

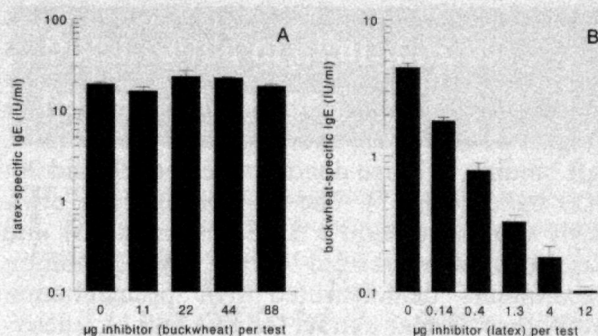


FIGURE 1 Latex can inhibit buckwheat RAST, but reverse is not true. A and B show results of inhibition experiment performed with serum from patient 1.

wheat protein. On the other hand, a strong inhibition of the buckwheat RAST could be obtained with latex extract, as shown in Fig. 1B. For patient 2, identical, even more convincing results were obtained; in serum 2, less than 1 µg inhibitory latex extract induced more than 95% inhibition of the buckwheat RAST. Amounts of serum and solid phase were adjusted in order to obtain proper conditions for inhibition experiments. RAST results, shown as mean values with error bars indicating SD, are expressed as units of IgE per ml (1 unit=2.4 ng). Homologous RAST inhibitions were complete (results not shown).

■ Anaphylactic reactions to foods, mainly fruits of exotic origin, cross-reacting with latex are well known. The cross-reactivity between latex and banana, avocado, and chestnut has been especially well documented (6–9). Only once before has cross-reactivity with buckwheat been described, and in that study no RAST-inhibition experiments were done (5). In our cases, the clinical history as well as the results of RAST-inhibition experiments strongly indicate cross-reactivity between latex and buckwheat.

Its increasing popularity in health food (“whole-grain products”) and vegetarian food makes buckwheat a potential cause of food anaphylaxis, especially in latex-sensitized patients.

Key words: anaphylaxis; buckwheat; cross-reactivity; latex.

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Allergy to mare's milk

MARE'S milk is becoming increasingly popular as an alternative treatment of various diseases such as psoriasis and atopic eczema. It can be ingested as pure milk or as capsules containing lyophilized granules of milk. Several reports in the literature indicate a connection between respiratory allergic sensitization to animal products and food allergens derived from the same animals (1–3). The present case provided us with the opportunity to characterize allergens of mare's milk and to investigate cross-sensitization caused by respiratory allergy to horse dander.

A 30-year-old atopic woman with allergic bronchial asthma underwent horse-riding therapy to restore disturbances of equilibrium caused by cranial trauma. During this treatment, her bronchial asthma deteriorated. The patient inhaled

Inhalant sensitization to horse proteins can cause food allergy to mare's milk.

thrice daily Berodual® (two puffs of 0.05 mg fenoterol hydrobromide and 0.02 mg ipratropium bromide), and Becotide® (beclomethasone dipropionate two puffs of 0.25 mg) two times

a day. After 1 month, she had to stop riding because of her bronchial disorder. To “strengthen” the immune system in this situation, she was advised to drink mare's milk. Some minutes after the first sip, oral pruritus developed, followed by systemic allergic reactions (generalized urticaria, angioedema, and bron-

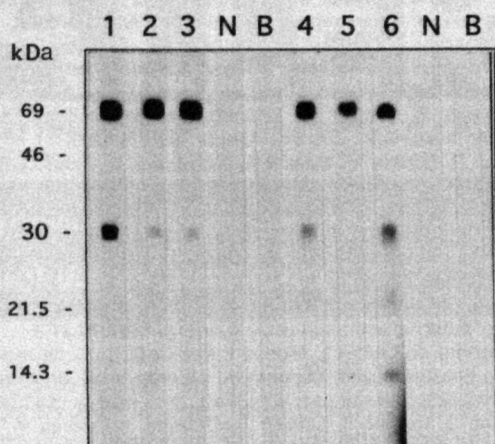


FIGURE 1 IgE immunoblot showing reactivity of serum IgE to horse-dander extract and mare's milk. Lane 1) IgE binding to horse-dander extract; 2–3) inhibition of IgE binding to horse-dander extract by preincubation of serum (1:5) with mare's milk (20 and 80 µg/ml); 4) IgE binding to mare's milk; 5) inhibition of IgE binding to mare's milk by preincubation of serum (1:5) with horse-dander extract (20 µg/ml); 6) no inhibition of IgE binding to mare's milk by preincubation with cow's milk (50 µg/ml); N) normal human serum; B) buffer control.

chial asthma) within 30 min to 1 h. The case history revealed an atopic disposition; i.e., the patient was polyvalently sensitized to inhalant allergens and displayed positive skin tests and specific IgE (RAST) to grass pollen, mammal dander, and house-dust mite.

Native mare's milk was obtained from a local chemist and was centrifuged, defatted, and diluted, as described previously (4). Cow's milk extract and horse dander-extract were prepared as described previously (3, 5).

SDS-PAGE and protein transfer with mare's milk and horse-dander extracts and IgE blots were performed as described (5). In inhibition experiments, serum diluted 1:5 and 1:10 in test buffer was preincubated with 20, 80, and 160 µg/ml mare's milk extract and tested with horse-dander-coated strips. Moreover, serum (1:5 and 1:10) preincubated with 20, 80, and 160 µg/ml horse dander or 50 µg/ml cow's milk extract was tested with strips coated with mare's milk.

Skin prick tests with fresh mare's milk in dilutions (in 0.9% NaCl) of 1:10 and 1:100 and with commercially obtained horse-dander extract (ALK-Abello, Hørsholm, Denmark) induced a positive skin reaction. NaCl was used as negative control and histamine (10 mg/ml) as positive control. Total IgE levels were elevated (616 kU/l).

RAST identified specific IgE to mare's milk (class 3; 4.7 PrU/ml) and to horse dander (class 4; 18.5 PrU/ml). Western blot experiments revealed IgE recognition of bands with molecular weights of 69, 30, 22, and 14 kDa in mare's milk. IgE binding to horse dander revealed 69- and 30-kDa bands (Fig. 1). The 30-kDa allergen obviously represents Equ c 3 (*Equus caballus*) and has been characterized earlier (6). Inhibition experiments demonstrated that preincubation with horse-dander extract led to a loss of reactivity to the 22- and the 30-kDa proteins in mare's milk, and that preincubation with mare's milk significantly blocked IgE binding to the 30-kDa component (Equ c 3) in the horse-dander extract, indicating the presence of cross-reacting epitopes on these molecules (Fig. 1). Cow's milk displayed no inhibiting effect, and no specific IgE to cow dander or cow's milk could be detected in the serum.

Our findings support the assumption that sensitization to the horse-dander allergen can lead to the production of IgE antibodies reacting with proteins in mare's milk. Because mare's milk is being increasingly used as "alternative medicine" for treatment of various ailments, more and more allergic reactions to this milk can be expected.

Key words: allergy; cross-reactivity; horse dander; IgE; mare's milk.

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