

REFERENCES

REFERENCES

- Aalberse, R.C. (2000) Structural biology of allergens. *J Allergy Clin Immunol* **106**:228-8.
- Adinoff, A.D., Rosloniec D.M., McCall L.L. and Nelson H.S. (1998) A comparison of six epicutaneous devices in the performance of immediate hypersensitivity skin testing. *J Allergy Clin Immunol* **84**:168-74.
- Aki, T., Ono K., Paik S.Y., Wada T., Jyo T., Shigeta S., Murooka Y. and Oka S. (1994a). Cloning and characterisation of cDNA coding for a new allergen from the house dust mite, *Dermatophagoides farinae*. *Int Arch Allergy Immunol* **103**:349-56.
- Aki, T., Ono K., Hidaka Y., Shimonishi Y., Jyo T., Wada T., Yamashita M., Shigeta S., Murooka Y. and Oka S. (1994b) Structure of IgE epitopes on a new 39kDa allergen molecule from the house dust mite *Dermatophagoides farinae*. *Int Arch Allergy Immunol* **103**:357-64.
- Aki, T., Kodama T., Fujikawa A., Miura K., Shigeta S., Wada T., Jyo T., Murooka Y., Oka S. and Ono K. (1995) Immunochemical characterization of recombinant and native tropomyosins as a new allergen from the house dust mite, *Dermatophagoides farinae*. *J Allergy Clin Immunol* **96**:74-83.
- Anderson J.A. (1994) Milestones marking the knowledge of adverse reactions to food in the decade of 1980's. *Ann of Immunol* **72**:143-54.
- Anonymous: (1992) International Consensus Report on the Management of Asthma. *Clin Exp Allergy* **22** (Suppl):1-72.
- Anonymous: (1994) Technological application of immunochemicals. Biotechnology by open learning. Butterworth-Heinemann, pp 308.
- Appel, J.R., Pinilla C., Niman H. and Houghten R. (1990) Elucidation of discontinuous linear determinants in peptides. *J Immunol* **144**:976-83.
- Arruda, L.K. and Chapman M.D. (1992) A review of recent immunochemical studies of *Blomia tropicalis* and *Euroglyphus maynei* allergens. *Exp Appl Acarol* **16**:129-40.
- Arlian, L.G., Bernstein I.L., Geis D.P., Vyszenski Moher D.L., Gallagher J.S. and Martin B. (1987a) Investigations of culture medium-free house dust mites. III. Antigens and allergens of body and fecal extract of *Dermatophagoides farinae*. *J Allergy Clin Immunol* **79**:457-66.
- Arlian, L.G., Bernstein I.L., Vyszenski Moher D.L., and Gallagher J.S. (1987b) Antigenicity and allergenicity of body and fecal extracts of the mite *Dermatophagoides pteronyssinus* (Acari: Pyroglyphididae). *J Med Entomol* **24**:252-9.
- Arlian, L.G., Morgan M.S. and Neal J.S. (2002) Dust mite allergens: ecology and distribution. *Curr Allergy Asthma Rep* **2**:401-11.
- Asturias, J.A., Arilla M.C., Gomez-Bayon N., Martinez A., Martinez J. and Palacios R. (1998) Sequencing and high level expression in *Escherichia coli* of the tropomyosin

allergen (Der p 10) from *Dermatophagoides pteronyssinus*. *Biochimica et Biophysica Acta* **1397**:27-30.

Ayuso, R., Lehrer S.B., Tanaka L., Ibañez M.D., Pascual C., Bucks A.W., Sussman G.L., Goldberg B., Lopez M. and Reese G. (1999) IgE antibody response to vertebrate meat proteins including tropomyosin. *Ann Allergy Asthma Immunol* **83**:399-405.

Baldo, B.A. and Panzani R.C. (1988) Detection of IgE antibodies to a wide range of insect species in subjects with suspected inhalant allergies to insects. *Int Arch Allergy Appl Immunol* **85**:278-87.

Baldo, B.A., Ford S.A. and Tovey E.R. (1989) Toward a definition of the 'complete' spectrum and rank order of importance of house dust mite: *Dermatophagoides pteronyssinus*. *Adv in Biosciences* **74**:13-31.

Ball, T., Sperr W.R., Valent P., Lidholm J., Spitzauer S., Ebner C., Kraft D. and Valenta R. (1999) Induction of antibody responses to new B cell epitopes indicates vaccination character of allergen immunotherapy. *Eur J Immunol* **29**:2026-36.

Beattie, J., Fawcett H.A.C. and Flint D.J (1992) The use of mutiple-pin peptide synthesis in an analysis of the continuous epitopes recognised by various anti-(recombinant bovine growth hormone) sera. Comparison with predicted regions of immunogenicity and location within the three-dimensional structure of the molecule. *Eur J Biochem* **210**:59-66.

Bennet, B.J. and Thomas W.R. (1996) Cloning and sequencing of the group 6 allergen of *Dermatophagoides pteronyssinus*. *Clin Exp Allergy* **26**:1150-4.

Billman-Jacobe, H. (1996) Expression in bacteria other than *Escherichia coli*. *Curr Opin Biotechnol* **7**:500-4.

Bjorksten, B. (1994) Risk factors in early childhood for the development of atopic diseases. *Allergy* **49**:400-7.

Boluda, L., Fernández-Caldas E. and Berrens L. (1997) The role of IgG in Type-I allergy: an unsolved problem. *J Investig Allergol Clin Immunol* **7**:205-10.

Bosshard H.R. (1995) Epitope mapping with peptides. In: Peptides. Synthesis, structures and applications. (Ed: Bernd Gutte) Academic Press Inc. USA.

Bousquet, J., Vignola A.M. and Demoly P. (2003) Links between rhinitis and asthma. *Allergy* **58**:691-706.

Bradford, M.M. (1976) A rapid and sensitive method for the quantitation of microgram quantities of protein utilizing the principle of protein-dye binding. *Anal Biochem* **72**:248-54.

