

5. Termination reaction

Add 4 μL of stop solution to each of the termination reactions, mix thoroughly and centrifuge briefly to separate the oil from the aqueous phase. Alternatively, remove 6 μL from each termination reaction and transfer to a fresh tube containing 3-4 μL of stop solution. Samples may be stored frozen until ready to load the sequencing gel. Immediately before loading, heat samples to 90°C for 10 min and load 3 μL /lane (all the samples should be loaded onto the gel within 5 min).

Plate pretreatment

The plates should be cleaned thoroughly with absolute ethanol and allowed to dry, following which the smaller of the two plates (i.e. the notched plate) should be siliconised (Sigmacote was used for the present study). The spacers are then placed along the edge of the large plate and the notched plate is then placed on top, such that all the edges are even. The plates are then taped together, taping the bottom edge last.

Gel preparation

Gel concentration (%)	Acrylamide/ bis-acrylamide	Urea (7 M)	20x glycerol tolerant gel buffer (GTB)	ddH ₂ O
6	5.7 g/0.3 g	42 g	4-5 mL*	~45 mL

*use 4 mL for faster gel migration.

Dissolve the above reagents, adjust the volume to 100 mL with ddH₂O, filter at 4°C (the colder the gel solution, the easier it is to pour) and degas for 3 min. When ready to pour, add 1 mL of 10% ammonium persulfate and 25 µL TEMED. Gels should be prepared 2-20 hrs prior to use (if kept overnight, store covered at 4°C).

The gels were pre-run at 90 W constant power for 30 min, until the gel temperature reached 48-50°C. Samples were then loaded and the gels were run for 1½-2 hrs at room temperature at 60 W (constant power) until the bromophenol blue dye front reached the bottom of the gel. The gel temperature was maintained at 48-50°C. The running buffer used was 0.5xGTB. After electrophoresis, the gels were blotted onto 3 MM Whatman filter paper, dried on a slab gel dryer at 80°C for 1-1½ hrs and autoradiographed for 24-72 hrs (depending on the age of the [α -³³P] ddNTP).

REFERENCES

Alam, R and Grant, J.A. (1995) Basophils: biology and function in airway disease.

In: Busse, W.W. and Holgate, S.T. eds. *Asthma and Rhinitis*, Boston: Blackwell Scientific Publications, pp. 242-251.

American Thoracic Society Committee on Diagnostic Standards for Nontuberculosis Diseases. (1962) Definitions and classifications of chronic bronchitis, asthma and pulmonary emphysema. *Am Rev Respir Dis*, vol. 85, pp. 756-758.

Andrews, A.T. (1987) An introduction to polyacrylamide gel electrophoresis. In: Hames, B.D. and Rickwood, D. eds. *Gel Electrophoresis of Proteins. A Practical Approach*, Oxford: IRL Press.

Antò, J.M., Sunyer, J., Rodriguez-Roisin, R., Suarez-Cervera, M. and Vazquez, L. (1989) Community outbreaks of asthma associated with inhalation of soybean dust. *N Engl J Med*, vol. 302, pp. 1097-1102.

Antò, J.M. and Sunyer, J. (1995) Nitrogen dioxide and allergic asthma: starting to clarify an obscure association. *Lancet*, vol. 345, pp. 402-403.

Arend, W.P. (1993) Interleukin-1 receptor antagonist. *Adv Immunol*, vol. 54, pp. 167-227.

Arend, W.P., Welgus, H.G., Thompson, R.C. and Eisenberg, S.P. (1990) Biological properties of recombinant human monocyte derived interleukin-1 receptor antagonist. *J Clin Invest*, vol.85, pp.1694-1697.

Arends, M.J. and Bird, C.C. (1992) Recombinant DNA technology and its diagnostic applications. *Histopath*, vol. 21, pp. 303-313.

Arend, W.P., Smith, M.F., Janson, R.W. and Joslin, F.G. (1991) Interleukin-1 receptor antagonist and interleukin-1 β production in human monocytes are regulated differently. *J Immunol*, vol. 147, pp. 1530-1536.

Arm, J.P. and Lee, T.H. (1992) The pathophysiology of bronchial asthma. *Advances in Immunology*, vol. 51, pp. 323-370.

Arnheim, N. and Ehrlich, H. (1992) Polymerase chain reaction strategy. *Ann Rev Biochem*, vol. 61, pp. 131-156.

