Acta HealthMedica (ISSN: 2414-6528) http://www.ActaHealthMedica.com
Volume 3, Issue 1, February 2018, Pages: 237, DOI: http://dx.doi.org/10.19082/ah237

DER P 5 FROM HOUSE DUST MITES HDM: EFFECT OF MUTATIONS AND HIGH TEMPERATURE ON THE FOLDING AND STABILITY OF THIS ALLERGEN, A POTENTIAL DIAGNOSTIC MARKER ALLERGEN FOR HOUSE DUST MITE ALLERGY

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TYPE OF ARTICLE: CONFERENCE ABSTRACT

ABSTRACT

Background: Allergic diseases constitute a health problem worldwide, allergy to house dust mites is the most common cause of asthma and allergic rhinitis. Der p 5 was reported as an important allergen in Dermatophagoides pteronyssinus, which is particularly recognized in patients suffering from asthma.

Methods: By recombinant DNA technology, folded and infolded Der p 5 allergens were produced for diagnostic, and therapeutic properties. In this study, Der p 5-encoding cDNA was cloned and expressed in Pichia pastoris. In parallel, mutated forms were generated by site directed mutagenesis to study the stability of this allergen. rDer p 5 and mutants were purified to homogeneity and characterized by mass spectroscopy and circular dichroism. IgE reactivity was tested with sera from 64 mite-allergic patients, and the physical properties of these different forms have been compared.

Results: rDer p 5 and all mutated forms are heat-stable proteins with predominantly α -helical secondary structure which reacted with IgE from 35% of mite-allergic patients' sera, and all mutated forms show a high capacity binding of IgEs. The described rDer p 5 and its stability explain its antigenic capacity.

Conclusion: These molecules may be useful for diagnosis and immunotherapy of house dust mite-allergic patients.

KEYWORDS: House dust mites, Recombinant allergens, Immunodiagnosis.

Abstracts of Second International Conference on Health Sciences and Medical Technologies, 10-12 October 2017, Tlemcen, Algeria (ICHSMT-17)