

## 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).

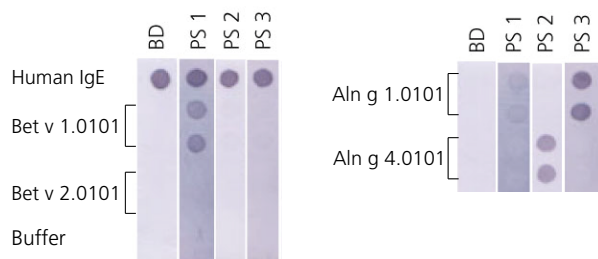


Figure: Microarray analysis of recombinant birch and alder antigens. Recombinant *Betula verrucosa* (Bet v) antigens 1.0101 and 2.0101, as well as *Alnus glutinosa* (Aln g) 1.0101 and 4.0101 were printed in duplicates onto nitrocellulose membranes. Human IgE was printed as a positive control and buffer 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 (Treadler *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

Grasses and Trees			
51000	Art v 1.0101	<b>NEW!</b>	0.1 mg
51001			1.0 mg
51300	Phl p 1.0102		0.1 mg
51301			1.0 mg
51400	Phl p 2.0101		0.1 mg
51401			1.0 mg
51500	Phl p 5.0203		0.1 mg
51501			1.0 mg
51600	Phl p 6.0101		0.1 mg
51601			1.0 mg
52300	Phl p 7.0101		0.1 mg
52301			1.0 mg
52400	Phl p 12.0101		0.1 mg
52401			1.0 mg
50700	Aln g 1.0101		0.1 mg
50701			1.0 mg
50800	Aln g 4.0101		0.1 mg
50801			1.0 mg
50200	Bet v 1.0101		0.1 mg
50201			1.0 mg
50300	Bet v 2.0101		0.1 mg
50301			1.0 mg
52100	Bet v 4.0101		0.1 mg
52101			1.0 mg
52200	Bet v 6.0102		0.1 mg
52201			1.0 mg
51200	Car b 1.0109		0.1 mg
51201			1.0 mg
51100	Cor a 1.0103		0.1 mg
51101			1.0 mg
50900	Fra e 1.0101		0.1 mg
50901			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 & Clinical Immunology* 6: 1
- Scala *et al.* (2010) *Clinical & Experimental Allergy* 40: 911-921
- Sekerkova *et al.* (2012) *Allergology International* 61: 339-346
- Treadler *et al.* (2013) *Current Allergy Asthma Reports* 13: 110-117
- Wölbing *et al.* (2016) *Allergy* DOI: 10.1111/all.13040.

In some countries the use of certain allergens in diagnostic tests may be protected by patents. DIARECT is not responsible for the determination of these issues and suggests clarification prior to use.

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