Arrighi, H.M. (1995) US asthma mortality: 1941-1989. *Annals of Allergy, Asthma and Immunology*, vol. 74, pp. 321-324.

Auron, P.E., Warner, S.J., Webb, A.C., Cannon, J.G and Dinarello, C.A (1987) Studies on the molecular nature of human interleukin-1. *J Immunol*, vol. 138, pp. 1447-1456.

Barnes, P.J. (1989) Drug therapy: a new approach to the treatment of asthma. *N Engl J Med*, vol. 321, pp.1517-1527.

Barnes, P.J. (1993) Asthma: what is there left to find out? *BMJ*, vol. 307, pp. 814-815.

Barnes, W.M. (1994) PCR amplification of up to 35-kb DNA with high fidelity and high yield from λ bacteriophage templates. *Proc Natl Acad Sci USA*, vol. 91, pp. 2216-2220.

Barnes, P.J., Greening, A.P. and Crompton, G.K. (1995) Glucocorticoid resistance in asthma. *Am J Respir Crit Care Med*, vol. 152, pp. S125-S142.

Barnes, P.J. and Liew, F.Y. (1995) Nitric oxide and asthmatic inflammation. *Immunology Today*, vol. 16, no. 3, pp. 128-130.

Barnes, N.C., Alexander, A.G. and Kuitert, L.M. (1995) New medications for asthma. In: Busse, W.W. and Holgate, S.T. eds. *Asthma and Rhinitis*, Boston: Blackwell Scientific Publications, pp. 1337-1348.

Benatar, S.R. and Ainslie, G.M. (1986) Deaths from asthma in Cape Town, 1980-1982. *SAMJ*, vol. 69, pp. 669-671.

Bensi, G., Raugi, G., Palla, E., Carinci, V., Bounamassa, D.T. and Melli, M. (1987) Human interleukin-1 beta gene. *Gene*, vol.52, pp.95-100.

Bergholdt, R., Karlsen, A.E., Johannesen, J., Hansen, P.M., Dinerello, C.A., Nerup, J. and Pociot, F. (1995) Characterisation of polymorphisms of an interleukin-1 receptor type 1 gene (IL1RI) promoter region (P2) and their relation in insulin-dependent diabetes mellitus (IDDM). *Cytokine*, vol. 7, pp.727-733.

Billingsley, G.D., Walter, M.A., Hammond, G.L. and Cow, D.W. (1993) Physical mapping of four serpin genes: α_1 -antitrypsin, α_1 -antichymotrypsin, corticosteroid-binding globulin, and protein C inhibitor, within a 280-kb region on chromosome 14q32.1. *Am J Hum Genet*, vol. 52, pp. 343-353.

Björnsdottir, U.S., Quan, S.F and Busse, W.W (1995) Eosinophils and asthma. In: Busse, W.W. and Holgate, S.T. eds. *Asthma and Rhinitis*, Boston: Blackwell Scientific Publications, pp. 328-346.

Blakemore, A.I.F., Tarlow, J.K., Cork, M.J., Gordan, C., Emery, P. and Duff, G.W. (1994) Interleukin-1 receptor antagonist gene polymorphism as a disease severity factor in systemic lupus erythematosus. *Arthritis & Rheumatism*, vol. 37, pp.1380-1385.

Bloch, W. (1991) A biochemical perspective of the polymerase chain reaction. *Biochemistry*, vol. 30, no. 11, pp. 2735-2747.

Borish, L., Rosenbaum, R., McDonald, B. and Rosenwasser, L.J. (1990) Recombinant interleukin-1 beta interacts with high-affinity receptors to activate neutrophil leukotriene B4 synthesis. *Inflammation*, vol.14, pp.151-155.

Borish, L., Mascali, J.J. and Rosenwasser, L.J. (1991) IgE-dependent cytokine production by human peripheral blood mononuclear phagocytes. *J Immunol*, vol. 146, pp. 63-67.

Bousquet, J., Chanez, P. and Lacoste, J.Y. (1990) Eosinophilic inflammation in asthma. *N Engl J Med*, vol. 323, pp. 1033-1039.

Boyer, S., Pereira, E., Palmer, L., Rye, P., Goldblatt, J., Sanderson, C. and LeSouef, P. (1995) Confirmation of the presence of a polymorphism in the interleukin 4 promoter in an asthmatic cohort (abstract). *Am J Respir Crit Care Med*, vol. 151, pg. A470.

