






Tree nut and peanut allergies

ImmunoCAP™ Specific IgE tests

50% of children that are allergic to one tree nut are allergic to another tree nut.¹

ImmunoCAP™ Allergen Components		Profilin*	PR-10	LTP	Storage proteins
ImmunoCAP™ Whole Allergens		Asymptomatic ² (usually)	Local reactions ² (mainly)	Local and systemic reactions ²	Systemic reactions ²
Peanut (f13)		Profilin*	Ara h 8 (f352)	Ara h 9 (f427)	Ara h 1 (f422) Ara h 2 (f423) Ara h 3 (f424) Ara h 6 (f447)
Hazelnut (f17)		Profilin*	Cor a 1 (f428)	Cor a 8 (f425)	Cor a 9 (f440) Cor a 14 (f439)
Walnut** (f256)		Profilin*		Jug r 3 (f442)	Jug r 1 (f441)
Cashew nut*** (f202)		Profilin*			Ana o 2**** Ana o 3 (f443)
Brazil nut (f18)		Profilin*			Ber e 1 (f354)
<p>* Surrogate markers for profilin: Phl p 12, Bet v 2 or Pru p 4. ** Patients sensitised to pecan are very likely to also be sensitised to walnut and vice versa. Jug r 1 and Jug r 3 may therefore be used as a risk marker for both pecan and walnut allergy.³ *** Patients sensitised to pistachio are very likely to also be sensitised to cashew nut and vice versa. Ana o 3 may therefore be used as a risk marker for both pistachio and cashew nut allergy.⁴ **** ImmunoCAP ISAC_{E112} test only</p>		<ul style="list-style-type: none"> • Labile to heat and digestion • Highly cross-reactive with pollen and plant foods • Low risk of reaction 	<ul style="list-style-type: none"> • Labile to heat and digestion • Mainly local reactions • Associated with birch pollen allergy (cross-reactivity) 	<ul style="list-style-type: none"> • Stable to heat and digestion • Associated with local and systemic reactions • Associated with allergy to fruits (cross-reactivity) 	<ul style="list-style-type: none"> • Stable to heat and digestion • Associated with systemic reactions • Indicates primary sensitisation
		Cross-reactivity			Risk

Whole allergens Peanut / hazelnut / walnut / cashew nut / Brazil nut	PR-10 Ara h 8 / Cor a 1	LTP Ara h 9 / Cor a 8 / Jug r 3	Storage proteins Ara h 1/2/3/6 Cor a 9/14/ Jug r 1 Ana o 3 / Ber e 1	Interpreting results*	Management considerations ²⁻²⁶
				High risk of severe, systemic symptoms	<ul style="list-style-type: none"> Avoid the nut that tested positive Patient likely to react to oral food challenge (OFC) Other potential co-sensitisations (e.g. peanuts, tree nuts, and seeds): consider investigations for nut avoidance Consider, in context of other risk factors, prescription of an adrenaline autoinjector
				Risk of local and systemic reactions	<ul style="list-style-type: none"> Avoid the nut that tested positive Consider investigation for other nsLTP sensitisation (e.g. fruits, tree nuts, wheat) Consider, in context of other risk factors, prescription of an adrenaline autoinjector
				Risk of local reactions (usually)	<ul style="list-style-type: none"> If monosensitised, this is likely a cross-reactivity to PR-10-containing pollen and plant foods OFC with a specialist may be recommended
				If all components of the algorithm are negative and an extract is positive, the patient could be sensitised to an untested allergen such as profilins, cross-reactive carbohydrate determinants (CCD) or other allergens. ¹⁴ If all tests (extracts and allergen components) are negative, a tree nut allergy is unlikely – consider alternative investigations. If clinical suspicion persists consider an OFC.	

* Results should always be interpreted in the context of the clinical history.

