



## Protease Activity of Allergenic Pollen of Cedar, Cypress, Juniper, Birch and Ragweed

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**Background:** Pollen is an important trigger of allergic rhinitis, conjunctivitis, and/or asthma, and an exacerbating factor in atopic dermatitis. Although it is proposed that protease activity from allergen sources, such as mites, enhances allergenicity, little information is available on that from relevant allergenic pollens such as Japanese cedar and Japanese cypress pollens, which are the major cause of pollinosis in Japan.

**Methods:** We analyzed the protease activities derived from allergenic pollen of Japanese cedar, Japanese cypress, and Rocky mountain juniper, which belong to the Cupressaceae/Taxodiaceae family, and white birch and short ragweed, using synthetic substrates and class-specific inhibitors.

**Results:** We found that the pollen of the three members of the Cupressaceae/Taxodiaceae family contained serine protease activity, that the pollen of white birch and short ragweed contained not only serine protease activity but also cysteine protease activity, that all five types of pollen tested contained at least one other type of serine protease, whose sensitivity to a serine protease-specific inhibitor was relatively low, and that the content and releasability of the pollen-derived proteases differed according to the plant families.

**Conclusions:** Clinically relevant allergenic pollens tested in the present study can release serine and/or cysteine endopeptidases. Information on the spectrum of the endopeptidase activities from these allergenic pollen grains will be useful for investigating their contribution to the pathogenesis of allergies.

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