

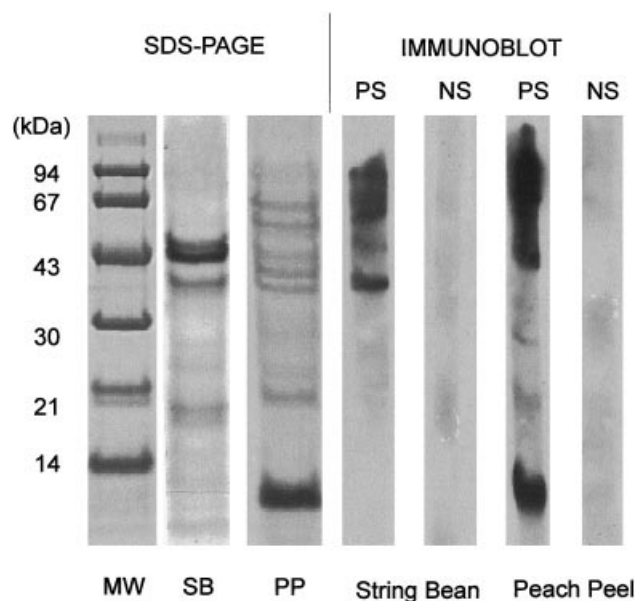


Figure 1. SDS-PAGE profile of string bean (SB) and peach peel (PP) extracts and immunoblotting results on both extracts with patient serum (PA) or pool of normal sera (NS).

soybean, and bean, and slight skin reactivity (2+) to cherry, garlic, onion, orange, pea, kiwi, wheat, and barley on SPT with commercial food extracts. A very strong reactivity (4+) to both apple peel and peach peel extracts, as well as to fresh fennel, apple, hazelnut, and peach was observed. SPT with fresh string bean induced a slight wheal (2+), whereas the cooked bean induced a much stronger reaction (4+).

No sensitivity to cross-reactive birch pollen allergens was found. Serum showed a moderate reactivity to peach peel LTP (OD 557) that was reduced by 96%, 95%, 31%, 71%, 73%, 77%, 69%, and 81% by preabsorption with peach, apple, walnut, hazelnut, peanut, corn, rice, and fennel extracts, respectively, and by 19% by preabsorption with ovalbumin. Peach immunoblot showed an IgE reactivity to a 10-kDa protein (LTP) and a broad reactivity at high molecular mass (Fig. 1). String bean immunoblot showed a single band at about 35 kDa and a broad reactivity at high molecular mass, but no reactivity at low molecular mass (Fig. 1).

This patient was hypersensitive to two distinct vegetable food allergens, namely,

LTP in several plant-derived foods and a 35-kDa protein in string bean. The lack of reactivity at 10 kDa on bean immunoblot indicates the heat lability of LTP. Boiled string bean maintained a strong allergenicity, as previously described for other legumes (3). Interestingly, it induced a much stronger reaction than the raw bean, suggesting a possible increase in allergenicity of this food with heat treatment. This has been observed in other allergies to vegetable foods (4). In contrast to most previous studies of legume food allergy, our patient showed IgE reactivity to a single protein at about 35 kDa and a smear at high molecular mass. The heat stability of our allergen suggests that it differs from the heat-labile 32-kDa class I chitinase recently described in green beans (5) and that it might represent a novel allergen.

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Delayed hypersensitivity to cefotetan

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Key words: cefotetan; delayed hypersensitivity; intradermal tests.

● CEFOTETAN is a second-generation cephalosporin active particularly against anaerobic bacteria. Although several adverse reactions to this drug have been described, including anaphylactic shock (1), only one delayed hypersensitivity reaction

has been diagnosed on the basis of delayed intradermal-test positivity (2).

We studied a 45-year-old woman who had developed generalized pruritic maculo-

Provocation-induced maculopapular rash.

face angioedema 6 h after the second dose of cefotetan (1 g twice a day intramuscularly for bronchopneumonia). Treatment was immediately interrupted, and the rash resolved after 2 weeks of corticosteroid therapy (6-methylprednisolone: 40 mg/day intravenously).

Two years later, the patient underwent skin tests with penicilloypolylysine (Allergopen, Reinbek, Germany), minor determinant mixture (Allergopen), benzylpenicillin, ampicillin, and amoxicillin, as well as cefotetan, cephalothin, cefuroxime, and ceftazidime, as previously described (3). Cephalosporins were used at a concentration of 2 mg/ml in 0.9% NaCl.

Skin tests for penicillin determinants, ampicillin, and amoxicillin, as well as for cephalothin, cefuroxime, and ceftazidime, were negative at the immediate (20 min) and delayed (24, 48, and 72 h) readings. The intradermal test for cefotetan did not produce immediate reactions, but the 24-h reading showed an erythematous induration (maximum diameter: 10 mm), which reached 21 mm at 48 h and began to fade at 72 h.

Prick and intradermal histamine tests produced wheals with maximum diameters of 8 and 13 mm, respectively. Intradermal tests with the mentioned cephalosporins were negative in 20 healthy control subjects, five of whom had previously tolerated cefotetan.

Patch tests were done with benzylpenicillin (5000 IU/g petrolatum), ampicillin (5% in petrolatum), amoxicillin (5% in petrolatum), and the cephalosporins reported above (200 mg/ml in 0.9% NaCl),

as previously described (4), with negative results in the patient and in the control group.

Assays (UniCAP Specific IgE; Pharmacia & Upjohn, Uppsala, Sweden) for specific IgE to penicilloyl G, penicilloyl V, ampicilloyl, amoxicilloyl, cefaclor, and cefotetan were negative (<0.35 kU/l). The cefotetan assay was an experimental prototype.

We performed single-blind challenges with penicillin V (1000000 IU), amoxicillin (500 mg), cephalothin (1 mg), cefuroxime axetil (500 mg), ceftazidime (1 g), and cefotetan (1 g) on different days. Increasing amounts (0.01, 0.1, and 1.0) of the therapeutic doses, indicated in parentheses, were administered at 1-week intervals. Challenges with penicillins and cephalosporins other than cefotetan were well tolerated, while the patient reacted to 100 mg of cefotetan, developing a diffuse maculopapular eruption 10 h after the administration.

Clinical findings, the delayed intradermal test, and challenge positivity with cefotetan suggest a type-IV (cell-mediated) pathogenic mechanism. In our experience, a large percentage of aminopenicillin-induced maculopapular rashes involve such a mechanism, which is indicated in most subjects by both patch-test and delayed intradermal-test positivity. However, we also found cases of patch-test negativity and delayed intradermal-test positivity to aminopenicillins, confirmed by challenges (4). Possible explanations of such a pattern of reactivity are that the drug being tested may be unable to penetrate into the epidermis, and that haptens are processed in different parts of the skin.

Our subject displayed skin-test and challenge negativity with penicillins and other cephalosporins. Thus, her sensitization appears to involve the entire cephaloridine molecule, as previously demonstrated with cefaclor IgE-mediated

reactions (5). Such a selective response was not ascertained in the previously reported case of delayed hypersensitivity to cefotetan (2).

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