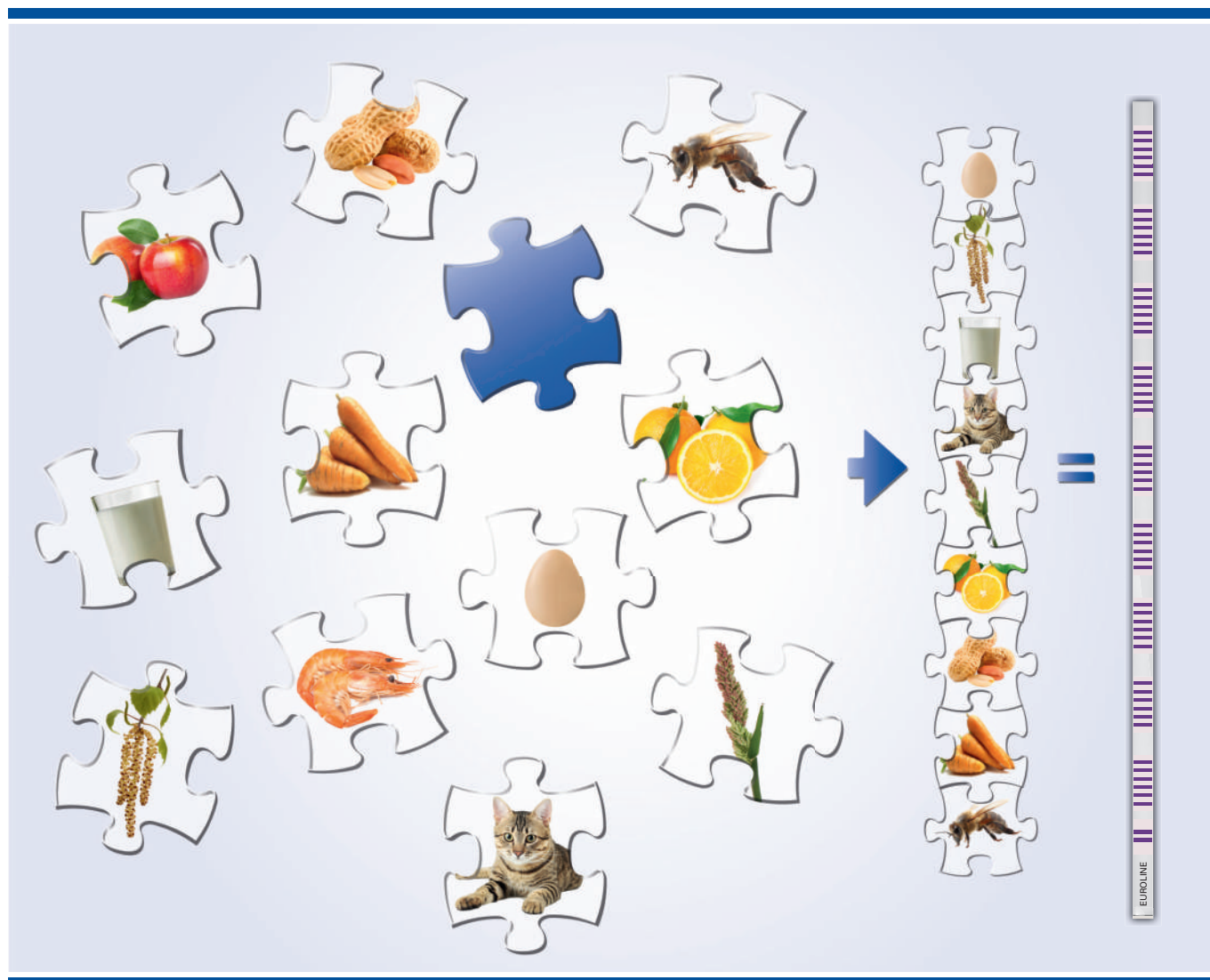




EUROLINE Allergy

Efficient multiparameter profiles



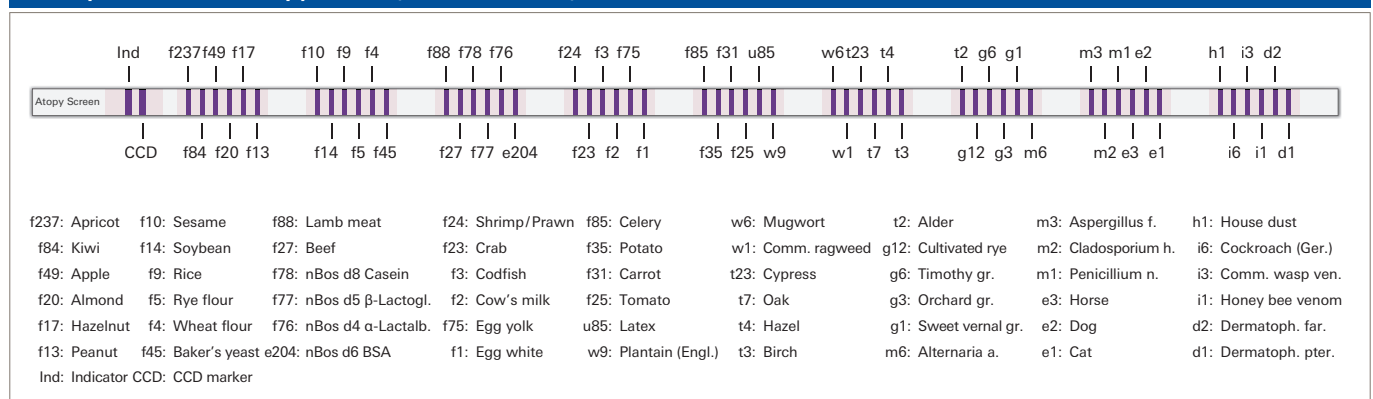
- Comprehensive portfolio of indication- and region-specific profiles
- Flexibility due to manual or automated test processing
- Convenient evaluation due to software-based result interpretation

The EUROLINE – a multiparameter test for the detection of specific IgE

Benefits

- Simultaneous analysis of specific IgE (sIgE) against up to 54 different allergens on one immunoblot strip
- Broad spectrum of indication- and region-specific profiles
- Quick performance – all results available after only 3.5 hours (time-optimised variant)
- Simple performance: manual to fully automated
- Only small serum volumes required – 100 µl per test strip (volume-optimised variant)
- Automated evaluation and archiving using EUROLiScan
- Standardised result output in EAST classes
- Detection of sIgE against CCD with all profiles
- Indicator band for verification of correct test performance

Example: EUROLINE Atopy Screen (DP 3790-1601 E)



CCD band as an additional indicator of the clinical relevance of specific IgE results

The term CCD is the abbreviation of **cross-reactive carbohydrate determinant**. Many allergens are glycoproteins containing oligosaccharide side chains. Some patients develop sIgE antibodies against these carbohydrate structures, which generally have no clinical relevance. Since CCD are present in a variety of allergens of plant origin, the structural similarity can cause strong cross reactions in in vitro diagnostics, with many positive results. This makes identification of the allergens that actually cause the symptoms difficult.

The determination of sIgE antibodies against CCD provides additional information and is a useful interpretation aid in the evaluation of test results.



Possible cross reactivity due to CCD

The measurement is particularly useful and essential

- when clinical symptoms disagree with the specific IgE result obtained,
- when there are many positive sIgE to plant foods and inhalation allergens (multiple sensitisation),
- in the detection of positive sIgE against bee and wasp venom extracts (double positivity).