References: 1. McWilliam V, et al. J Allergy Clin Immunol 2019;143(2):644. 2. Dramburg S, et al. Pediatr Allergy Immunol. 2023;34 Suppl 28:e13854. 3. Teuber SS, et al. J Allergy Clin Immunol. 2000;105:S140. 4. Savvatanos S, et al. Allergy Clin Immunol. 2015;136:192-4. 5. Geiselhart S, et al. Mol Immunology 2018 Aug;100:71-81. 6. Pastorello E, et al. J Allergy Clin Immunol 2004; 114(4): 908-14. 7. Rosenfeld L, et al. Int Arch Allergy Immunol. 2012; 157:238-245. 8. Masthoff L, et al. Allergy 2013; 68: 983- 993. 9. Egger M, et al. Curr Allergy Asthma Rep 2010; 10:326-335. 10. www.allergen.org. 11. Davoren M, et al. Arch Dis Child 2005; 90(10): 1084 -5. 12. Robotham J, et al. J Allergy Clin Immunol. 2005; 115(6): 1284-90. 13. Clark A, et al. Allergy 2007; 62(8): 913-6. 14. Borja J, et al. Allergy 54, 1999 / 1004-1013. 15. Masthoff L, et al. J Allergy Clin Immunol. 2013(In press). 16. Flinterman AE, et al. Allergy Clin Immunol. 2008 Jun; 8(3): 261-5. 17. De Knop KJ, et al. Pediatr Allergy Immunol. 2011 Feb; 22(1Pt 2): e139- 49. 18. Hansen KS, et al. Allergy. 2003 Feb; 58(2): 132-8. 19. Pastorello EA, et al. J Allergy Clin Immunol. 2002; 109(3): 563-70. 20. Schocker F, et al. J Allergy Clin Immunol. 2004;113:141-7. 21. Hansen KS, et al. J Allergy Clin Immunol. 2009 Apr 1; 123(5): 1134-41. 22. Garino C, et al. Mol. Nutr. Food Res. 2010; 45: 1257-1265. 23. Bradshaw N. A Clinical Reference Guide to Molecular Allergy. Go Molecular! Molecular Allergy –The Basics, 2014. 24. Katelaris CH, et al. Allergy Clin Immunol 2010, 10:246-251. 25. Sastre J, et al. Clin Exp Allergy 2010, 40:1442-1460. 26. Nucera E, et al. Postepy Dermatol Alergol. 2015 Aug; 32(4): 255-261. **Official product names:** ImmunoCAP Allergen f17, Hazelnut; ImmunoCAP Allergen f428, Allergen component rCor a 1 PR-10 Hazelnut; ImmunoCAP Allergen f425, Allergen component rCor a 8 Hazelnut; ImmunoCAP Allergen f440, Allergen component rCor a 9 Hazelnut; ImmunoCAP Allergen f439, Allergen component rCor a 14 Hazelnut; ImmunoCAP Allergen f256, Walnut; ImmunoCAP Allergen f441, Allergen component rJug r 1 Walnut; ImmunoCAP Allergen f442, Allergen component rJug r 3 LTP, Walnut; ImmunoCAP Allergen f18, Brazil nut; ImmunoCAP Allergen f354, Allergen component rBer e 1 Brazil nut; ImmunoCAP Allergen f202, Cashew nut; ImmunoCAP Allergen f443, Allergen component rAna o 3, Cashew nut; ImmunoCAP Allergen f13, Peanut; ImmunoCAP Allergen f422, Allergen component rAra h 1 Peanut; ImmunoCAP Allergen f423, Allergen component rAra h 2 Peanut; ImmunoCAP Allergen f424, Allergen component rAra h 3 Peanut; ImmunoCAP Allergen f447, Allergen component rAra h 6 Peanut; ImmunoCAP Allergen f352, Allergen component rAra h 8 PR-10, Peanut; ImmunoCAP Allergen f427, Allergen component rAra h 9 L TP, Peanut;

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