Brantly, M., Nukiwa, T. and Crystal, R.G. (1988) Molecular basis of α_1 -antitrypsin deficiency. *Am J Med*, vol. 84 (Suppl. 6A), pp. 13-31.

Brown, T.A. (1989) *Gene Cloning-An Introduction*, London: Von Nostrand Reinhold.

Burrows, B. and Lebowitz, M.D. (1992) The beta-agonist dilemma. *N Engl J Med*, vol. 326, pp. 560-561.

Bush, R.K. and Ashbury, D.C. (1995) Aspirin-sensitive asthma. In: Busse, W.W. and Holgate, S.T. eds. *Asthma and Rhinitis*, Boston: Blackwell Scientific Publications, pp. 1429-1439.

Busse, W.W., Sedgick, J.B., Jarjour, N.N. and Calhoun, W.J. (1994) Eosinophils and basophils in allergic airway inflammation. *J Allergy Clin Immunol*, vol. 94, pp. 1250-1254.

Busse, W.W., Coffman, R.L., Gelfand, E.W., Kay, E.B. and Rosenwasser, L.J. (1995) Mechanisms of persistent airway inflammation in asthma: a role for T cells and T-cells products. *Am J Respir Crit Care Med*, vol. 152, pp. 388-393.

Booth, B.C., Billingsley, G.D. and Cox, D.W. (1994) Physical and genetic mapping of the serpin gene cluster at 14q32.1: allelic association and a unique haplotype associated with alpha-1-antitrypsin deficiency. *Am J Hum Genet*, vol. 55, pp. 126-137.

Calhoun, W.J. and Jarjour, N.N. (1995) Macrophages and macrophage diversity in asthma. In: Busse, W.W. and Holgate, S.T. eds. *Asthma and Rhinitis*, Boston: Blackwell Scientific Publications, pp. 467-473.

Carrell, R.W. (1984) α_1 -antitrypsin, emphysema and smoking. *NZ Med J*, vol. 97, pg. 327.

Cassatella, M.A. (1995) The production of cytokines by polymorphonuclear neutrophils. *Immunology Today*, vol. 16, no.1, pp. 21-26.

Cerrina, J., Ladurie, M.L.R., Labat, C., Raffestin, B., Bayol, A. and Brick, C. (1986) Comparison of human bronchial muscle responses to histamine in vivo with histamine and isoproterenol agonists in vitro. *Am Rev Respir Dis*, vol. 123, pp.156-160.

Chapman, I.D., Foster, A. and Morley, J. (1993) The relationship between inflammation and hyperreactivity of the airways. *Clin Exp Allergy*, vol. 23, pp. 168-171.

Cheng, S., Chang, S-Y., Gravitt, P. and Respass, R. (1994) Long PCR. *Nature*, vol.369, pp. 684-685.

Chonmaitree, T., Brown, M.A. and Grant, J.A. (1991) Respiratory viruses induce production of histamine-releasing factor by mononuclear leukocytes: a possible role in the mechanism of virus-induced asthma. *J Infect Dis*, vol. 164, pp. 592-594.

Clay, F.E., Cork, M.J., Tarlow, J.K., Blakemore, A.I.F., Harrington, C.I., Lewis, F. and Duff, G. (1994) Interleukin-1 receptor antagonist gene polymorphism association with lichen sclerosis. *Hum Genet*, vol. 94, pp.407-410.

Colp, C., Pirras, J., Moran, D. and Lieberman, J. (1993) Variants of α_1 -antitrypsin in Puerto Rican children with asthma. *Chest*, vol. 103, pp. 312-315.

Constans, J., Kühnl, P., Viau, M. and Spielmann, W. (1980) A new procedure for the determination of transferrin (Tf) subtype by isoelectric focussing. Existence of 2 additional alleles, Tf^{a4} and Tf^{a5}. *Human Genet*, vol. 55, pp. 111-114.

Cookson, W.O.C.M., Sharp, P.A., Faux, J.A. and Hopkin, J.M. (1989) Linkage between immunoglobulin E responses underlying asthma and rhinitis and chromosome 11q. *Lancet*, vol. 1, pp. 1292-1294.

Cookson, W. (1994) The genetics of atopy. *J Allergy Clin Immunol*, vol. 94, pp. 643-644.

Copeland, N.G., Silan, C.M., Kingsley, D.M., Jenkins, N.A., Cannizzaro, L.A., Croce, C.M., Huebner, K. and Sims, J.E. (1991) Chromosomal localisation of murine and human IL-1 receptor genes. *Genomics*, vol. 9, pp.44-55.