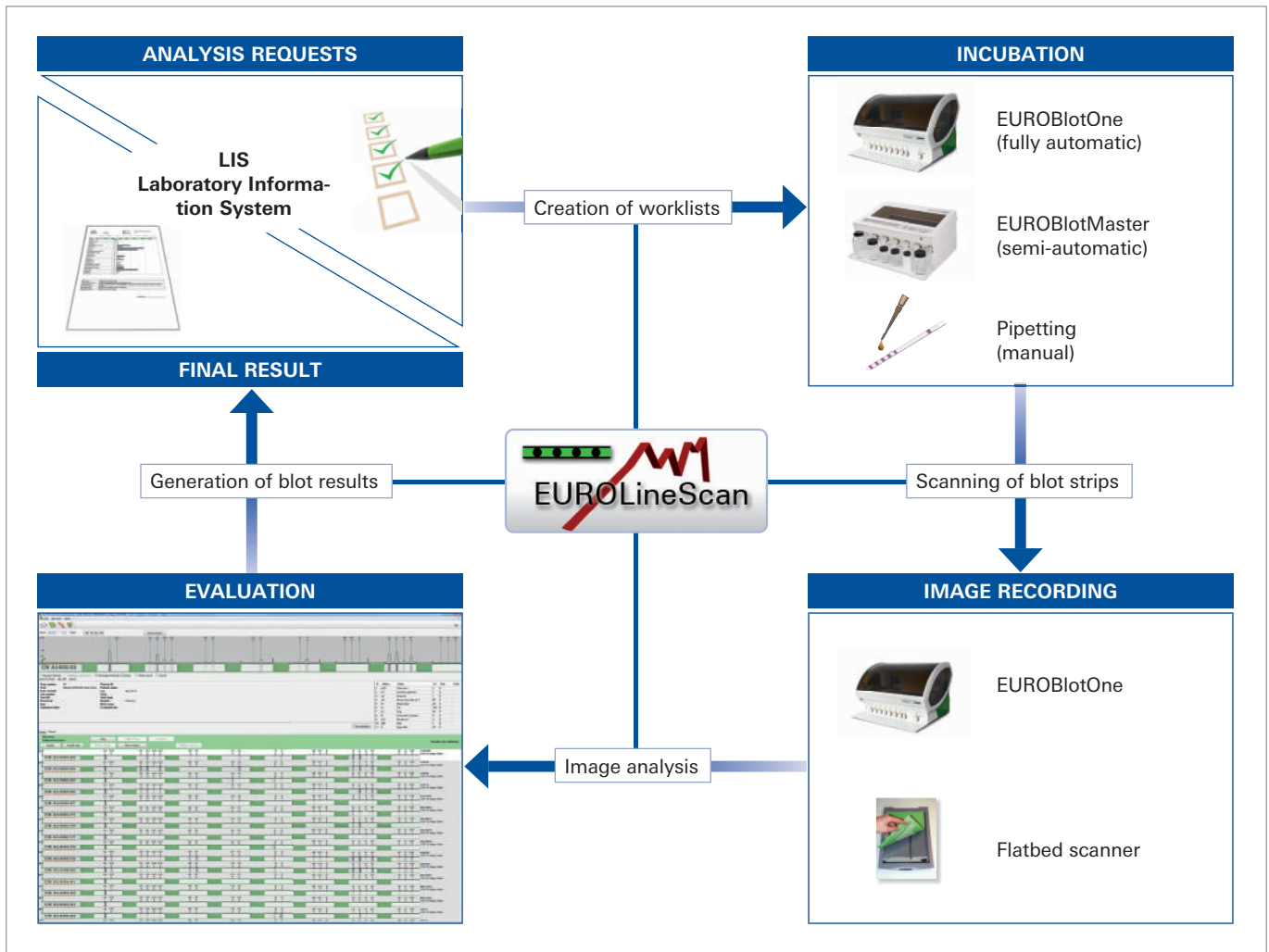
Processing options for the EUROLINE allergy profiles

- Manual with minimal technical equipment – ideal for in-house analysis
- Semi-automated with EUROBlotMaster – ideal for medium to high sample throughput (up to 30 or 44 samples per run)
- Fully automated with EUROBlotOne – ideal for high sample throughput (up to 44 samples per run)