Bufe, A. (2001) Significance of IgE-binding epitopes in allergic disease. *J Allergy Clin Immunol* **107**:219-21.

Burks, A.W., Cockrell G., Connoughton C., Karpas A. and Helm R.M. (1995) Epitope specificity of the major peanut allergen Ara h II. *J Allergy Clin Immunol* **95**:607-11.

Caraballo, L., Puerta L., Jiménez S., Martínez B., Mercado D., Avjioglu B. and March D. (1997) Cloning and IgE binding of a recombinant allergen from the mite *Blomia tropicalis*, homologous with fatty acid-binding proteins. *Int Arch Allergy Immunol* 112:341-7.

Chan, P.W.K., J.A. DeBrueye and Goh A.Y.T. (1999) Food and asthma symptoms in Malaysian children. *J Trop Pediatrics* 45:184.

Chapman, M.D., Smith A.M., Vailes L.D., Arruda L.K., Dhanaraj V. and Pomés A. (2000) Recombinant allergens for diagnosis and therapy of allergic disease. *J Allergy Clin Immunol* 106:409-18.

Chen, Z., Van Kampen V., Raulf-Heimsoth M. and Baur X. (1996) Allergenic and antigenic determinants of latex allergen Hev b 1: peptide mapping of epitopes recognized by human, murine and rabbit antibodies. *Clin Exp Allergy* 26:406-15.

Cheng, Q., Jones G., Liu E.X., Kidson C. and Saul A. (1991) Identification of a common *Plasmodium* epitope (CPE) recognised by a pan-specific inhibitory monoclonal antibody. *Mol Biochem Parasitol* 49:73-82.

Chew, F.T., Zhang L., Ho T.M. and Lee B.W. (1999) House dust mites fauna of tropical Singapore. *Clin Exp Allergy* 29:201-6.

Chua, K.Y., Stewart G.A., Thomas W.R., Simpson R.J., Dilworth R.J., Plozza T. and Turner K.J. (1988) Sequence analysis of cDNA coding for a major house dust mite allergen, Der p I. Homology with cysteine protease. *J Exp Med* 167:175-82.

Chua, K.Y., Doyle C.R., Simpson R.J., Turner K.J., Stewart G.A. and Thomas W.R. (1990a) Isolation of cDNA coding for the major mite allergen Der p II by IgE plaque immunoassay. *Int Arch Allergy Appl Immunol* 91:118 - 23.

Chua, K.Y., Dilworth R.J. and Thomas W.R. (1990b) Expression of *Dermatophagoides pteronyssinus* allergen Der p II in *Escherichia coli* and the binding studies with human IgE. *Int Arch Allergy Appl Immunol* 91:124- 9.

Coca, A.F. and Cooke R.A. (1923) On the classification of the phenomenon of hypersensitivity. *J Immunol* 8:163.

Cohen, C. and Parry D.A. (1990) Alpha-helical coiled coils and bundles: how to design an alpha-helical protein. *Proteins* 7:1-15.

Collins, S.P., Ball G., Vonarx E., Hosking C., Shelton M., Hill D. and Howden M.E. (1996) Absence of continuous epitopes in the house dust mite major allergens Der p I from *Dermatophagoides pteronyssinus* and Der f from *Dermatophagoides farinae*. *Clin Exp Allergy* 26:36-42.

Colloff M.J., Howe C.W., McSharry C. and Smith H.V. (1992) Characterization of IgE antibody binding profiles of sera from patients with atopic dermatitis to allergens of the domestic mites *Dermatophagoides pteronyssinus* and *Euroglyphus maynei*, using enhanced chemiluminescent immunoblotting. *Int Arch Allergy Immunol* 97: 44-9.

Daul, C.B., Slattery M., Reese G. and Lehrer S.B. (1994) Identification of the major brown shrimp (*Penaeus aztecus*) allergen as the muscle protein tropomyosin. *Int Arch Allergy Appl Immunol* 104: 49-55.

Dillner, J., Szigetti R., Henle W., Henle G., Lerner R.A. and Klein G. (1987). Cellular and humoral immune responses to synthetic peptides deduced from the amino acid sequences of Epstein-Barr virus-encoded proteins in EBV-transformed cells. *Int J Cancer* **40**:455-60.

Dilworth, R.J., Chua K.Y. and Thomas W.R. (1991) Sequence analysis of cDNA coding for a major house dust mite allergen Der f 1. *Clin Exp Allergy* **21**:25-32.

Doerr, H.W., Rentschler M. and Scheifler, G. (1987) Serological detection of active infections with Human Herpes Virus (CMV, EBV, HSV and VZV): Diagnostic potential of IgA class and IgG subclass-specific antibodies. *Infection* **14**:93-8.

Dreborg, S. (1989) Skin tests used in type I allergy testing. Position Paper. *Allergy* (Supp.)

Eckart, M.R. and Bussineau C.M. (1996) Quality and authenticity of heterologous proteins synthesized in yeast. *Curr Opin Biotechnol* **7**:525-30.

Ellenberger, T.E., Brandl C.J., Struhl K. and Harrison S.C. (1992) The GCN4 basic region leucine zipper binds DNA as a dimer of uninterrupted alpha helices: crystal structure of the protein-DNA complex. *Cell* **71**:1223-37.

Elsayed, S. and Apold J. (1983) Immunochemical analysis of cod fish allergen M: locations of the immunoglobulin binding sites as demonstrated by the native and synthetic peptides. *Allergy* **38**:449-59.

Elsayed, S. and Stavsgaard L. (1994) Epitope mapping of region 11-70 of ovalbumin (Gal d II) using five synthetic peptides. *Int Arch Allergy Appl Immunology* **104**:65-71.

Epton, M.J., Dilworth R.J., Smith W., Hart B.J. and Thomas W.R. (1999) High-molecular weight allergens of the house dust mite: an apolipophorin-like cDNA has sequence identity with the major M-177 allergen and the IgE-binding peptide fragments Mag1 and Mag3. *Int Arch Allergy Immunol* **120**:185-91.