Corrigan, J.C. and Kay, A.B. (1995) The lymphocyte in asthma. In: Busse, W.W. and Holgate, S.T. eds. *Asthma and Rhinitis*, Boston: Blackwell Scientific Publications, pp. 450-464.

Cox, D.W. (1994) α_1 -Antitrypsin deficiency. In: Scriver, C.R., Baudet, A.L., Fly, W.S. and Valle, D. eds. *The metabolic and molecular basis of inherited disease*, New York: McGraw-Hill, vol. 2, pp. 2409-2437.

Cox, D.W. (1995) α_1 -Antitrypsin deficiency. In: Scriver, C.R., Baudet, A.L., Fly, W.S. and Valle, D. eds. *The metabolic and molecular basis of inherited disease*, New York: McGraw-Hill, vol. 3, pp. 4124-4158..

Crane, J., Pearce, N., Burgess, C., Jackson, R. and Beaseley, R. (1995) End of New Zealand asthma epidemic. *Lancet*, vol. 345, pp. 984-985.

Curiei, D., Chytil, A., Stier, L. and Crystal, R.G. (1988) Mechanism of S-type alpha-1-antitrypsin deficiency: retroviral gene transfer demonstrates the gene mutation causes a preglycosylation processing abnormality (abstract). *Clin Res*, vol. 36, pp. 591A.

Daniels, S.E., Bhattancharya, S., James, S., Leaves, N.I., Young, A., Hill, M.R., Faux, J.A., Ryan, G.F., le Souef, P.N., Lathrop, G.M., Musk, A.W. and Cookson, W.O.C.M. (1996) A genome-wide search for quantitative trait loci underlying asthma. *Nature*, vol. 383, pp. 247-250.

Davie, M.G. (1986) Electrophoretic techniques. In: Wilson, K. and Gouleding, K.H. eds. *A Biologist's Guide to Principles and Techniques of Practical Biochemistry*, 3rd ed. London: Edwin Arnold, pp. 245-268.

DelPozo, V., De Andres, B. and Martin, E. (1990) Murine eosinophils and IL-1: alpha IL-1 mRNA detection by *in situ* hybridization. Production and release of IL-1 from peritoneal eosinophils. *J Immunol*, vol. 144, pp. 3117-3122.

Desreumaux, P., Janin, A. and Colombel, J.F. (1992) Interleukin 5 messenger RNA expression by eosinophils in the intestinal mucosa of patients with coeliac disease. *J Exp Med*, vol. 175, pp. 293-296.

Dinarello, C.A. (1985) An update on human interleukin-1: from molecular biology to clinical relevance. *J Clin Immunol*, vol. 5, pp. 387-397.

Dinarello, C.A. (1988a) Biology of interleukin-1. *FASEB J*, vol. 2, pp. 108-115.

Dinarello, C.A. (1988b) Interleukin-1. Its multiple biological effects and its association with haemodialysis. *Blood Purif*, vol. 6, pp. 164-172.

Dinarello, C.A. (1991) Interleukin-1 and interleukin-1 antagonism. *Blood*, vol. 77, pp. 1627-1652.

Dinarello, C.A., Cannon, J.G., Wolff, S.M., Berheim, H.A., Beutler, B., Cerami, A., Figari, I.S., Palladino, M.A. and O'Connor, J.V. (1986) Tumour necrosis factor (cachectin) is an endogenous pyrogen and induces production of interleukin-1. *J Exp Med*, vol. 163, pp. 1433-1450.

Dinareлло, C.A., Clark, B.D., Puren, A.J., Savage, N. and Rosoff, P.M. (1989) The interleukin-1 receptor. *Immunol Today*, vol. 10, pp. 49-51.

Dinareлло, C.A. and Thompson, R.C. (1991) Blocking IL-1: Interleukin receptor antagonist in vivo and in vitro. *Immunol Today*, vol. 12, pp. 404-410.

Drazen, J.M. and Austen, K.F. (1981) Leukotrienes and airway responses. *Am Rev Resp Dis*, vol. 136, pp. 985-998.

Drazen, J.M., Evans, J.F., Stevens, R.L. and Shipp, M.A. (1995) Inflammatory effector mechanisms in asthma. *Am J Res Crit Care Med*, vol. 152, pp. 403-407.

