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Different Profiles in Specific IgE to rBet v 1 and rBet v 2 in Patients Allergic to Birch Pollen from Six Countries

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Key Words

Specific IgE
rBet v 1
rBet v 2
Profiles
Countries

Abstract

There are differences in IgE reactivity to rBet v 1 and rBet v 2 among allergic patients from the six countries studied. The complexity of the reactivity profile tends to be greater in individuals from the central/southern parts of Europe compared to Sweden and Finland. There is a good agreement between in vitro diagnosis with Pharmacia CAP System and Skin prick testing when using the same reagents, rBet v 1 and rBet v 2.

Aim

The aim of this study was to examine the specific IgE-binding profiles to rBet v 1 and rBet v 2 in patients allergic to birch pollen from six different countries (fig. 1).

Materials and Methods

For this study, sera from 293 patients allergic to birch pollen were collected in six countries: Sweden, Finland, France, Austria, Switzerland and Italy. The sera were selected according to clinical criteria, skin prick testing (SPT) and CAP RAST values for birch pollen. They were analyzed for specific IgE to native birch pollen extract (t3) and the recombinant birch pollen allergens rBet v 1 and rBet v 2 using the Pharmacia CAP System (PCS). To further examine the complexity of the patients' IgE profiles, sera were tested with SDS-PAGE. The birch extract sample was treated with SDS and mercaptoethanol at 100°C for 5 min and separated in a 7.5–20% gradient gel. After electrophoresis, immunoblotting was performed by electrophoretic transfer of proteins to nitrocellulose membranes which were subsequently incubated with sera. The IgE-binding pattern was visualized by using ¹²⁵I-labeled anti-IgE and subsequent autoradiography.

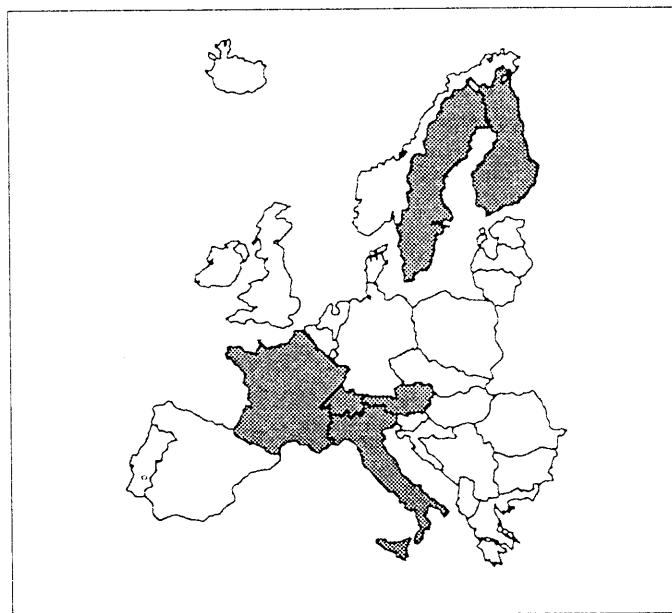


Fig. 1. Countries of origin of the patients.

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Fig. 2. Specific IgE results for rBet v 1 and rBet v 2 presented separately and together as a percentage of t3.

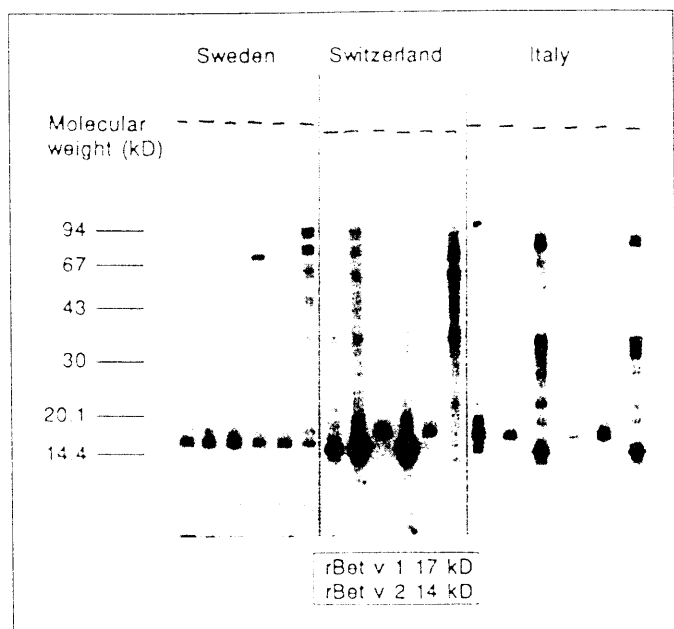
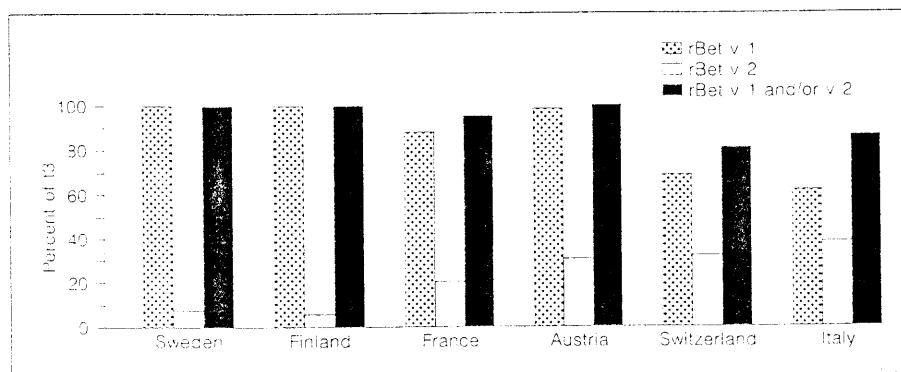


Fig. 3. Immunoblotting patterns from selected patients in Sweden, Switzerland and Italy.

Results

In the Swedish and Finnish groups, all subjects examined were positive to rBet v 1, while in the Austrian, French, Swiss and Italian groups, 98, 88, 68 and 62%, respectively, were rBet v 1 positive. In the Swedish and Finnish groups, 5–7% were reactive to rBet v 2 compared to 20–38% in the central/south European groups (fig. 2).

Immunoblotting results confirmed a greater complexity of IgE reactivity to various birch components in the latter groups (fig. 3).

Comparison of the results of PCS and immunoblot (fig. 4) and PCS and SPT (fig. 5) showed nearly 90 and 98% agreement, respectively.

		Immunoblot					
		rBet v 1			rBet v 2		
		pos	neg	total	pos	neg	total
PCS	pos	75	8	83	18	2	20
	neg	2	15	17	9	71	80
total		77	23	100	27	73	100
		n = 141 = 100%			n = 141 = 100%		

Fig. 4. Comparison of results from the two methods. PCS and immunoblot, showed a nearly 90% agreement. Values expressed as percentage of total.

		SPT					
		rBet v 1			rBet v 2		
		pos	neg	total	pos	neg	total
PCS	pos	92	0	92	19	0	19
	neg	2	6	8	2	79	81
total		94	6	100	21	79	100
		n = 48 = 100%			n = 48 = 100%		

Fig. 5. Comparison of results from the two methods. PCS and SPT, showed a 98% agreement. Values expressed as percentage of total.

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