Fain, A. (1966) Further description of *Dermatophagooides pteronyssinus* (Trouessart, 1897). Importance of this arachnid in human pathology (Psoroptidae: Sarcoptiformae). *Acarologia* **8**:302-27.

Fellrath, J.M., Kettner A., Dufour N., Frigerio C., Schneeberger D., Liemgruber A., Corradin G. and Spertini F. (2003) Allergen-specific T-cell tolerance induction with allergen-derived long synthetic peptides: Results of a phase I trial. *J Allergy Clin Immunol* **111**:854-861.

Fernandez-Caldas E., Puerta L., Mercado D., Lockey R.F. and Caraballo L.R. (1993) Mite fauna, Der p 1, Der f 1 and *Blomia tropicalis* allergen levels in a tropical environment. *Clin Exp Allergy* **23**:292-7.

Gan, S.C. and Rajagopalan K. (1987) Correlation of RAST result and serum IgE levels with the allergic symptoms of some clinically defined Malaysian cases. *Malaysian J Path* **9**: 57-61.

Getzoff, E.D., Tainer J.A., Lerner R.A. and Geysen H.M. (1988) The chemistry and mechanism of antibody binding to protein antigens. *Adv Immunol* **43**:1-98.

Geysen, H.M., Meleon R.H. and Barteling S.J. (1984) Use of peptide synthesis to probe viral antigens for epitopes to a resolution of a single amino acid. *Proc Natl Acad Sci USA* **81:** 3998-4002.

Geysen, H.M., Rodda S.J. and Mason T.J. (1986) *A priori* delineation of a peptide which mimics a discontinuous antigenic determinant. *Mol Immunol* **23:**709-15.

Geysen, H.M., Rodda S.J., Mason T.J., Tribbick G. and Schoofs P.G. (1987a) Strategies for epitope analysis using peptide synthesis. *J Immunol Method* **102:**259-74.

Geysen, H.M., Tainer J.A., Rodda S.J., Mason T.J. Alexander H., Gertzhoff E.D. and Lerner R.A., (1987b) Chemistry of antibody binding to a protein. *Science* **235:**1184-90.

Geysen, H.M., Mason T.J. and Rodda S.J. (1988) Cognitive features of continuous antigenic determinants. *J Mol Recog* **1:**32-41.

Gibbs, C.S. 1996. Structure-Function Relationships for Protein Design, In Cleland and Craik C. (ed.) Protein Engineering, Principles and Practice, Eds. Wiley -Liss, Inc. pp. 317-47.

Gleich, G.J., Averback A.K. and Svedlund H.A. (1971) Measurement of IgE in normal and allergic serum by radioimmunoassay. *J Lab Clin Med* **77:**690-8.

Glockshuber, R., Malia, M., Pfitzinger, I. and Plückthun, A. (1990) A comparison of strategies to stabilise immunoglobulin Fv-fragments. *Biochemistry* **29:**1362-7.

Goodman, M., Verdini A.S., Toniolo C., Philips W.D., and Bovey F.A. (1969) Sensitive criteria for the critical size for helix formation in oligopeptides. *Proc Natl Acad Sci USA* **64:**444-50.

Gough, L., Schultz O., Sewell H.E. and Shakib F. (1999) The cysteine protease activity of the major house dust mite allergen Der p 1 selectively enhances the immunoglobulin E antibody response. *J Exp Med* **190:**1897-901.

Greene, W.K., Cyster J.G., Chua K.Y., O'Brien R.M. and Thomas W.R. (1991) IgE and IgG binding of peptides expressed from fragments of cDNA encoding the major house dust mite allergen Der p I. *J Immunol* **47:**3768-73.

Greene, W.K. and Thomas W.R. (1992) IgE binding structures of the major house dust mite allergen Der p I. *Mol Immunol* **29:**257-62.

Hamburger, R.N., Berger W.E., Quiwa N.B., Terrazas V., Cassilas R.J. and Miller S.P. (1991) Skin testing compared with *in vitro* testing for screening allergic patients. *Ann of Allergy*, **67:**133-7.

Harbury, P.B., Kim P.S. and Alber T. (1994) Crystal structure of an isoleucine-zipper trimer. *Nature* **371:**80-3.

Hewitt, C.R.A., Brown A.P. Hart B.D. and Pritchard D.I. (1995) A major house dust mite allergen disrupts the IgE network by selectively cleaving CD23. *J Exp Med* **182:** 1537-44.

Heymann, P.W., Chapman M.D., Aalberse R.C., Fox J.W. and Platts-Mills T.A. (1989)
Antigenic and structural analysis of group II allergens (Der f II and Der p II) from house dust mites (*Dermatophagoides* spp.). *J Allergy Clin Immunol* **83**: 1055-67.

Higgins, D.R. and Cregg J.M. (1998) *Pichia* protocols **103**: Totowa, NJ: Human Press.

Ho, T.M., Shahnaz M., Kesavapillai R. and Singaram S.P. (1995a) Prevalence of allergy to some inhalants among rhinitis patients in Malaysia. *Asian Pac J Allergy Immunol* **13**:11-16.

Ho, T.M., Tan B.H., Ismail S. and Kulaimi B.M. (1995b) Seasonal prevalence of air-borne pollen and spores in Kuala Lumpur, Malaysia. *Asian Pac J Allergy Immunol* **13**:17-22.

Hodges, R.S., Sodek J. and Smillie L.B. (1972) The cyanogen bromide fragments of rabbit skeletal-muscle tropomyosin. *Biochem J* **128**:102P.

Hodges, R.S., Saund A.K., Chong P.C., St-Pierre S.A. and Reid R.E. (1981) Synthetic model for two-stranded alpha-helical coiled-coils. Design, synthesis, and characterization of an 86-residue analog of tropomyosin. *J Biol Chem* **256**:1214-24.