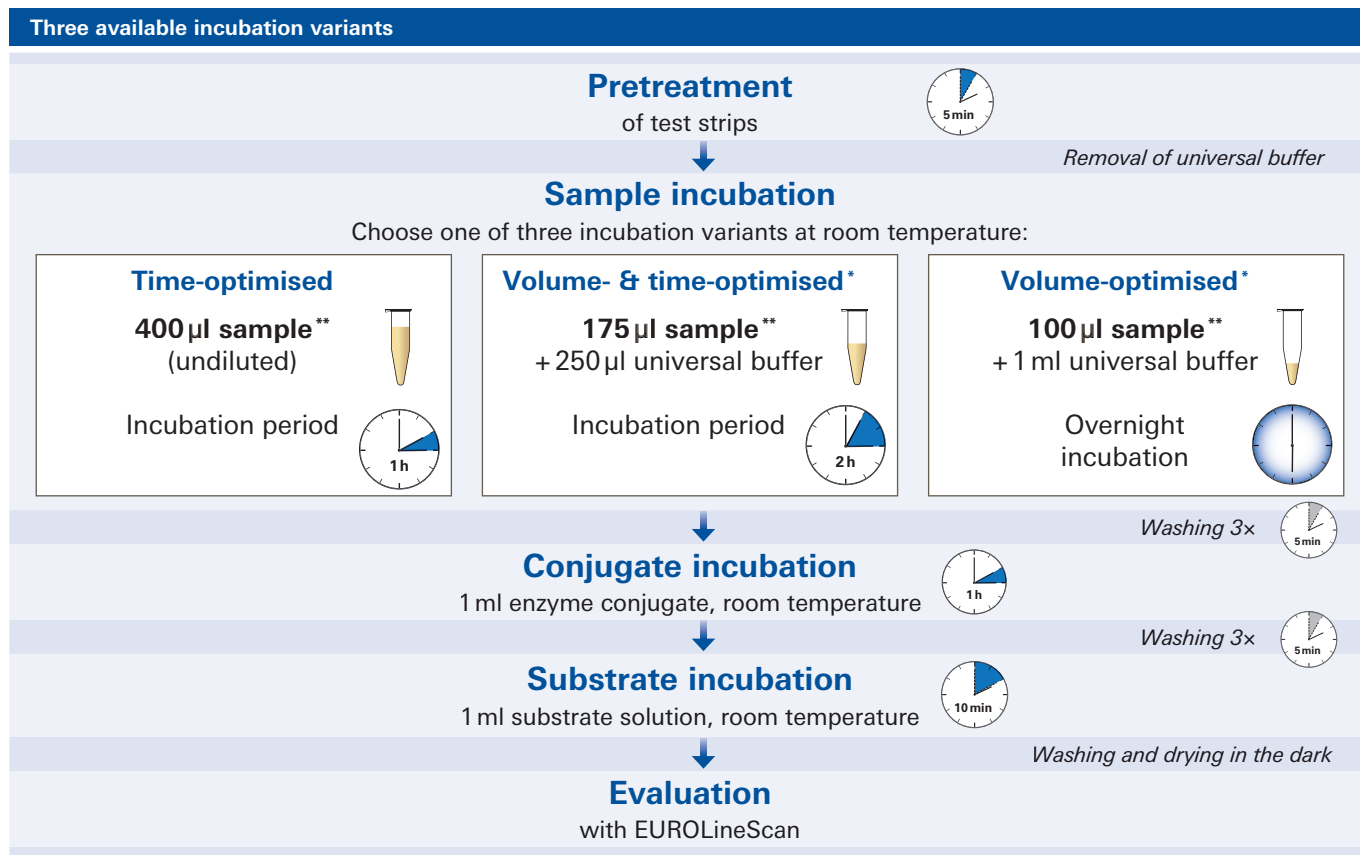
In manual and semi-automated processing the strips are scanned using a flatbed scanner. Then they are automatically evaluated by **EUROLineScan**.

EUROBlotOne is a compact, fully automated system for the standardised processing of EUROLINE test strips – from sample recognition to the final test result. The samples are pipetted by the blot processor and all incubation and washing steps are carried out fully automatically. Subsequently, the image data acquired by the integrated camera are automatically transferred to **EUROLineScan**.

EUROLineScan automatically recognises the position of the test strips, identifies the bands and measures their intensity. The program automatically converts the band intensities into EAST (enzyme allergosorbent test) classes, which correlate with the concentrations given in the well-known RAST (radio allergosorbent test) system. The automatic evaluation of test strips can be monitored and the data modified manually, whereby all changes are automatically documented. The results are electronically archived together with the image data, rendering the storage of EUROLINE test strips unnecessary. A separate result sheet can be produced for each patient. **EUROLineScan** also provides for bidirectional communication with **EUROLabOffice 4.0** (laboratory management software) or a laboratory information software (LIS) for worklist import and results export.



