Immune Responses to Allergens W. R. Thomas

Symposium Allergy Diagnosis Current and Future Perspective: Saturday, 8 December 2012: 03:45 PM - 05:30 PM, HICC, Hall 3

Molecular Characterization of Allergens

References for presentation

**Quantitation of IgE needed and probability of wheeze**


Haahtela T, Jaakonmäki I. Relationship of allergen-specific IgE antibodies, skin prick tests and allergic disorders in unselected adolescents. Allergy 36(4):251-6, 1981. (antibody concentration for skin test threshold)

**IgG titres to allergens**


Rossi RE, Monasterolo G. Evaluation of recombinant and native timothy pollen (rPhl p 1, 2, 5, 6, 7, 11, 12 and nPhl p 4)- specific IgG4 antibodies induced by subcutaneous immunotherapy with timothy pollen extract in allergic patients. Int Arch Allergy Immunol. 2004 Sep;135(1):44-53.


**IgG titres to antigens (to compare with allergens)**


Yerkovich ST, Hales BJ, Carroll ML, Burel JG, Towers MA, Smith DJ, Thomas WR, Upham JW. Reduced rhinovirus-specific antibodies are associated with acute exacerbations of chronic obstructive pulmonary disease requiring hospitalisation. BMC Pulm Medicine. 12:37, 2012,


T-cell frequencies to allergens


Assing K, Nielsen CH, Poulsen LK. Immunological characteristics of subjects with asymptomatic skin sensitization to birch and grass pollen. Clin Exp Allergy 2006; 36:283–92

Ueno-Yamanouchi A. Khan FM. Serushago B. Bowen T. Lu C. Luider J. Storek J. Allergen-specific T cell quantity in blood is higher in allergic compared to nonallergic individuals. Allergy, Asthma, & Clinical Immunology 7(1):6, 2011.


Fel d 1 tetramer staining about 0.01% and barely detectable for non-allergic


 Associations of IgG and allergic disease
IgG1 vs IgG4 associated with allergy


IgG other than IgG4 induced by immunotherapy


Ciprandi G, De Amici M, Tosca MA, Pistorio A, Marseglia GL. Sublingual immunotherapy affects specific antibody and TGF-beta serum levels in


**IgG4 required to block CD23 facilitated antigen presentation**


**Allergen interactions with innate immunity**

Emara M. Royer PJ. Abbas Z. Sewell HF. Mohamed GG. Singh S. Peel S. Fox J. Shakib F. Martinez-Pomares L. Ghaemmaghami AM. Recognition of the major cat allergen Fel d 1 through the cysteine-rich domain of the mannose receptor determines its allergenicity Journal of Biological Chemistry. 286(15):13033-40, 2011


Thomas WR. Hales BJ. Smith WA. House dust mite allergens in asthma and allergy. Trends in Molecular Medicine. 16(7):321-8, 2010


W.R. Thomas. Innate Affairs of Allergens Clin Exp Allergy DOI: 10.1111/j.1365-2222.2012.04059.x


Slide 17 Is millieu important may be not

**Different allergens induce different cytokines**


Hales BJ. Shen H. Thomas WR. Cytokine responses to Der p 1 and Der p 7: house dust mite allergens with different IgE-binding activities. Clinical & Experimental Allergy. 30(7):934-43, 2000

**Non-allergenic house mite antigen shows independent regulation**

Epton MJ. Smith W. Hales BJ. Hazell L. Thompson PJ. Thomas WR. Non-allergenic antigen in allergic sensitization: responses to the mite ferritin heavy chain antigen by allergic and non-allergic subjects. Clinical & Experimental Allergy. 32(9):1341-7, 2002

House dust mite chitinase and chitin binding protein

Hales BJ, Elliot CE, Chai LY, Pearce LJ, Tipayanon T, Hazell LA, Stone S, Piboonpocanunb S, Thomas WR, Smith WA. Quantitation of IgE binding to the chitinase and chitinase-like house dust mite allergens Der p 15 and Der p 18 compared to the major and midrange allergens. Int Arch Allergy Immunol. 160(3):233-240, 2012

**Measured IgE antibody titres to cat allergen**


Linden CC. Misiak RT. Wegienka G. Havstad S. Ownby DR. Johnson CC. Zoratti EM. Analysis of allergen specific IgE cut points to cat and dog in the Childhood Allergy Study. Annals of Allergy, Asthma, & Immunology. 106(2):153-158.e2, 2011


**IgE responses to different house mite allergens and proportionality with responses to major allergens**


Thomas WR, Hales BJ, Smith WA. House dust mite allergens in asthma and allergy. Trends in Molecular Medicine. 16(7):321-8, 2010

Non-Fel d 1 cat allergens