Holgate, S.T. (2000) The role of mast cells and basophils in inflammation. *Clin Exp Allergy* **30** Suppl 1: 28-32.

Hopp, T.P. and Woods K.R. (1981) Prediction of protein antigenic determinants from amino acid sequences. *Proc Natl Acad Sci USA* **78**: 3824-8.

Hopp, T.P. and Woods K.R. (1983) A computer program of predicting protein antigenic determinants and other interaction sites. *Mol Immunol* **20**:483-9.

Humbert, M., Menz C., Ying S., Corrigan C.J., Robinson D.S., Durham S.R. and Kay A.B. (1999) The immunopathology of extrinsic (atopic) and intrinsic (non-atopic) asthma: more similarities than differences. *Immunol Today* **20**:528-33.

Hurtado, I. and Parini M. (1987) House dust mites in Caracas, Venezuela. *Ann Allergy* **59**:128-30.

Imran, G. and Hamimah I. (1983) Allergic rhinitis - Analysis of skin testing in 774 patients. *Med J Malaysia* **38**:121-5.

Ipsen H, Wihl J-Å, Nüchel Petersen B and Löwenstein H. (1992) Specificity mapping of patients IgE response towards tree pollen major allergens Aln g 1, Bet v 1 and Cor a 1. *Clin Exp Allergy* **22**:391-9.

Ishizaka, K. and Ishizaka T. (1978) Mechanisms of reaginic hypersensitivity and IgE antibody response. *Immunol Rev* **41**:109-48.

Jaafar, R.B. and Pettit J.H.S. (1993) Atopic eczema in a multiracial country (Malaysia). *Clin Exp Dermatol* **18**:496-9.

Jahn-Schmid, B., Siemann U, Zenker A., Bohle B., Messner P., Unger F.M., Sleytr U.B., Scheiner O., Kraft D. and Ebner C. (1997) Bet v 1, the major birch pollen allergen, conjugated to crystalline bacterial cell surface proteins, expands allergen-specific T cells of the Th1/Th0 phenotype *in vitro* by induction of IL-12. *Int Immunol* **9**:1867-74.

Jeannin, P., Delneste Y., Buisine E., Le Mao J., Didierlaurent A., Stewart G.A., Tartar A., Tonnel A.B. and Pestel J. (1993) Immunogenicity and antigenicity of synthetic peptides derived from the mite allergen Der p I. *Mol Immunol* **30**:1511-8.

Kabat, E.A. (1970) Heterogeneity and structure of antibody-combining sites. *Ann NY Acad Sci* **169**:3-54.

Kaminogawa, S. (1996) Food allergy, oral tolerance and immunomodulation – Their molecular and cellular mechanisms. *Biosci Biotechnol Biochem* **60**:1749-56.

Kammerer, R.A., Schulthess T., Landwehr R., Lustig A., Engel J., Aebi U. and Steinmetz M.O. (1998) An autonomous folding unit mediates the assembly of two-stranded coiled coils. *Proc Natl Acad Sci USA* **95**:13419-24.

Kawamoto, S., Mizuguchi Y., Morimoto K., Aki T., Shigeta S., Yasueda H., Wada T., Suzuki O., Jyo T. and Ono K. (1999) Cloning and expression of Der f 6, a serine protease allergen from the house dust mite, *Dermatophagoides farinae*. *Biochimica Biophysica Acta* **1454**:201-7.

Kay, A.B., (2001) Allergy and allergic diseases. First of two parts. *N Engl J Med* **344**:30-7.

Kern, R.A. (1921) Dust sensitization in bronchial asthma. *Med Clin North America* **5**:751-8.

King, H.C. (1990) An Otolaryngologist's Guide to Allergy. Thieme Medical Publishers, Inc. N.Y. pp 256.

King, T.P., Hoffman D., Lowenstein H., March A.G., Platts-Mills T.A.E. and Thomas W.R. (1994) Allergen Nomenclature. *Int Arch Allergy Immunol* **105**:224-233. [Original: Bull WHO 1994;72(5):797-806.]

King, C., Simpson R.J., Moritz R.I., Reed G.E., Thompson P.J. and Stewart G.A. (1996) The isolation and characterisation of a novel collagenolytic serine protease allergen (Der p 9) from the dust mite. *J Allergy Clin Immunol* **98**:739-47.

Laan, M.P., Baert M.R.M., Bijl A.M.H., Vredendaal A.E.C.M., De Waard-Van Der Spek F.B., Oranje A.P. Savelkoul H.F.J. and Neijens H.J. (2000) Markers for early sensitization and inflammation in relation to clinical manifestations of atopic disease up to 2 years of age in 133 high-risk children. *Clin Exp Allergy* **30**:944-53.

Laemmli, U.K. (1970) Cleavage of structural proteins during the assembly of the head of bacteriophage T4. *Nature* **227**:680-5.

Lake, F.R., Ward L.D., Simpson R.J., Thompson P.J. and Stewart G.A. (1991) House dust mite-derived amylase: allergenicity and physicochemical characterisaton. *J Allergy Clin Immunol* **87**:1035-42.

Larsen, F.S. (1993) The epidemiology of atopic dermatitis in Burr, M.L. (ed): Epidemiology of Clinical Allergy. *Monograph of Allergy*. Basel, Karger **31**:9-28.

Lau, S.Y., Taneja A.K. and Hodges R.S. (1984) Synthesis of a model protein of defined secondary and quaternary structure. Effect of chain length on the stabilization and formation of two-stranded alpha-helical coiled-coils. *J Biol Chem* **259**: 13253-61.

