patients to a whole new level

Improved risk assessment with allergen components

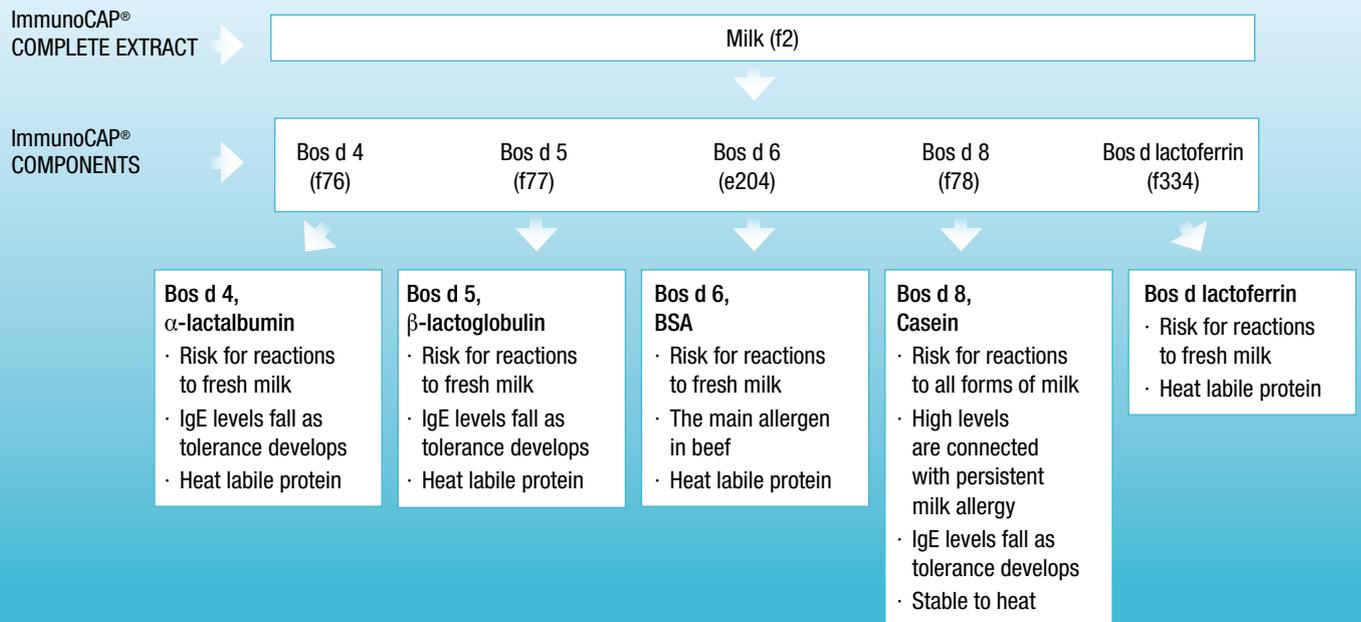
- The levels of Bos d 8 IgE antibodies reflect the severity of the milk allergy;¹⁻⁴
 - high levels indicate allergy to both fresh and baked milk.
 - low or undetectable levels indicate tolerance to baked milk products e.g. cakes and cookies.
- Patients sensitized to Bos d 8 are also at risk of severe reactions upon intake of non-dairy products in which casein may be used as an additive (e.g. in sausages, chocolate and potato chips).⁵⁻⁷

Better characterization and management of milk allergic patients

- Patients sensitized to Bos d 4, Bos d 5, Bos d 6 and/or Bos d lactoferrin but with low levels of IgE to Bos d 8 may tolerate baked milk products.⁸⁻¹⁰
- Children often outgrow their milk allergy – early signs of tolerance development can be detected by following the Bos d 8 IgE levels over time.¹¹⁻¹⁴
- As tolerance develops, decreasing levels of IgE to Bos d 4, Bos d 5 and Bos d 6 are also seen.¹²
- By quantifying the IgE levels to Bos d 8 the clinicians may be helped in the decision when to perform a challenge test.^{11-12,15}
- Milk allergic patients sensitized to Bos d 6 may also have concomitant beef allergy.¹⁶⁻¹⁷

