

cytokine, IFN- γ , suggesting that production of eotaxin is associated with a Th2-dominant state. Thus, both production of eotaxin in the lesions and blood eosinophilia may be coregulated by Th2-dominant states underlying the pathogenesis of AD. In contrast, RANTES production is independent of the Th2-dominant state. Recently, a functional mutation in the promoter of RANTES has been reported to be associated with AD (5). Although we have not analyzed the promoter in our patients, the varied levels of RANTES in the scales may derive from this polymorphism.

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References

1. KAMEYOSHI Y, DORSCHNER A, MALLET AI, CHRISTOPHERS E, SCHRODER JM. Cytokine RANTES released by thrombin-stimulated platelets is a potent attractant for human eosinophils. *J Exp Med* 1992;**176**:587–592.
2. MOCHIZUKI M, BARTELS J, MALLET AI, CHRISTOPHERS E, SCHRODER JM. IL-4 induces eotaxin: a possible mechanism of selective eosinophil recruitment in helminth infection and atopy. *J Immunol* 1998;**160**:60–68.
3. STICHERLING M, KUPPER M, KOLTROWITZ F, et al. Detection of the chemokine RANTES in cytokine-stimulated human dermal fibroblasts. *J Invest Dermatol* 1995;**105**:585–591.
4. YAMADA H, MATSUKURA M, YUDATE T, CHIHARA J, STINGL G, TEZUKA T. Enhanced production of RANTES, an eosinophil chemoattractant factor, by cytokine-stimulated epidermal keratinocytes. *Int Arch Allergy Immunol* 1997;**114** Suppl 1: 28–32.
5. NICKEL RG, CASOLARO V, WAHN U, et al. Atopic dermatitis is associated with a functional mutation in the promoter of the C-C chemokine RANTES. *J Immunol* 2000;**164**:1612–1616.

A new arthropod panallergen?

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Key words: arthropods; cross-reactivity; glutathione S-transferase.

• The existence of cross-reactivity among arthropod groups, such as mites, mosquitoes, and even crustaceans, is well established, and tropomyosin, a protein of about 37 kDa, may be the panallergen

A 25-kDa allergen accounts for much cross-reactivity.

responsible for this cross-reactivity (1–3). We detected a 25-kDa protein in a patient's serum which showed elevated levels of

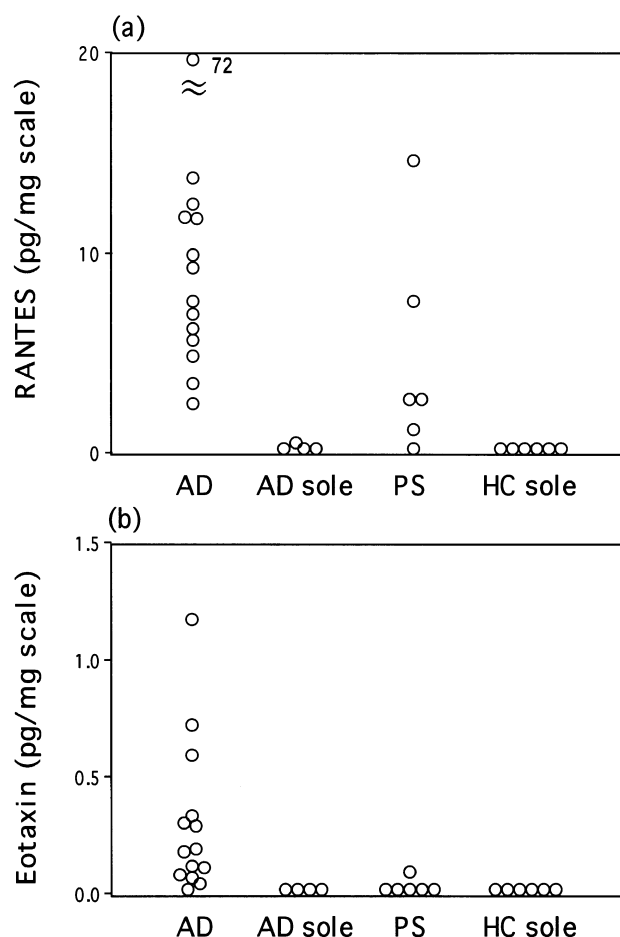


Figure 1. Content of C-C chemokines in scales and correlation with blood eosinophil counts. Scales were obtained from atopic dermatitis lesional skin (AD), atopic dermatitis nonlesional sole skin (AD sole), psoriatic lesional skin (PS), and healthy individual sole skin (HC sole). a) eotaxin content; b) RANTES content.

specific IgE against several arthropod species.

