

Frances is allergic to house dust mites. Could AIT help her?



House dust mites



HOUSE DUST MITES



Allergy to house dust mites and successful AIT

Discover the connection

ImmunoCAP® Allergen Components help you identify appropriate allergens for improved AIT outcomes

The key to successful AIT in house dust mite allergy

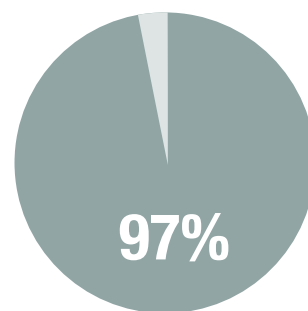
Identification of the relevant allergens

The most specific proteins are Der p 1 and Der p 2^{1,2}

Cross-reaction is frequent

- Intra-species (Der p 1/Der p 2 and Der f 1/Der f 2)²
- Inter-species (Der p 1/Der f 1 and Der p 2/Der f 2)²
- Between different extracts (e.g. Der p 10/tropomyosin)²

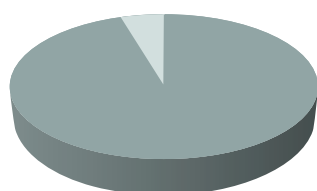
▶ **ImmunoCAP Allergen Components help you differentiate between specific and cross-reactive sensitization.**



■ Diagnosed by testing for Der p 1 and Der p 2

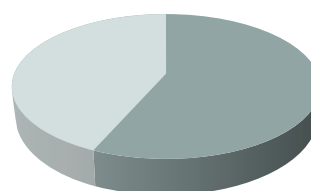
Differentiation between Der p 1 and Der p 2 sensitization helps choose optimal AIT

At least 2/3 of patients allergic to mites are sensitized to Der p 2, but: several extract-based immunotherapeutics contain variable amounts of Der p 2.³⁻⁸



Whole mite culture³

■ Der p 1
■ Der p 2



Purified mite bodies^{*,3}

■ Der p 1
■ Der p 2

- Der p 2 sensitized patients may benefit from immunotherapy based on purified mite body cultures.*

▶ **ImmunoCAP Allergen Components can help you differentiate between sensitization to Der p 1 and Der p 2.**

*Purified means that the mites have been washed to clean out the ambient feces that includes high amounts of Der p 1.

Suggested test profile

ImmunoCAP Complete Allergens

Dermatophagoides pteronyssinus (d1)
and *Dermatophagoides farinae* (d2)

ImmunoCAP Allergen Components

Der p 1 (d202)/Der p 2 (d203)

Der p 10 (d205)

Clinical implication

- Specific markers for HDM allergy.¹
- Patient may benefit from AIT.
- Differentiation between Der p 1 and Der p2 sensitization helps choose appropriate AIT.
- High cross-reactivity between Der p 1 and Der f 1 resp. Der p 2 and Der f 2 from *D. Farinae*.²

- Test helps evaluate cross-reactivity between house dust mites, crustaceans, insects and molluscs.
- Mite tropomyosins such as Der p 10 and Der f 10 are widely cross-reactive among invertebrates.²
- If Der p 10 sensitization is dominant, a food allergy can be suspected and patients should be tested for other relevant food components.



DER P 1 OR
DER P 2

OPTIMIZED
AIT

IMPROVED
PATIENT
WELL-BEING

The connection: Clinical history plus ImmunoCAP

Frances, 24 years old – case history:

- Frances has experienced episodes of rhinoconjunctivitis during spring and summer season for 4 years.

Current situation:

- During the last year the symptoms have become worse and occur almost the whole year.



Frances's doctor orders ImmunoCAP Allergen Component tests to get a better understanding of her allergy triggers and to identify the allergens.

The patient described here is a fictitious example.