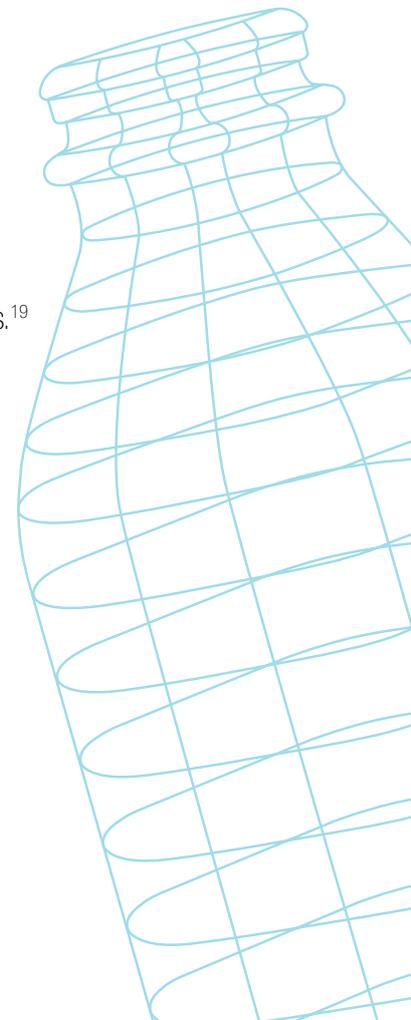


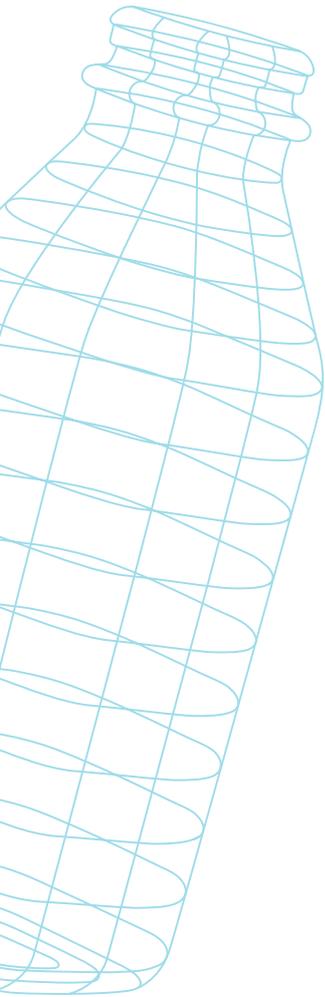
Recommended test profile



Did you know that?

- The prevalence of milk allergy in young children is approximately 2%.¹⁸
- Most milk allergic patients are sensitized to several milk components.
- 80% of the milk protein content is casein; the remaining 20% are whey proteins.¹⁹
- Bos d 8 (casein) is a major milk allergen which is stable to heat.^{19–20}
- Milk whey contains proteins such as beta-lactoglobulin, alpha-lactalbumin, serum albumin and transferrin.¹⁹
- Whey proteins are rather heat labile and therefore destroyed by cooking.¹⁹
- Bos d 6 (serum albumin) is a main allergen in beef.^{16–17}
- Bos d 6 is a risk marker for systemic reactions e.g. in artificial insemination and cell therapy treatment or other procedures involving infusion of albumin-containing medium.^{21–23}