Drazen, J.M. (1995) Leukotrienes. In: Busse, W.W. and Holgate, S.T. eds. *Asthma and Rhinitis*, Boston: Blackwell Scientific Publications, pp. 838-850.

Ducoloné, A., Vandevenne, A., Jouin, H., Grob, J-C., Coumaros, D., Meyer, C., Burghard, G., Methlin, G. and Hollender, L. (1987) Gastroesophageal reflux in patients with asthma and chronic bronchitis. *Am Rev Respir Dis*, vol. 135, pp. 327-332.

Duff, G.W. (1989) Peptide regulatory factors in non-malignant disease. *Lancet*, vol. 1, pp. 1432-1435.

Eastgate, J.A., Symons, J.A., Wood, N.C., Grinlinton, F.M., Di Giovine, F.S. and Duff, G.W. (1988) Correlation of plasma interleukin-1 levels with disease activity in rheumatoid arthritis. *Lancet*, vol. ii, pp. 706-709.

Eden, E., Mitchell, D., Mehlman, B., Khouli, H., Nejat, M., Grieco, M.H. and Turino, M. (1997) Atopy, asthma and emphysema in patients with severe α_1 -antitrypsin deficiency. *Am J Respir Crit Care Med*, vol. 156, pp. 68-74.

Eggleston, P.A. and Szefer, S.J. (1995) Asthma in children. In: Busse, W.W. and Holgate, S.T. eds. *Asthma and Rhinitis*; Boston: Blackwell Scientific Publications, pp. 1380-1393.

Elliott, P.R., Bilton, D. and Lomas, D.A. (1998) Lung polymers in α_1 -antitrypsin deficiency-related emphysema. *Am J Respir Cell Mol Biol*, vol. 18, pp. 670-674.

Elliott, P.R., Lomas, D.A., Carrell, R.W. and Abrahams, J-P. (1997) β -pleated conformation of the reactive loop of α_1 -antitrypsin. *Advances in experimental medicine and biology*, vol. 425, pg. 314.

Fabbri, L.M. and Ciaccia, A. (1992) Investigative bronchoscopy in asthma and other airways diseases. *Eur Respir J*, vol. 5, pp. 8-11.

Fabbri, M., Papi, A., Boschetto, P. and Ciaccia, A. (1995) Neutrophils in asthma. In: Busse, W.W. and Holgate, S.T. eds. *Asthma and Rhinitis*, Boston: Blackwell Scientific Publications, pp. 383-388.

Flink, I.L., Bailey, T.J., Gustafson, T.A., Markham, B.E. and Morkin, E. (1986) Complete amino acid sequence of human thyroxine-binding globulin deduced from cloned DNA: Close homology to serine antiproteases. *Proc Natl Acad Sci*, vol. 83, pp. 7708-7712.

Fuller, R.W. (1989) The role of alveolar macrophage in asthma. *Respir Med*, vol. 83, pp. 177-178.

Gaillard, M.C., Kilroe-Smith, T.A., Nogueira, C.M., Dunn, D., Jenkins, T., Fine, B. and Kallenbach, J. (1992) Alpha-1-protease inhibitor in bronchial asthma: phenotypes and biochemical characteristics. *Am Rev Respir Dis*, vol. 145, pp. 1311-1315.

Gaillard, M.C., Zwi, S., Nogueira, C.M., Ludewick, H., Frankel, A., Tsilimigras, C. and Kilroe-Smith, T.A. (1994) Ethnic differences in the occurrence of the M1(Ala²¹³) haplotype of alpha-1-antitrypsin in asthmatic and non-asthmatic black and white South Africans. *Clin Genet*, vol. 45, pp. 121-127.



Gelfand, D.H. (1989) Taq DNA polymerase. In: Erlich, H.E. ed. *PCR Technology: Principles and Applications for DNA Amplification*, New York: Stockton Press, pp.17-30.

Gergen, P.J. and Weiss, K.B. (1995) Epidemiology of asthma. In: Busse, W.W and Holgate, S.T. eds. *Asthma and Rhinitis*, Boston: Blackwell Scientific Publications, pp. 15-31.

Gerrard, J.W. (1985) Genetic factors in the development of asthma. In: Weiss, E.B., Segal, M.S. and Stein, M. eds. *Bronchial Asthma - Mechanisms and Therapeutics*, 2nd ed. Boston: Little Brown & Co., pp. 24-29.