Simple performance of EUROLINE incubation



* Volume differs with automated incubation, ** Serum or plasma

EUROLinScan result printout (example)

Antigen	Concentration	Class	0	1	2	3	4	5	6
Grass mix 2 (gx)	8,97 kU/l	3							
Birch (t3)	5,00 kU/l	3							
Mugwort (w6)	2,56 kU/l	2							
Dermatophagoides pter. (d1)	44,42 kU/l	4							
Dermatophagoides farinae (d2)	60,44 kU/l	5							
Cat (e1)	74,06 kU/l	5							
Dog (e2)	29,98 kU/l	4							
Horse (e3)	< 0,35 kU/l	0							
Cladosporium herbarum (m2)	< 0,35 kU/l	0							
Aspergillus fumigatus (m3)	< 0,35 kU/l	0							
Alternaria alternata (m6)	0,35 kU/l	1							
Egg white (f1)	< 0,35 kU/l	0							
Egg yolk (f75)	< 0,35 kU/l	0							
Cow's milk (f2)	< 0,35 kU/l	0							
Codfish (f3)	>= 100 kU/l	6							
α-Lactalbumin (f76)	< 0,35 kU/l	0							
β-Lactoglobulin (f77)	< 0,35 kU/l	0							
Casein (f78)	< 0,35 kU/l	0							
Bovine serum albumin (e204)	< 0,35 kU/l	0							
Wheat flour (f4)	1,21 kU/l	2							
Rice (f9)	43,11 kU/l	4							
Soybean (f14)	< 0,35 kU/l	0							
Peanut (f13)	2,22 kU/l	2							
Hazelnut (f17)	1,21 kU/l	2							
Carrot (f31)	1,88 kU/l	2							
Potato (f35)	11,95 kU/l	3							
Apple (f49)	12,94 kU/l	3							
CCD marker (CCD)	< 0,35 kU/l	0							

Excellent correlation data

I. Quality assessment data

Between February 2006 and May 2015, 171 sera from quality assessment institutes (INSTAND e.V., Germany; MQ, Switzerland; NEQAS, UK and RfB, Germany) were investigated in 597 analyses using the EUROIMMUN Immunoblot Inhalation profiles (IgE). The agreement of results for the inhalation profiles with the specifications of quality assessment institutes was 96%, with a permissible deviation of ± 1 EAST class.

*The following allergens were tested: mites (d1, d2, d70, d71), pollen (g3, g6, g12, g15, t2, t3, t4, t9, t15, w1, w6, w9), moulds (m2, m3, m6), animals (e1, e2, e3, e4, e5)

Inhalation allergens* (n = 597)								
Immunoblot Inhalation profiles (IgE)	6	0	0	0	0	0	0	0
	5	0	0	0	4	10	50	1
	4	0	0	1	21	104	3	0
	3	0	2	15	100	10	0	0
	2	0	2	99	48	2	0	0
	1	5	31	42	9	0	0	0
	0	19	12	6	1	0	0	0
	EAST class	0	1	2	3	4	5	6
Quality assessment targets								

II. Data from comparison with competitors

Timothy grass (g6; n=94)								
ImmunoCAP	6	0	0	0	0	0	0	0
	5	0	0	0	0	2	13	0
	4	0	0	0	2	6	9	0
	3	0	3	1	6	6	0	0
	2	4	6	4	4	0	0	0
	1	3	2	0	0	0	0	0
	0	23	0	0	0	0	0	0
	EAST class	0	1	2	3	4	5	6
EUROIMMUN immunoblot								

Agreement: 93%**

Dermatophagoides pter. (d1; n=44)								
ImmunoCAP	6	0	0	0	0	0	0	0
	5	0	0	0	0	2	1	0
	4	0	0	0	2	5	9	0
	3	0	3	1	6	2	0	0
	2	4	2	1	0	2	0	0
	1	5	1	1	0	1	0	0
	0	14	0	0	0	0	0	0
	EAST class	0	1	2	3	4	5	6
EUROIMMUN immunoblot								

Agreement: 93%**

Cat (e1; n=70)								
ImmunoCAP	6	0	0	0	0	0	2	3
	5	0	0	0	0	0	6	3
	4	1	0	0	0	0	11	0
	3	0	0	0	2	10	5	0
	2	0	0	4	3	0	0	0
	1	0	1	0	0	0	0	0
	0	17	2	0	0	0	0	0
	EAST class	0	1	2	3	4	5	6
EUROIMMUN immunoblot								