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. Docena, G. H., R. Fernandez, et al. (1996). "Identification of casein as the major allergenic and antigenic protein of cow's milk." *Allergy* 51(6): 412–416. 2. Shek, L. P., L. Bardina, et al. (2005). "Humoral and cellular responses to cow milk proteins in patients with milk-induced IgE-mediated and non-IgE-mediated disorders." *Allergy* 60(7): 912–919. 3. Lam, H. Y., E. van Hoffen, et al. (2008). "Cow's milk allergy in adults is rare but severe: both casein and whey proteins are involved." *Clin Exp Allergy* 38(6): 995–1002. 4. Nowak-Węgrzyn, A., K. A. Bloom, et al. (2008). "Tolerance to extensively heated milk in children with cow's milk allergy". *J Allergy Clin Immunol* 122(2): 342–347, 347 e341–342. 5. Gern, J. E., E. Yang, et al. (1991). "Allergic reactions to milk-contaminated "nondairy" products." *N Engl J Med* 324(14): 976–979. 6. Yman et al. (2005) "Allergic reactions to casein/doses" http://www.slv.se/upload/dokument/risker/allergi/Allergic_reactions_milk.pdf 7. Boyano-Martinez, T., C. Garcia-Ara, et al. (2009). "Accidental allergic reactions in children allergic to cow's milk proteins." *J Allergy Clin Immunol* 123(4): 883–888. 8. Garcia-Ara, M. C., M. T. Boyano-Martinez, et al. (2004). "Cow's milk-specific immunoglobulin E levels as predictors of clinical reactivity in the follow-up of the cow's milk allergy infants." *Clin Exp Allergy* 34(6): 866–870. 9. Hochwallner, H., U. Schulmeister, et al. (2010). "Visualization of clustered IgE epitopes on alpha-lactalbumin." *J Allergy Clin Immunol* 125(6): 1279–1285. 10. Ford L.S., K.A. Bloom et al. (2011). "Basophil reactivity, IgE and IgG4 among subjects with various levels of milk tolerance". *J Allergy Clin Immunol* 127(2): Abstract 98, AB29. 11. James, J. M. and H. A. Sampson (1992). "Immunologic changes associated with the development of tolerance in children with cow milk allergy." *J Pediatr* 121(3): 371–377. 12. Sicherer, S. H. and H. A. Sampson (1999). "Cow's milk protein-specific IgE concentrations in two age groups of milk-allergic children and in children achieving clinical tolerance." *Clin Exp Allergy* 29(4): 507–512. 13. Fiocchi, A., H. J. Schünemann, et al. (2010). "Diagnosis and Rationale for Action against Cow's Milk Allergy (DRACMA): A summary report." *J Allergy Clin Immunol* 126(6): 1119–1128.e1112. 14. Ito K., M. Futamura et al. (2012). "The usefulness of casein-specific IgE and IgG4 antibodies in cow's milk allergic children". *Clin Mol Allergy* 10(1): article no 1. 15. Shek, L. P., L. Soderstrom, et al. (2004). "Determination of food specific IgE levels over time can predict the development of tolerance in cow's milk and hen's egg allergy." *J Allergy Clin Immunol* 114(2): 387–391. 16. Werfel, S. J., S. K. Cooke, et al. (1997). "Clinical reactivity to beef in children allergic to cow's milk." *J Allergy Clin Immunol* 99(3): 293–300. 17. Martelli A., A. DeChiara et al. (2002). "Beef allergy in children with cow's milk allergy; cow's milk allergy in children with beef allergy" *Ann Allergy Asthma Immunol* 89(6) Suppl1: 38–43. 18. Rona, R. J., T. Keil, et al. (2007). "The prevalence of food allergy: a meta-analysis." *J Allergy Clin Immunol* 120(3): 638–646. 19. Wal J-M. (2004). "Bovine milk allergenicity". *Ann Allergy Asthma Immunol* 93(Suppl 3): S2–S11. 20. Nowak-Węgrzyn, A. and A. Fiocchi (2009). "Rare, medium, or well done? The effect of heating and food matrix on food protein allergenicity." *Curr Opin Allergy Clin Immunol* 9(3): 234–237. 21. Wuthrich, B., A. Stern, et al. (1995). "Severe anaphylactic reaction to bovine serum albumin at the first attempt of artificial insemination." *Allergy* 50(2): 179–183. 22. Mackensen A., R. Dräger, et al. (2000). "Presence of IgE antibodies to bovine serum albumin in a patient developing anaphylaxis after vaccination with human peptide-pulsed dendritic cells". *Cancer Immunol Immunotherapy* 49(3): 152–156. 23. Pagan, J. A., I. Postigo, et al. (2008). "Bovine serum albumin contained in culture medium used in artificial insemination is an important anaphylaxis risk factor." *Fertility and sterility* 90(5): 2017–2019.

thermoscientific.com/phadia

© 2012 Thermo Fisher Scientific Inc. All rights reserved. All trademarks are the property of Thermo Fisher Scientific Inc. and its subsidiaries. Manufacturer; Phadia AB, Uppsala Sweden.

Head office Sweden +46 18 16 50 00
Austria +43 1 270 20 20
Belgium +32 2 749 55 15
Brazil +55 11 3345 5050
China +86 25 8960 5700
Czech Republic +420 220 518 743
Denmark +45 70 23 33 06
Finland +358 9 3291 0110
France +33 1 61 37 34 30

Germany +49 761 47 8050
India +91 11 4610 7555/56
Italy +39 02 64 163 411
Japan +81 3 5365 8332
Korea +82 2 2027 5400
Norway +47 21 67 32 80
Portugal +351 21 423 5350
South Africa +27 11 792 6790
Spain +34 935 765 800

Sweden +46 18 16 60 60
Switzerland +41 43 343 4050
Taiwan +886 2 2516 0925
The Netherlands +31 30 602 37 00
United Kingdom/Ireland +44 1 908 769 110
USA +1 800 346 4364
Other countries +46 18 16 50 00