ImmunoCAP Complete Allergens test results

Allergen	slgE (kU _A /l)
Timothy	18
Birch	14
Olive	24
Plane tree	14
Mugwort	11
Ragweed	15
<i>Parietaria</i>	9
Mite	34
Cat	0
Dog	0
<i>Alternaria</i>	0

Test results show sensitization to several allergens.

ImmunoCAP Complete Allergens test results

Allergen	Component	slgE (kU _A /l)
Timothy	Phl p 1	0
	Phl p 5	0
	Phl p 12	12
	Phl p 7	0
	MUXF3	7
Birch	Bet v 1	0
Olive	Ole e 1	16
Plane tree	Pla a 1	0
Mugwort	Art v 1, Art v 3	0
Ragweed	Amb a 1	0
<i>Parietaria</i>	Par j 2	0
Mite	Der p 1	24
	Der p 2	0
Tropomyosin	Der p 10	4

The **specific** allergen components show sensitization to olive, Der p 1 and Der p 10.

The other positive extract-based test results show Phl p 12 (profilin) and MUXF3 (CCD) **cross-reactivity**.*

* CCD and profilin are present in all pollen species and these components are almost identical throughout various species.

Interpretation and management

- These test results shows that Frances is sensitized to several allergens.
- Doctor recommends measures to reduce HDM exposure and avoidance of shrimps or other crustacean.
- At a follow-up visit 6 months later, Frances tells the doctor that her symptoms have not improved sufficiently.
- AIT is initiated for house dust mites and olive.
- Follow-up evaluation shows symptom improvement and decreasing IgE levels to Ole e 1 and Der p 1.

You've discovered the connection Now see the benefits of ImmunoCAP

ImmunoCAP can help you improve AIT outcome

- **AIT success** is more likely if sensitization to specific components is identified.⁹⁻¹¹
- **Poly-sensitization makes differentiation** between specific and cross-reactive components a challenge.^{9,12,13}
- **ImmunoCAP Complete Allergens** identify the allergen sources the patient is sensitized to, i.e. help rule in/out allergy.¹⁴⁻¹⁶
- **ImmunoCAP Allergen Components** differentiate between specific and cross-reactive sensitization.⁹⁻¹¹



Incorporating **ImmunoCAP** in your diagnostic process can help improve patient management.

References: 1. Thomas WR. *Human Vaccines & Immunotherapeutics* 2012;8(10):1469-78. 2. Bessot JC and Pauli G. *Eur Ann Allergy Clin Immunol.* 2011;43:141-56. 3. Weber B, et al. *Allergy.* 1998;53(Suppl 43):25. 4. Zertifikat NIBSC, 1st International Standard For House Dust Mite Dermatophagoides Pteronyssinus (1984). 5. Poster zu: Frew A, et al. *Allergy Clin Immunol Int.* 2005;(Suppl 1):527. 6. Weber B, et al. *Allergologie.* 1998;21(3):116-24. 7. Brunetto R, et al. *Allergy.* 2010;65:184-90. 8. Cassat A, et al. *Int Arch Allergy Immunol.* 2013;159:253-62. 9. Canonica GW, et al. *World Allergy Organization Journal* 2013;6(1):17. 10. Asero R. *Eur Ann Allergy Clin Immunol.* 2012;44(5):183-7. 11. Schmid-Grendelmeier P. *Hautarzt* 2010;61(11):946-53. 12. Ciprandi G, et al. *Eur Ann Allergy Clin Immunol.* 2008;40(3):77-83. 13. Petersson CJ, et al. Sensitization profile in undiagnosed children with skin and respiratory allergy-like symptoms in primary care. Abstract presented at WAO, Buenos Aires, Argentina 6-10 December 2009. 14. Duran-Tauleria E, et al. *Allergy.* 2004;59(Suppl 78):35-41. 15. Söderström L, et al. *Allergy.* 2003;58:921-8. 16. Sampson HA. *J Allergy Clin Immunol.* 2001;107:891-6.

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