DIARECT
Part of BBI Solutions

Recombinant Aeroallergens

In allergen testing, important information can be collected from detecting allergen specific IgE in order to monitor allergic sensitization and at the same time collect comparable data of IgE mediated diseases (Scala *et al.* 2010). In these scenarios, recombinant allergens have a distinct advantage because they lack cross-reactive carbohydrate determinants and afford better ways of standardization compared to their natural counterparts.

Pollinosis-associated plants can be grouped into trees, grasses and weeds of defined orders. In the Northern Hemisphere tree pollen from the order Fagales is considered to be the main cause of allergies (Asam *et al.* 2015). Major Fagales pollen allergens are Bet v 1 (birch), Aln g 1 (alder), Cor a 1 (hazelnut) and Car b 1 (hornbeam). Individuals allergic to tree pollen have been found to react to several of this group of evolutionary related allergens (Hauser *et al*. 2010).

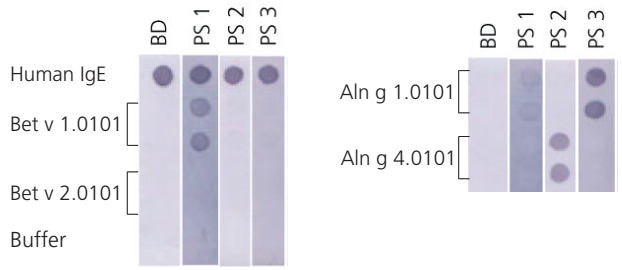

Figure: Microarray analysis of recombinant birch and alder antigens. Recombinant Betula verrucosa (Bet v) antigens 1.0101 and 2.0101, as well as Alnus glutinosa (Aln g) 1.0101 and 4.0101 were printed in duplicates onto nitrocellulose membranes. Human IgE was printed as a positive control and buffer as negative control. The arrays were tested with patient sera (PS 1-3) and the serum from a nonallergic blood donor (BD).

Tree and grass pollen contain species-specific proteins that are the cause of sensitization to its corresponding allergen source. These allergens possess epitopes that have high IgE cross-reactivity with proteins from widely different origins (Treudler *et al.* 2013). One of the significant grass allergens is the timothy grass pollen (*Phleum pratense*) containing several allergenic molecules, known as allergen components. Up to 20% of allergic individuals worldwide are hypersensitive to timothy grass and related species (Sekerkova *et al.* 2012). Molecular and biochemical characterization has revealed major and relevant minor Phl p allergens, which are associated with either grass pollen-specific sensitization, or polysensitization towards cross-reactive molecules from diverse sources (Ferreira *et al.* 2004).

A study by Wölbing *et al.* in 2016 found that Phl p 12 profilin is a completely functional allergen and fully cross-reactive to Bet v 2 profilin in regards to IgE binding.

Component based serological testing can confirm positive test results by delivering more detail and in depth interpretation of allergic sensitization and subsequent clinical reactions to tested allergens.

DIARECT's recombinant aeroallergens are produced in either *E. coli* or the baculovirus/insect cell expression system.

Ordering Information		
51000 51001	Art v 1.0101	0.1 mg 1.0 mg
51300 51301	Phl p 1.0102	0.1 mg 1.0 mg
51400 51401	Phl p 2.0101	0.1 mg 1.0 mg
51500 51501	Phl p 5.0203	0.1 mg 1.0 mg
51600 51601	Phl p 6.0101	0.1 mg 1.0 mg
52300 52301	Phl p 7.0101	0.1 mg 1.0 mg
52400 52401	Phl p 12.0101	0.1 mg 1.0 mg
50700 50701	Aln g 1.0101	0.1 mg 1.0 mg
50800 50801	Aln g 4.0101	0.1 mg 1.0 mg
50200 50201	Bet v 1.0101	0.1 mg 1.0 mg
50300 50301	Bet v 2.0101	0.1 mg 1.0 mg
52100 52101	Bet v 4.0101	0.1 mg 1.0 mg
52200 52201	Bet v 6.0102	0.1 mg 1.0 mg
51200 51201	Car b 1.0109	0.1 mg 1.0 mg
51100 51101	Cor a 1.0103	0.1 mg 1.0 mg
50900 50901	Fra e 1.0101	0.1 mg 1.0 mg

References:
Asam *et al.* (2015) Allergy. 70: 1201-1211
Ferreira *et al.* (2004) Allergy. 59: 243-267
Hauser *et al.* (2010) Allergy Asthma Cl Im. 6: 1
Scala *et al.* (2010) Clin Exp Allergy. 40: 911-921
Sekerkova *et al.* (2012) Allergol Int. 61: 339-346
Treudler *et al.* (2013) Curr Allergy Asthma Rep. 13: 110-117
Wölbing *et al.* (2016) Allergy. DOI: 10.1111/all.13040.

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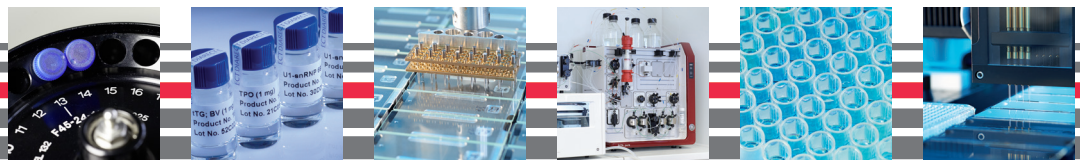

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