

Results are shown in Fig. 1. Raw sunflower seed (lane 1) and roasted sunflower seed (lane 2) showed a very similar SDS-PAGE profile. The patient's serum showed IgE reactivity to at least three distinct protein bands at about 13–15 kDa and 43–67 kDa in roasted sunflower extract (lane 3). Pre-absorption of serum with mustard extract caused a total loss of IgE reactivity at low molecular weights, but no change of the 43–67 kDa reactivity (lane 4). The immunoblot profile resembled that found by Kelly et al. (1,2). The low molecular weight allergens (13–15 kDa) probably correspond to the 2S albumin fraction. In sunflower seed, this fraction is made up of different albumins, one of which (SFA-8/SSA) is particularly rich in methionine and cysteine (8) and is an IgE-binding protein (1,2). The immature and mature (cleaved) forms of this protein show a molecular mass of 16–17 kDa and 12 kDa, respectively (1). Our inhibition experiments demonstrated complete cross-reactivity between sunflower seed (*Compositae*) and mustard (*Brassicaceae*) 2S-albumins. No cross-reactivity between allergens from these families has been described before. SPT with mustard should be always carried out in sunflower seed-allergic patients. The

remaining IgE-binding protein at 43–67 kDa has not yet been characterized and is likely to be a sunflower seed-specific allergen.

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Interleukines in nasal lavage

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Key words: allergen-specific provocation; interleukin-5; seasonal allergic rhinitis; tryptase.

• THE biological markers of allergic inflammation are characteristic of different phases of the IgE-mediated reaction. In the present study levels of tryptase (early phase) and of interleukin-5 (IL-5) (late phase) were measured in nasal lavage fluid (NLF) from children with intermittent, seasonal allergic rhinitis (SAR). Non-allergic children served as a control group.

Tryptase (RIA Pharmacia Tryptase RIAct) and IL-5 (ELISA R & D Systems) levels in the NLF were measured in 15 allergic and 15 non-allergic children. The mean ages were 13.0 years (range: 8–16) and 12.6 years (range: 6–15), respectively.

Increased levels of tryptase and IL-5 after specific allergen provocation.

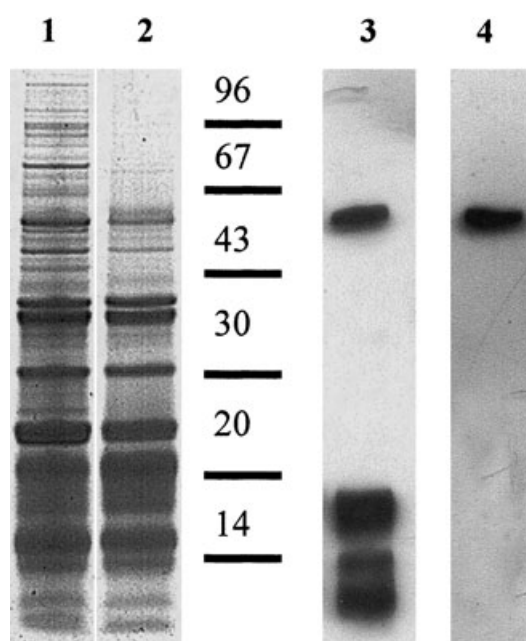


Figure 1. SDS-PAGE profile of raw (lane 1) and roasted (lane 2) sunflower seed extracts; lane 3 shows patient's IgE reactivity to different proteins in roasted sunflower seed extract; lane 4 shows IgE reactivity to roasted sunflower seed after absorption of serum with mustard seed extract.

Table 1 . Tryptase and IL-5 levels of healthy controls and patients with SAR at 0, 1, 12 h after specific provocation

		Tryptase (U/l)			Interleukin-5 (pg/ml)			
		SAR			SAR			
	Control (n = 15)				Control (n = 15)			
		0 h	1 h	12 h		0 h	1 h	12 h
Mean	4.75	5.82	48.21	13.70	0.29	0.84	0.51	26.22
SD	2.90	2.49	22.51	5.44	2.60	1.01	0.68	21.70

The male : female ratio was 7 : 8 in both groups.

Basal cytokine values were measured in the SAR patients and in the healthy children before specific provocation. The measurements were performed on patients during a symptom-free period outside the pollen season.

The allergen for the nasal provocation was chosen on the basis of a positive result of a skin prick test. In the event of multisensitivity the allergen producing the largest wheal flare reaction was used. 0.1 ml of the allergen solution (ALK-Epipharm Soluprick allergen for nasal provocation, 10 000 SQ, 25°C) was dropped into one nostril. Beforehand, then 1 h and 12 h after the provocation, the nostril was washed with 5 ml of

physiological saline solution, and the NLF was collected and stored at -25°C. until marker determination. There was no provocation in the control group (1).

The results are shown in Table 1. There was no significant difference between the basic levels of tryptase and IL-5 values in the patients with SAR and in the healthy controls. In the patients with SAR the tryptase level 1 h after provocation was significantly higher than the control values ($P=0.01$). The IL-5 level in the SAR patients was increased significantly 12 h after specific provocation ($P=0.01$).

Our results reveal that outside the pollen season there was no significant difference in the tryptase and IL-5 levels of patients with SAR and healthy

controls. Allergen-specific provocation led to an elevated tryptase level after 1 h, and an elevated IL-5 level after 12 h of provocation, which proves that both the early- and the late-phase cytokines play important roles in the allergic processes caused by allergen-specific nasal provocation (2).

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