- Lavaud, F., Prevost A., Cossart C., Guerin L., Bernard J. and Kochman S. (1994)** Allergy to latex, avocado, pear and bananas: evidence for a 30kD antigen in immunoblotting. *J Allergy Clin Immunol* **95**: 557-64.
- Ledford, D.K. (1994)** Indoor allergens. *J Allergy Clin Immunol* **94**:327-34.
- Lee, T.S.S. (1990)** Relevant Aeroallergens in screening in ASEAN region. *Asean J Clinical Sciences* **10**:87-90.
- Leung, P.S.C., Chu K.H., Chow W.K., Ansari A., Bandea C.I., Kwan H.S., Nagy S.M. and Gershwin M.E. (1994)** Cloning, expression and primary structure of *Metapenaeus ensis* tropomyosin, the major heat-stable shrimp allergen. *J Allergy Clin Immunol* **94**:882-90.
- Leung, P.S., Chow W.K., Duffey S., Kwan H.S., Gershwin M.E. and Chu K.H. (1996)** IgE reactivity against a cross-reactive allergen in crustacea and mollusca: evidence for tropomyosin as the common allergen. *J Allergy Clin Immunol* **98**:954-61.
- Lin, K.L., Hsieh K.H., Thomas W.R., Chiang B.L. and Chua K.Y. (1994)** Characterisation of Der p V allergen, cDNA analysis and IgE-mediated reactivity to the recombinant protein. *J Allergy Clin Immunol* **94**:989-96.
- Lombardero, M., Heymann P.W., Platts-Mills T.A., Fox J.W. and Chapman M.D. (1990)** Conformational stability of B cell epitopes on group I and group II *Dermatophagoides* spp. allergens. Effect of thermal and chemical denaturation on the binding of murine IgG & human IgE antibodies. *J Immunol* **144**:1353-60.
- Luczynska, C., Arruda L., Platts-Mills T. (1989)** A two-site monoclonal antibody ELISA for the quantification of the major *Dermatophagoides* spp. allergens, Der p 1 and Der f 1. *J Immunol Methods* **118**:227-35.
- Madan T., Priyatdarsiny P., Vaid M., Kamal N., Shah A., Haq W., Katti S.B. and Sarma P.U. (2004)** Use of a synthetic peptide epitope of Asp f 1, a major allergen or antigen of *Aspergillus fumigatus*, for improved immunodiagnosis of allergic bronchopulmonary aspergillosis. *Clin Diagn Lab Immunol* **11**: 552-558.
- Maeji, J.N., Bray W.M., Valerio R.M. and Wang W. (1995)** Larger scale multipin peptide synthesis. *Peptide Research* **8**:33-8.
- Magnusson, C.G.M. (1994)** Naturally occurring human IgA autoantibodies against IgE-DES myeloma protein. Prevalence and specificity. *Allergy* **49**:820-826.
- Malveaux, F.J. and Fletcher-Vincent S.A. (1995)** *Environ Health Perspect* **103 Suppl 6**:59-62.
- Mariana, A., Ho T.M., Sofian-Azirun M. and Wong A.L. (2000)** House dust mite fauna in the Klang Valley, Malaysia. *Southeast Asian Journal of Tropical Medicine and Public Health* **31**:712-21.
- Martinez, A., Martinez J., Palacios R. and Panzani R. (1997)** Importance of tropomyosin in the allergy to household arthropods. Cross-reactivity with other invertebrate extracts. *Allergol et Immunopathol* **25**:118-26.
- McNally, E., Sohn R., Frankel S. and Leinwand L. (1991)** Expression of myosin and actin in *Escherichia coli*. *Methods Enzymol* **196**:368-89.

Meloen, R.H. and Barteling S.J. (1986) An epitope located at the C terminus of isolated VP1 of foot-and-mouth disease virus type O induces neutralizing activity but poor protection. *J Gen Virol* 67:289-94.

Meloen, R.H., Liskamp K.M. and Goudsmit J. (1989) Specificity and function of the individual amino acids of an important determinant of human immunodeficiency virus type I that induces neutralizing activity. *J Gen Virol* 70:1505-12.

Merrifield, R.B. (1963) Solid phase peptide synthesis I. The synthesis of a tetrapeptide. *J Am Chem Soc* 85:2149-54.

Metcalfe, D.D. and Sampson H.A. (Eds) (1990) Workshop on experimental methodology for clinical studies of adverse reactions to food and food additives. *J Allergy Clin. Immunol* 86:421-42.

Mueller, G.A., Smith A.M., Chapman M.D., Rule G.S. and Benjamin D.C. (2001) Hydrogen exchange nuclear magnetic resonance spectroscopy mapping of antibody epitopes on the house dust mite allergen Der p 2. *J Biol Chem* 276:12 9359-65.

Mills, K.L., Hart B.J., Lynch N.R., Thomas W.R. and Smith W. (1999) Molecular characterisation of the group 4 house dust mite allergen from *Dermatophagoides pteronyssinus* and its amylase homologue from *Euroglyphus maynei*. *Int Arch Allergy Immunol* 120:100-27.

Miyamoto, T., Oshima S., Ishizaki T. and Sato S. (1968) [Antigenic identity of house dust with the house dust mite. I. Clinical evaluation of *Dermatophagoides farinae*, Hughes, (Acarina psoroptidae)] *Arerugi* 17:85-90.

Nelson, H.S. (1983) Diagnostic procedures in allergy. I. Allergy skin testing. *Ann Allergy* 51:411-7.

Niederberger V., Stubner P., Spitzauer S., Kraft D., Valenta R., Ehrenberger K. and Horak F. (2001) Skin test results but not serology reflect immediate type respiratory sensitivity: a study performed with recombinant allergen molecules. *J Invest Dermatol* 117:848-51.

Nikolaizik, W.H., Crameri R., Blaser K. and Schöni M.H. (1996) Skin test reactivity to recombinant *Aspergillus fumigatus* allergen I/a in patients with cystic fibrosis. *Int Arch Allergy Immunol* 111:403-8.

Nishiyama, C., Yasuhara T., Yuuki T. and Okumura Y. (1995) Cloning and expression in *Escherichia coli* of cDNA encoding house dust mite allergen Der f 3, serine protease from *Dermatophagoides farinae*. *FEBS Letters* 377:62-6.