Agreement: 91%**

Birch (t3; n=97)								
ImmunoCAP	6	0	0	0	0	0	0	0
	5	0	0	0	0	2	6	0
	4	0	0	0	2	6	5	0
	3	0	0	0	4	10	1	0
	2	2	2	11	4	1	0	0
	1	4	2	1	0	0	0	0
	0	33	3	0	0	0	0	0
	EAST class	0	1	2	3	4	5	6
EUROIMMUN immunoblot								

Agreement: 96%**

Dermatophagoides farinae (d2; n=45)								
ImmunoCAP	6	0	0	0	0	0	0	0
	5	0	0	0	0	2	3	0
	4	0	0	0	1	3	0	0
	3	1	1	3	3	1	0	0
	2	1	3	0	2	2	0	0
	1	3	2	0	0	0	0	0
	0	12	1	0	0	0	0	0
	EAST class	0	1	2	3	4	5	6
EUROIMMUN immunoblot								

Agreement: 87%**

Horse (e3; n=34)								
ImmunoCAP	6	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0
	4	0	0	0	1	0	0	0
	3	0	1	1	1	3	0	0
	2		0	2	0	0	0	0
	1	2	1	0	0	0	0	0
	0	23	0	0	0	0	0	0
	EAST class	0	1	2	3	4	5	6
EUROIMMUN immunoblot								

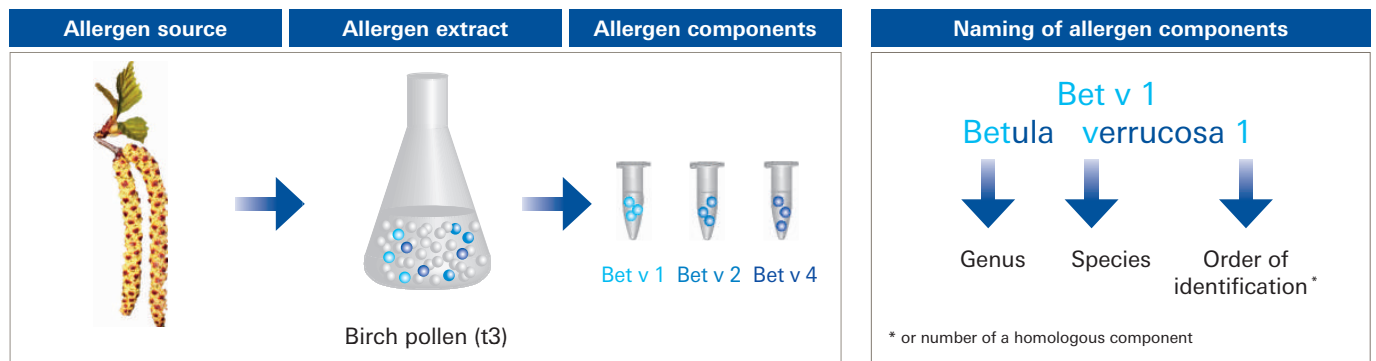
Agreement: 97%**

** permissible deviation ± 1 EAST class

From extracts to proteins – defined partial allergen diagnostics

Up to now, sIgE were detected using allergen extracts, which contain a mixture of allergy-triggering proteins (components) from the corresponding allergen source. However, the composition of these extracts is not standardised – therefore, results from different manufacturers' test systems can hardly be compared.

In contrast, defined partial allergen diagnostics (DPA-Dx), also called molecular allergy diagnostics, utilise precisely defined allergen components, which are either isolated directly from the allergen source or produced recombinantly. This enables high standardisation as well as differential diagnostics.



Advantages of defined partial allergen diagnostics

Identification of cross reactions and multiple sensitisations

The identification of the initial causative allergen is decisive for choosing the optimal therapy, e.g. specific immunotherapy (SIT) against one or several allergen sources, food avoidance recommendations, prescription of an emergency kit.

Risk analysis and management

The information about the protein family an allergen component belongs to, gives evidence of the risk of systemic allergic reactions. Some allergen components are stable to heat and denaturation, e.g. the storage proteins of peanut, and are therefore associated with a high risk of systemic reactions. The PR-10 proteins such as Bet v 1 of birch pollen and its homologues such as Mal d 1 in apple are labile to heat and denaturation, which can reduce the allergenicity of the proteins and the risk of systemic reactions.

Selection of specific immunotherapy

The information whether a patient is sensitised to major or minor allergens is useful for choosing the appropriate therapy and for establishing a prognosis for the success of an SIT.



