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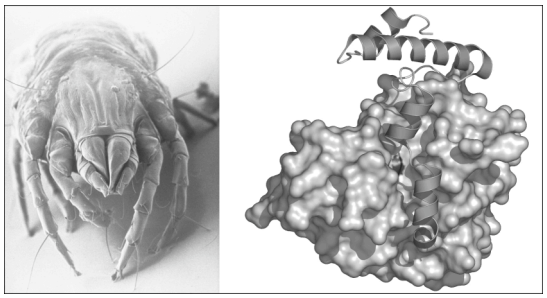
Analysis of the Crystal Structure of the Major House Dust Mite Allergen Der p 1. K. Meno[1], P.B. Thorsted[1], H. Ipsen[1], O. Kristensen[2], J.N. Larsen[1], M.D. Spangfort[1], M. Gajhede[2], K. Lund[1], [1]ALK-Abelló A/S, Denmark, [2]The Danish Univ. of Pharmaceutical Sciences, Denmark.



Inhalation allergy to house dust mite is among the most prevalent allergic diseases worldwide and proteins belonging to group 1 mite allergens are major elicitors of this. Group 1 contains cysteine proteases located in the alimentary canal of the mite. Recombinant Der p 1 (rDer p 1) from *Dermatophagoides pteronyssinus* as a tool for allergy diagnosis or immunotherapy is an attractive prospect. However, the proteolytic activity or presence of the pro-peptide on the immature protein is of concern. An enzymatically inactive rproDer p 1 variant was produced that yielded crystals diffracting to a resolution of 1.61 Å thus resulting in the first structure of Der p 1. The mature region adopts a conformation similar to the mature form of other cysteine proteases suggesting that no major structural changes are induced by maturation. The pro region adopts a unique fold, which interacts with the active site cleft and a substantial adjacent area on the mature region. The antibody binding properties of pro and mature rDer p 1 were assessed by immunological techniques. Mature rDer p 1 showed antibody-binding properties indistinguishable from the natural protein but several epitopes are covered by the pro-peptide.