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A new murine model of allergic rhinitis by repeated intranasal Cry j 1 challenge

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ABSTRACT

To evaluate the long-lasting effects of new therapeutic approaches to allergies, we established a new model of allergic rhinitis by repeated challenges with intranasal Cry j 1, a common Japanese cedar (*Cryptomeria japonica*) pollen allergen, in B10.S mice. We sensitized B10.S mice subcutaneously with Cry j 1/alum three times at 1-week intervals. Five weeks after the final sensitization, we challenged the mice by instilling Cry j 1 intranasally for 5 consecutive days starting 1 day after intranasal histamine pretreatment (challenge-1). We challenged the mice by instilling histamine and Cry j 1 intranasally again 12 weeks later (challenge-2). There were significantly more sneezes after challenge-2 than challenge-1. Cry j 1-specific IgE levels in serum were significantly increased in both challenge-1 and 2 after continuous nasal antigen challenge. Serum levels of anti-Cry j 1 IgE in challenge-2 was 2.3 times higher than after challenge-1. Thus, we have established a new model of seasonal allergic rhinitis in B10.S mice by repeated intranasal antigen challenge, and this model may help elucidate mechanisms of allergic rhinitis and the development of new drugs.

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