Gery, I. and Waksman, B.H. (1972) Potentiation of the T-lymphocyte response to mitogens. II. The cellular source of potentiating mediators. *J Exp Med*, vol. 136, pp. 143-155.

Godfrey, S. (1997) Fact and fiction about childhood asthma. *S.A. Respiratory Journal*, vol. 4, no.1, pp. 8-14.

Goldie, R.G., Spina, D., Henry, P.J., Lulich, K.M. and Paterson, J.W. (1986) In vitro responsiveness of human asthmatic bronchus to carbachol, histamine, β -adrenoreceptor agonists and theophylline. *Br J Clin Pharmacol*, vol.22, pp.669-676.

Green, S.L., Gaillard, M.C., Song, E., Dewar, J.B. and Halkas, A. (1998) Polymorphisms of the beta chain of high affinity immunoglobulin E receptor (Fc ϵ RI- β) in South African black and white asthmatic and non-asthmatic individuals. *Am J Res & Critical Care Medicine*, vol.158, pp.1-6.

Gregg, I (1983) Epidemiological Aspects. In: Clark, T.J.H and Godfrey, S. eds. *Asthma*, London: Chapman and Hall, pp. 242-284.

Gunther, K.E., Cohn, R.J. and Mendelow, B.V. (1993) Polymerase chain reaction in cancer diagnosis. *S A Med J*, vol. 83, pp. 514-516.

Hamaway, M.M., Mergenhagen, S.E. and Siraganian, R.P. (1994) Adhesion molecules as regulators of mast cell and basophil function. *Immunology Today*, vol. 15, no. 2, pp. 62-66.

Hammond, G.L., Smith, C.L., Goping, I.S., Underhill, D.A., Harley, M.J., Reventos, J., Musto, N.A., Gunsalus, G.L. and Bardin, C.W. (1987) Primary structure of human corticosteroid binding globulin, deduced from hepatic and pulmonary DNAs, exhibits homology with serine protease inhibitors. *Proc Natl Acad Sci USA*, vol. 84, pp. 5153-5157.

Hammond, G.L. (1990) Molecular properties of corticosteroid binding globulin and the sex-steroid binding proteins. *Endocr Rev.*, vol. 11, pp. 65-79.

Hammond, G.L., Smith, C.L., Paterson, N.A.M. and Sibbiad, W.J. (1990) A role for corticosteroid-binding globulin in delivery of cortisol to activated neutrophils.

J Clin Endocr Metab., vol. 71, pp. 34-39.

Hammond, G.L., Smith, C.L. and Underhill, D.A. (1991) Molecular studies of corticosteroid binding globulin structure, biosynthesis and function. *J Steroid*

Biochem Molec Biol, vol. 40, pp. 755-762.

Hamid, Q., Springhall, D.R., Riveros-Moreno, V., hanez, P., Howarth, P.,

Redington, A., Bousquet, J., Godard, P., Holgate, S. and Polak, J.M. (1993)

Induction of nitric oxide synthase in asthma. *Lancet*, vol. 342, pp. 1510-1512.

Haqqi, T.M., Sarkar, G., David, C.S. and Sommer, S.S. (1988) Specific amplification with PCR of a refractory segment of genomic DNA. *Nucl Acid Res*, vol. 16, pg. 11844.

Hazuda, D.J., Lee, J.C. and Young, P.R. (1988) The kinetics of IL-1 secretion from activated monocytes. Differences between IL-1 α and IL-1 β . *J Biol Chem*, vol. 263, pp. 8473-8479.

Higuchi, R. (1989) Rapid and efficient DNA extraction for PCR from cells or blood. *Amplifications*, vol.2, pp.1-112.

Hizawa, N., Yamaguchi, E., Ohe, E., Itoh, A., Furuya, K., Ohnuma, N. and

Kawakami, Y. (1992) Lack of linkage between atopy and locus 11q13. *Clin Exp Allergy*, vol. 22, pp. 1065-1069.

Hizawa, N., Yamaguchi, E., Furuya, K., Ohnuma, N., Kodama, N., Kojima, J., Ohe, M. and Kawakami, Y. (1995) Association between high serum total IgE levels and D11S97 on chromosome 11q13 in Japanese subjects. *J Med Genet*, vol. 32, pp. 363-369.

Holgate, S.T. and Finn, J.P. (1988) Recent advances in understanding the pathogenesis of asthma and its clinical implications. *J Med*, vol. 249, pp. 5-19.