Ong, E.K., Knox R.B. and Singh M.B. (1995) Mapping of the antigenic and allergenic epitopes of Lol p VB using gene fragmentation. *Mol Immunol* 32:295-302.

O'Brien, R.M. and Thomas W.R. (1994) Immune reactivity to Der p I and Der p II in house dust mite sensitive patients attending paediatric and adult allergy clinics. *Clin-Exp Allergy* 24:737-42.

O'Neill, G.M., Donovan G.R. and Baldo B.A. (1994) Cloning and characterisation of a major allergen of the house dust mite, *Dermatophagoides pteronyssinus*, homologous with glutathione-S-transferase. *Biochimica Biophysica Acta* 1219:521-8.

Paul, W.E. (ed) (1991) Immunology: recognition and response: readings from Scientific American magazine. W.H. Freeman and Co., pp 168.

Pepys, J. (1994) "Atopy": A study in definition. *Allergy* **49**:397-9.

Platts-Mills, T.A.E., Chapman N.D. and Pollart S.M. (1990) Establishing health standards for indoor foreign proteins related to asthma: Dust-mite, cat and cockroach. In: Toxicology and Industrial Health. Princeton Scientific Publishing Co., Inc. **6**:197-208.

Platts-Mills, T.A.E., Wheatley L.M. and Aalberse R.C. (1998) Indoor versus outdoor allergens in allergic respiratory disease. *Curr Opin Immunol* **10**:634-9.

Pomés, A., Smith A.M., Grégoire C., Vailes L.D., Arruda L.K. and Chapman M.D. (2001) Functional properties of cloned allergens from dust mite, cockroach, and cat - Are they relevant to allergenicity? *ACI International* **13/4**:162-9.

Poulter, L.W., Janossy G., Power C., Sreenan S. and Burke C. (1994) Immunological / physiological relationships in asthma: potential regulation by lung macrophages. *Immunol Today* **15**:258-61.

Puerta, L., Caraballo L.R., Fernandez-Caldas E., Avjioglu A., Marsh D., Lockey R.F. and Dao M.L. (1996) Nucleotide sequence analysis of a complimentary DNA coding for a *Bloomia tropicalis* allergen. *J Allergy Clin Immunol* **98**:932-7.

Puerta, L., Kennedy M.W., Jiménez S., and Caraballo, L. (1999) Structural and ligand binding analysis of recombinant Blo t 13 allergen from *Bloomia tropicalis* mite, a fatty acid binding protein. *Int Arch Allergy Immunol* **119**:181-4.

Quah, B.S., Razak A.R. and Hassan M.H. (1997) Prevalence of asthma, rhinitis and eczema among schoolchildren in Kelantan, Malaysia. *Acta Paediatr Jpn* **39**:329-35.

Ramos, J.D., Cheong N., Lee B.W. and Chua K.Y. (2001) cDNA cloning and expression of Blo t 11, the *Bloomia tropicalis* allergen homologous to paramyosin. *Int Arch Allergy Immunol* **126**:286-93.

Redlich, P.N., Hoeprich P.D., Colby C.B. and Grossberg S.E. (1991) Antibodies that neutralize human beta interferon biologic activity recognize a linear epitope: analysis by synthetic peptide mapping. *Proc Natl Acad Sci USA* **88**:4040-4.

Reese G., Tracey D., Daul C.B. and Lehrer S.B. (1996) IgE and monoclonal antibody reactivities to the major shrimp allergen Pen a 1 (Tropomyosin) and vertebrate tropomyosins. New Horizons in Allergy Immunotherapy. Ed. Sehon *et al.*, Plenum Press, New York. pp 225-30.

Reese, G., Ayuso R., Leong-Kee S.M., Plante M.J. and Lehrer S. (2001) Characterisation and identification of allergen epitopes: recombinant peptide libraries and synthetic, overlapping peptides. *J Chromatography B* **756**:157-63.

Rhodes, G., Houghten R., Taulane J.P., Carson D. and Vaughan J. (1984) The immune response to Epstein-Barr virus nuclear antigen: conformational and structural features of antibody binding to synthetic peptides. *Mol Immunol* **21**:1047-54.

Robinson, C., Kalsheker N.A., Srinivasan N., King C.M., Garrod D.R., Thompson P.J. and Stewart G.A. (1997) On the potential significance of the enzymatic activity of

mite allergens to immunogenicity. Clues to structure and function revealed by molecular characterization. *Clin Exp Allergy* 97:10-21.

Rodda, S.J. and Tribbick G. (1996) Antibody-defined epitopes mapping using the Multipin method of peptide synthesis. In: Methods: A companion to Methods in Enzymology. Academic Press, Inc. 9:473-81.

Rodda, S.J. (1997) Synthesis of multiple peptides on plastic pins. *Curr Protocols Immunol* Vol 2, Supp. 22. John Wiley & Sons, Inc. pp 9.7.1-19.

Roitt, I.M. (1997) Essential Immunology (9th Ed.). Oxford Malden, MA: Blackwell Science.

Russell, M.W., Prince S.J., Ligthart G.L., Radl B.J. and Mestecky J. (1989) Serum and salivary IgA1, IgA2, IgG and IgM antibodies to bacterial antigens in aged, edentulous, and normal adults. *Protides of the Biological Fluids* 36:223-8.

Salvaggio, J., Lopez M., Arquembourg P., Waldman R. and Sly M. (1973) Salivary, nasal wash and sputum IgA concentrations in atopic and nonatopic individuals. *J Allergy Clin Immunol* 51:335-43.

Sambrook, J., Fritsch E.F. and Maniatis T. (1989) Molecular Cloning: A Laboratory Manual, 2nd ed. Cold Spring Harbour Laboratory Press, Cold Spring Harbour, New York.

Sam, C.K. and Lee T.S. (1995) Specific IgE in the identification of allergens in allergic rhinitis Malaysian patients. *Asian Pacific J Allergy Immunol* 13:23-7.