EUROIMMUN DPA-Dx – Products for optimal patient management

Selected EUROLINE Profiles for defined partial allergen diagnostics

DPA-Dx Pollen 1

DP 3210-1601-1 E

Code	Allergen (n = 10)
t3 g6	Birch Timothy grass
t215 t216 t220	rBet v 1 (Birch) rBet v 2 (Birch) rBet v 4 (Birch)
t225	rBet v 6 (Birch)
g205 g215	rPhl p 1 (Timothy grass) rPhl p 5 (Timothy grass)
g210 g212	rPhl p 7 (Timothy grass) rPhl p 12 (Timothy grass)
CCD Ind	CCD marker Indicator

DPA-Dx Milk 1

DP 3510-1601-1 E

Code	Allergen (n = 6)
f2	Cow's milk
f76 f77 f78	nBos d 4 Alpha-lactalbumin (Milk) nBos d 5 Beta-lactoglobulin (Milk) nBos d 8 Casein (Milk)
f334 e204	nBos d LTF Lactoferrin (Milk) nBos d 6 BSA (Milk)
CCD Ind	CCD marker Indicator

DPA-Dx Insect venoms 3

DP 3850-1601-3 E

Code	Allergen (n = 8)
i1 i3 i75	Honey bee venom Common wasp venom Hornet venom (European)
i208	rApi m 1 (Honey bee venom)
i213 i216	rApi m 2 (Honey bee venom) rApi m 10 (Honey bee venom)
i209	rVes v 5 (Common wasp venom)
i211	rVes v 1 (Common wasp venom)
CCD Ind	CCD marker Indicator

DPA-Dx Pollen Southern Europe 1

DP 3211-1601-1 E

Code	Allergen (n = 17)
t3 t9 t23	Birch Olive tree Cypress
g6 w21 m6	Timothy grass Wall pellitory (P. judaica) Alternaria alternata
t215 t226 w211	rBet v 1 (Birch) nCup a 1 (Cypress) rPar j 2 (Wall pellitory (P. judaica))
g205 g215	rPhl p 1 (Timothy grass) rPhl p 5 (Timothy grass)
g210 g212	rPhl p 7 (Timothy grass) rPhl p 12 (Timothy grass)
t224 t231 t235 m229	rOle e 1 (Olive tree) rQue a 1 (Oak) rCor a 1.0101 (Hazel) rAlt a 1 (Alternaria alternata)
CCD Ind	CCD marker Indicator

DPA-Dx Pediatrics 2

DP 3812-1601-2 E

Code	Allergen (n = 17)
f76 f77 f78 f334	nBos d 4 Alpha-lactalbumin (Milk) nBos d 5 Beta-lactoglobulin (Milk) nBos d 8 Casein (Milk) nBos d LTF Lactoferrin (Milk)
e204	nBos d 6 BSA (Milk)
f232 f233 f323 f356	nGal d 2 Ovalbumin (Egg white) nGal d 1 Ovomuroid (Egg white) nGal d 3 Conalbumin (Egg white) nGal d 4 Lysozyme (Egg white)
f422 f423 f424	rAra h 1 (Peanut) rAra h 2 (Peanut) rAra h 3 (Peanut)
f429 f445	rAra h 6 (Peanut) rAra h 7 (Peanut)
f444 f427	rAra h 5 (Peanut) rAra h 9 (Peanut)
t215	rBet v 1 (Birch)
CCD Ind	CCD marker Indicator

DPA-Dx Insect venoms Southern Europe 1

DP 3851-1601-1 E

Code	Allergen (n = 11)
i1 i3 i75 i77	Honey bee venom Common wasp venom Hornet venom (European) Polistes venom
i208	rApi m 1 (Honey bee venom)
i213 i216	rApi m 2 (Honey bee venom) rApi m 10 (Honey bee venom)
i210	rPol d 5 (Polistes venom)
i209	rVes v 5 (Common wasp venom)
i220 i211	rPol d 1 (Polistes venom) rVes v 1 (Common wasp venom)
CCD Ind	CCD marker Indicator



Different countries – different needs!

Broad spectrum of indication- and region-specific profiles:

Inhalation, food, atopy, insect venoms and molecular allergy diagnostics