Holloway, L., Beaseley, R. and Roche, W.R. (1995) The pathology of asthma. In: Busse, W.W and Holgate, S.T. eds. *Asthma and Rhinitis*, Boston: Blackwell Scientific Publications, pp.107-117.

Hopkin, J. (1995) Genetics of atopy. In: Busse, W.W and Holgate, S.T. eds. *Asthma and Rhinitis*, Boston: Blackwell Scientific Publications, pp.987-994.

Horn, B.R., Robin, E.D., Theodore, J. and Kessel, A.V. (1975) Total eosinophil counts in the management of bronchial asthma. *N Engl J Med*, vol. 292, pp. 1152-1155.

Howell, J.B.L. (1995) Asthma: Clinical descriptions and definitions. In: Busse, W.W and Holgate, S.T. eds. *Asthma and Rhinitis*, Boston: Blackwell Scientific Publications, pp. 3-5.

Hurley, D.M., Accili, D., Stratakis, C.A., Karl, M., Vamvakopoulos, N., Rorer, E., Constantine, K., Taylro, S.I. and Chrousos, G.P. (1991) Point mutation causing a single amino acid substitution in the hormone binding domain of the glucocorticoid receptor in familial glucocorticoid resistance. *J Clin Invest*, vol. 87, pp. 680-686.

Jeffrey, P.K., Wardlaw, A.J., Nelson, F.C., Collins, J.V. and Kay, A.B. (1989) Bronchial biopsies in asthma: an ultrastructural, quantitative study and correlation with hyperreactivity. *Am Rev Respir Dis*, vol. 140, pp. 1745-1753.

Jeffreys, A.J., Neumann, R. and Wilson, V. (1990) Repeat unit sequence variation in minisatellites: a novel source of DNA polymorphism for studying variation and mutation by single molecule analysis. *Cell*, vol. 60, pp. 473-485.

Joubert, J.R., Brink, S. and Hentzen, G.M. (1988) Allergic asthma in different population groups in the Western Cape. *SAMJ*, vol. 66, pp. 397-402.

Katz, M.F. and Beer, D.J. (1993) T-lymphocytes and cytokine networks in asthma: clinical and therapeutic implications. In: Stollerman, G.H., LaMont, T.J., Leonard, J.J. and Siperstein, M.D. eds. *Advances in Internal Medicine*, St. Louis: Mosby-Year Book Inc., vol. 38, pp. 189-222.

Kirby, G.J., Hargreave, F.E., Gleich, G.J. and O'Byrne, P.M. (1987) Bronchoalveolar cell profiles of asthmatic and non-asthmatic subjects. *Am Rev Respir Dis*, vol. 136, pp. 379-383.

Kita, H., Ohnishi, T., Okuba, Y., Weiler, D., Abrams, J.S. and Gleich, G.J. (1991) Granulocyte/macrophage colony-stimulating factor and interleukin 3 release from human peripheral blood eosinophils and neutrophils. *J Exp Med*, vol. 174, pp. 745-748.

Kleeberger, S.R. and Freed, A.N. (1991) Prostanoids. In: Busse, W.W and Holgate, S.T. eds. *Asthma and Rhinitis*, Boston: Blackwell Scientific Publications, pp. 825-837.

Kostura, M., Boulton, D., Cameron, P., Chartrain, N., Chin, J., Hillman, A., Howard, A., Limjuco, G., Tocci, M. and Schmidt, J. (1989) Identification of a precursor IL-1 β convertase activity in monocyte cell-free extracts (abstracts). *FASEB J*, vol. 3, pg. A504.

Kunkel, S.L., Spengler, M., May, M.A., Spengler, R., Larrick, J. and Remick, D.G. (1988) Prostaglandin E₂ regulates macrophage-derived tumour necrosis factor gene expression. *J Biol Chem*, vol. 263, pp. 5380-5384.

Kurachi, K., Chandra, T., Friezner-Degen, S.J., White, T.T., Marchioro, T.L., Woo, S.L.C. and Davie, E.W. (1981) Cloning and sequence of cDNA coding for α_1 -antitrypsin. *Proc Natl Acad Sci*, vol. 78, pp. 6826-6830.

Kwok, S. (1989) Procedures to minimize PCR-product carryover. *Amplifications*, issue 2, pg. 4.