Santos, A.B., Chapman M.D., Aalberse R.C., Vailes L.D., Ferriani V.P., Oliver C., Rizzo M.C., Naspritz C.K. and Arruda L.K. (1999) Cockroach allergens and asthma in Brazil: identification of tropomyosin as a major allergen with potential cross-reactivity with mite and shrimp allergens. *J Allergy Clin Immunol* 104:329-37.

Savoca, R., Schwab C. and Bossard H.R. (1991) Epitope mapping employing immobilised synthetic peptides. *J Immunol Methods* 141:245-52.

Schechter, B., Schechter I. and Sela M. (1970) Antibody combining sites to a series of peptide determinants of increasing size and defined structure. *J Biol Chem* 245:1438-47.

Schmidt, T.G. and Skerra A. (1994) One-step affinity purification of bacterially produced proteins by means of the "Strep-tag" and immobilized recombinant core streptavidin. *J Chromatogr A* 676:337-45.

Schou, C. (1995) Allergens in rhinitis. B- and T-cell epitopes of allergen molecules. *Clin Exp Allergy* 25:10-14.

Schramm, G., Kahlert H., Suck R., Weber B., Stüwe H.T., Müller W.D., Buße A., Becker W.M., Schlaak M.W., Jäger L., Cromwell O. and Fiebig H. (1999) "Allergen engineering": variants of the timothy grass pollen allergen Phl p 5b with reduced IgE-binding capacity but conserved T cell reactivity. *J Immunol* 162:2406-14.

Shanti, K.N., Martin B.M., Nagpal S., Metcalfe D.D. and Subba Rao P.V. (1993) Identification of tropomyosin as the major shrimp allergen and characterization of its IgE-binding epitopes. *J Immunol* 151:5354-63.

Shen, H.D., Chua K.Y., Lin W.L., Hsieh K.H. and Thomas W.R. (1993) Molecular cloning of a house dust mite allergen with common antibody binding specificities with multiple components in mite extracts. *Clin Exp Allergy* 23:934-40.

Shen, H.D., Chua K.Y., Lin W.L., Hsieh K.H. and Thomas W.R. (1995) Molecular cloning and immunological characterisation of the house dust mite allergen Der f 7. *Clin Exp Allergy* 25:1000-6.

Shibasaki, M., Isoyama S. and Takita H. (1994) Influence of age on IgE responsiveness to *Dermatophagoides farinae*: an immunoblot study. *Int Arch Allergy Immunol* 103:53-8.

Shin, D.S., Compadre C.M., Maleki S.J., Kopper R.A., Sampson H., Huang S.K., Burks A.W. and Bannon G.A. (1998) Biochemical and structural analysis of the IgE binding sites on Ara h 1, an abundant and highly allergenic peanut protein. *J Biol Chem* 273:13753-9.

Sibbald, B. and Rink E. (1991) Epidemiology of seasonal and perennial rhinitis: Clinical presentation and medical history. *Thorax* 46:895-901.

Smith, D.B. and Johnson K.S. (1988) Single-step purification of polypeptides expressed in *Escherichia coli* as fusions with glutathione S-transferase. *Gene* 67:31-40.

Smith W.A., Chua K.Y., Kuo M.C., Rogers B.L. and Thomas W.R. (1994) Cloning and sequencing of *Dermatophagoides pteronyssinus* group 3 allergen, Der p 3. *Clin Exp Allergy* 24:220-8.

Smith, W., Mills K.L., Hazell L.A., Hart B.J. and Thomas W.R. (1999) Molecular analysis of the group 1 and 2 allergens from the house dust mite, *Euroglyphus maynei*. *Int Arch Allergy Immunol* 118:15-22.

Standring, R., Spackman V. and Porter S.J. (1987) Distribution of a major allergen of rye grass (*Lolium perenne*) pollen between other grass species. *Int Arch Allergy Appl Immunol* 83:96-103.

Steinberger, P., Bohle B., di Padova F., Wrann M., Liehl E., Scheiner O., Kraft D. and Valenta R. (1995) Allergen-specific IgE production of committed B cells from allergic patients *in vitro*. *J Allergy Clin Immunol* 96:209-18.

Steinmetz, M.O., Stock A., Schulthess T., Landwehr R., Lustig A., Faix J., Gerisch G., Aebi U. and Kammerer R.A. (1998) A distinct 14 residue site triggers coiled-coil formation in cortexillin I. *EMBO J* 17:1883-91.

Stewart, G.A. and Thompson P.J., (1996) The biochemistry of common aeroallergens. (Rev) *Clin Exp Allergy* 26:1020-44.

Tejera, M.L., Villalba M., Batanero E. and Rodriguez R. (1999) Identification, isolation, and characterization of Ole e 7, a new allergen of olive tree pollen. *J Allergy Clin Immunol* 104:797-802.

Thomas, V., Tan B.H. and Rajapaksa A.C.P. (1978) *Dermatophagoides pteronyssinus* and house dust allergy in West Malaysia. *Ann Allergy* 75:29-35.

Thomas, W.R., Smith W. and Hales B.J. (1998) House dust mite allergen characterisation: Implications for T-cell responses and immunotherapy. *Int Arch Allergy Immunol* **115**:9-14.

Tovey, E.R., Johnson M.C., Roche A.L., Cobon G.S. and Baldo B.A. (1989) Cloning and sequencing of a cDNA expressing a recombinant house dust mite protein that binds human IgE and corresponds to an important low molecular weight allergen. *J Exp Med* **170**:1457-62.

Towbin, H., Staehelin I. and Gordon J. (1979) Electrophoretic transfer of proteins from polyacrylamide gels to nitrocellulose sheets: Procedures and some applications. *Proc Natl Acad Sci USA* **76**:4350-4.

Tribbick, G., Edmundson A.B., Mason T.J. and Geysen H.M. (1989) Similar binding properties of peptide ligands for a human immunoglobulin and its light chain dimer. *Mol Immunol* **26**:625-35.