We studied a 14-year-old boy suffering from seasonal rhinoconjunctivitis and immediate local reaction after a mosquito bite causing a wheal of about 3 cm in diameter. He showed positive prick tests (wheal major diameter greater than or equal to 3 mm) with *Lolium* (3×3 mm), *Olea* (5×4), and chenopodium (5×5) pollens, red midge larvae (*Chironomus* spp.) (5×5), cockroach (*Blattella germanica*) (3×3), and mosquito (*Culex pipiens*) (9×6). Other common inhalant allergens including *Dermatophagoides pteronyssinus*, *Acarus siro*, and shrimp were negative. He had elevated levels of specific IgE (Pharmacia Diagnostics, Uppsala, Sweden) against *D. pteronyssinus* (3.2 kU/l), *Chironomus thummi* (3.2 kU/l), and *Aedes communis* (12.7 kU/l). The patient had no contact with chironomids and had no symptoms outside spring.

We carried out IgE immunoblotting and immunoblot inhibition:

- 1) The patient's serum was incubated with extracts of *D. pteronyssinus*, shrimp, *A. communis*, *Chironomus* spp. larvae, and

C. thummi. All extracts studied showed IgE against a protein band of about 25 kDa.

- 2) *D. pteronyssinus* blots were incubated with the patient's serum alone (positive control) or patient's serum preincubated with the major allergen of *D.*

pteronysinus (Der p 1) or extracts of *A. communis*, *C. pipiens*, *C. thummi*, and *Lolium perenne* pollen (Fig. 1).

The purified mite allergen Der p 1 (of about 25 kDa) was not able to inhibit the binding of IgE to the 25-kDa band, and the same result was obtained with *Lolium*. By contrast, the other three arthropod extracts (*A. communis*, *C. pipiens*, and *C. thummi*) clearly inhibited the binding of IgE to the 25-kDa *D. pteronyssinus* band.

The existence of cross-reactivity among different arthropod species is well established, and tropomyosin, a protein of about 37 kDa, could be the panallergen responsible for this cross-reactivity (1–3). We here describe a 25-kDa protein shared by several arthropods groups, such as mites, mosquitoes, and chironomids, in the serum of a patient who had only seasonal rhinoconjunctivitis and local

hypersensitivity to mosquito bite, but also showed specific IgE against several arthropod species. This may be explained by the existence of cross-reactivity between mosquito and other allergens (mites and chironomids).

The 25-kDa band could be the glutathione S-transferase enzyme. The important mite allergen Der p 1 has a molecular mass of about 25 kDa. The patient's serum had no IgE against this allergen because the purified Der p 1 was not able to inhibit the binding of IgE to the 25-kDa band. The glutathione S-transferase enzyme (Der p 15), which has a molecular mass of about 25 kDa, has been described as an allergen in *D. pteronyssinus* (4). Bla g 5, an allergen of *B. germanica* of about 25 kDa, is also the enzyme glutathione S-transferase (5).

We conclude that apart from tropomyosin (a protein of about 37 kDa) other proteins could be involved in cross-reactivity among arthropod species and may be clinically relevant panallergens in some patients.

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References

1. BALDO BA, PANZANI RC. Detection of IgE antibodies to a wide range of insect species in subjects with suspected inhalant allergies to insects. *Int Arch Allergy Appl Immunol* 1988;**85**:278–287.
2. WITTEMAN AM, AKKERDAAS JH, VAN LEEUWEN J, VAN DER ZEE JS, AALBERSE RC. Identification of a cross-reactive allergen (presumably tropomyosin) in shrimp, mite and insects. *Int Arch Allergy Immunol* 1994;**105**:56–61.

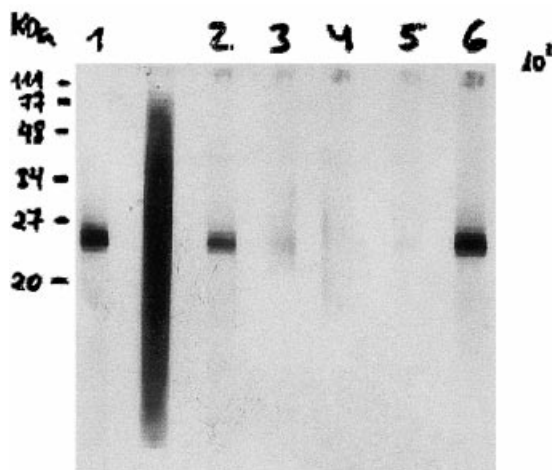


Figure 1. Immunoblotting inhibition with *D. pteronyssinus* extract. Lane 1) patient's serum alone; 2) preincubated with Der p 1; 3) with *C. thummi*; 4) with *A. communis*; 5) with *C. pipiens*; 6) with *L. perenne*.

3. PASCUAL CY, CRESPO JF, SAN MARTÍN S, et al. Cross-reactivity between IgE-binding proteins from *Anisakis*, German cockroach, and chironomids. *Allergy* 1997;**52**:514–520.
4. O'NEILL GM, DONOVAN GR, BALDO BA. Cloning and characterization of a major allergen of the house dust mite, *Dermatophagoides pteronyssinus*, homologous with glutathione S-transferase. *Biochim Biophys Acta* 1994;**1219**:521–528.
5. ARRUDA LK, VAILES LD, BENJAMIN DC, CHAPMAN MD. Molecular cloning of German cockroach (*Blattella germanica*) allergens. *Int Arch Allergy Immunol* 1995;**107**:295–297.