Trudinger, M., Chua K.Y. and Thomas W.R. (1991) cDNA encoding the major mite allergen Der f II. *Clin Exp Allergy* **21**:33-7.

Tsai, J.J., Wu H.H., Shen H.D., Hsu E.L., Wang S.R. (1998) Sensitization to *Blomia tropicalis* among asthmatic patients in Taiwan. *Int Arch Allergy Immunol* **115**:144-9.

Tsai, L.C., Chao P.L., Hung M.W., Sun Y.C., Kuo I.C., Chua K.Y., Liaw S.H., Chu K.Y. and Kuo I.C. (2000) Protein sequence analysis and mapping of the allergenic 98-kDa *Dermatophagoides farinae* paramyosin, Der f 11. *Allergy* **55**:141-7.

Tupker, R.A., De Monchy J.G.R., Coenraads P.J., Homan A. and Van Der Meer J.B. (1996) Induction of atopic dermatitis by inhalation of house dust mite. *J Allergy Clin Immunol* **97**:1064-70.

Turkeltaub, P.C., Rastogi S.C., Baer H., Anderson M.C. and Norman P.S. (1982) A standardized quantitative skin-test assay of allergen potency and stability: Studies on the allergen dose-response curve and effect of wheal, erythema, and patient selection on assay results. *J Clin Immunol* **70**: 343-52.

Valenta, R., and Kraft D. (1995) Recombinant allergens for diagnosis and therapy of allergic diseases. *Curr Opin Immunol* **7**:751-6.

Valenta, R., Lidholm J., Niederberger V., Hayek B., Kraft D. and Grönlund H. (1999) The recombinant allergen-based concept of component-resolved diagnostics and immunotherapy (CRD and CRIT) *Clin Exp Allergy* **29**:896-904.

van Hage-Hamsten, M., Machado L., Barros M.T., and Johansson S.G. (1990) Immune response to *Blomia kulagini* and *Dermatophagoides pteronyssinus* in Sweden and Brazil. *Int Arch Allergy Appl Immunol* **91**:186-91.

van der Veen, M.J. Mulder M., Witteman A.M., van Ree R., Aalberse R.C., Jansen H.M. and van der Zee J.S. (1996) False-positive skin prick test responses to commercially available dog dander extracts caused by contamination with house dust mite (*Dermatophagoides pteronyssinus*) allergens. *J Allergy Clin Immunol* **98**:1028-34.

Van Metre, T.E., Adkinson F., Kagey-Sobotka A., March D.G., Norman P.S. and Rosenberg G.L. (1990) How should we use skin testing to quantify IgE sensitivity? *J Allergy Clin Immunol* **86**: 583-6.

van Milligen, F.J., van't Hoff W. and Aalberse R. (1994) IgE and IgG4 binding to synthetic peptides of the cat (*Felis domesticus*) major allergen Fel d I. *Int Arch Allergy Immunol* **103**:3274-9.

van Oort E., de Heer P.G., Lerouge P., Faye L., Aalberse R.C. and van Ree R. (2001) Immunochemical characterization of two *Pichia pastoris*-derived recombinant group 5 *Dactylis glomerata* isoallergens. *Int Arch Allergy Immunol* **126**:196-205.

van Ree, R., Antonicelli L., Akkerdaas J.H., Pajno G.B., Barberio G., Corbett L., Ferro, G., Zambito M., Garritani M.S., Aalberse R.C. and Bonifazi F. (1996) Asthma after consumption of snails in house-dust-mite-allergic patients: a case of IgE cross-reactivity. *Allergy* **51**:387-93.

Van Regenmortel, M.H. and Pellequer J.L. (1994) Predicting antigenic determinants in proteins: Looking for unidimensional solutions to a three-dimensional problem? *Peptide Research* **7**:224-8.

Ventas, P., Carreira J. and Polo F. (1991) Identification of IgE-binding proteins from *Lepidoglyphus destructor* and production of monoclonal antibodies to a major allergen. *Immunol Lett* **29**:229-34.

Voorhorst, R.F., Spieksma-Boezeman M.I.A. and Spieksma F.Th.M. (1964) Is a mite (*Dermatophagoides* sp.) the producer of the house-dust allergen? *Allergie u Asthma* **10**:329-34.

Vrtala, S., Hirtenlehner K., Vangelista L., Pastore A., Eichler H-G. Sperr W.R., Valent P., Ebner C., Kraft D. and Valenta R. (1997) Conversion of the major birch pollen allergen Bet v 1, into two non-anaphylactic T cell epitope-containing fragments, *J Clin Invest* **99**: 1673-81.

Vrtala, S., Spitzauer S., Pandjaitan B., Suphioglu C., Knox B., Sperr W.R. Valent P., Kraft D. and Valenta R. (1998) Immunization with purified natural and recombinant allergens induces mouse IgG1 antibodies that recognize similar epitopes as human IgE and inhibit the human IgE-allergen interaction and allergen-induced basophil degranulation. *J Immunol* **160**:6137-44.

Wagenmann, M., Baroody F.M., Desrosiers M., Hubbard W.C., Ford S., Lichtenstein L.M. and Naclerio R.M. (1996) Unilateral nasal challenge leads to bilateral release of prostaglandin D2. *Clin Exp Allergy* **26**:371-8.

Wharton, G.W., (1976) House dust mites. *J Med Entomol* **12**:577-621.

Witteman, A.M., Akkerdaas J.H., Van Leeuwen J., Van Der Zee J.S. and Aalberse R.C. (1994) Identification of a cross-reactive allergen (presumably tropomyosin) in shrimp, mite and insects. *Int Arch Allergy Immunol* **105**:56-61.

Yamaguchi, T., Tanaka S., Shigeta S., Wada T., Tsuboi S., Otsuka T., Katsutani T., Jyo T., Oka S. and Ono K. (1994) A low-molecular-size LM2 allergen in mite, *Dermatophagoides farinae* extracts containing feces which elicits conjunctival reactions in patients with bronchial asthma. *Arerugi* **43**:815-24.