Laurell, C-B and Eriksson, S. (1963) The electrophoretic alpha-1-globulin pattern of serum in α_1 -AT deficiency. *Scand J Clin Invest*, vol. 15, pp. 132-140.

Lichtenstein, L.M. (1993) Allergy and the immune system. *Scientific American*, pp. 85-93.

Liggett, S.B., Levi, R. and Metzger, H. (1995) G-protein coupled receptors, nitric oxide and the IgE receptor in asthma. *Am J Respir Crit Care Med*, vol. 152, pp. 394-402.

Liggett, S.B. (1997) Polymorphisms of the β_2 -adrenergic receptor and asthma. *Am J Respir Crit Care Med*, vol. 156, pp. S 156-S 162.

Loebermann, H., Tokuoka, R., Deisenhofer, J. and Huber, R. (1984) Human α_1 -proteinase inhibitor. Crystal structure analysis of two crystal modifications, molecular model and preliminary analysis of the implications for function. *J Mol Biol*, vol. 177, pp. 531-535.

Lympany, P., Welsh, K.I., Cochrane, G.M., Kemeney, D.M. and Lee, T.H. (1992) Genetic analysis of the linkage between 11q and atopy. *Clin Exp Allergy*, vol. 22, pp. 1085-1092.

Lynch, J.R. and Brown, J.M. (1990) The polymerase chain reaction: current and future clinical applications. *J Med Genet*, vol. 27, pp. 2-7.

Mahadeva, R., Westerbeek, R.C., Perry, D.J., Lovegrove, J.U., Whitehouse, D.B., Carroll, N.R., Ross-Russel, R.I., Webb, A.K., Bilton, D. and Lomas, D.A. (1998) α_1 -Antitrypsin deficiency alleles and the Taq-I G-A allele in cystic fibrosis lung disease. *Eur Respir J*, vol. 11, pp. 873-879.

Maniatis, T., Fritsch, E.F. and Sambrook, J. (1982) *Molecular cloning: A Laboratory Manual*, New York: Cold Spring Harbor Press, pp. 150-165.

Mansfield, J.C., Holden, H., Tarlow, J.K., Di Giovine, F.S., McDowell, T.L., Wilson, A.G., Holdsworth, C.D. and Duff, G.W. (1994) Novel genetic association between ulcerative colitis and the anti-inflammatory cytokine interleukin-1 receptor antagonist. *Gastroenterology*, vol. 106, pp. 637-643.

March, C.J., Mosley, B., Larsen, A., Cerretti, D.P., Braedt, G., Price, V., Gillis, S., Henney, C.S., Kronheim, S.R., Hopp, T.P. and Cosman, D. (1985) Cloning, sequence and expression of two distinct human IL-1cDNAs. *Nature*, vol. 315, pp. 641-645.

Markham, A.F. (1993) The polymerase chain reaction: a tool for molecular medicine. *BMJ*, vol. 306, pp. 441-446.

Marom, Z.M. (1991) The role of mast cells in bronchial asthma: mechanisms and possible therapeutic implications. *Mount Sinai J Med*, vol. 58, pp. 472-482.

Marsh, D.G., Neely, J.D., Breazeale, D.R., Ghosh, B., Freidhoff, L.R., Ehrlich-Kautzky, E., Schou, C., Krihnaswamy, G. and Beaty, T.H. (1994) Linkage analysis of IL-4 and other chromosome 5q31.1 markers and total serum immunoglobulin E concentrations. *Science*, vol. 264, pp. 1152-1156.

Matilla, P., Korpela, J., Tenkanen, T. and Pitkanen, K. (1991) Fidelity of DNA synthesis by the *Thermococcus litoralis* DNA polymerase- an extremely heat stable enzyme with proofreading activity. *Nucl Acids Res*, vol. 19, no. 16, pp. 4967-4973.

McIntyre, K.W., Stepan, G.J., Kolinsky, K.D., Benjamin, W.R., Plocinski, J.M., Kafka, K.L., Campen, C.A., Chizzonite, R.A. and Kilian, P.L. (1991) Inhibition of Interleukin 1 (IL-1) binding and bioactivity in vitro and modulation of acute inflammation in vivo by IL-1 receptor antagonist and anti-IL-1 receptor monoclonal antibody. *J Exp Med*, vol. 173, pp. 931-939.

Metzger, W.J., Zavala, D., Richerson, H.B., Moseley, P., Iwamoto, P., Monick, M., Sjoerdsma, K. and Hunninghake, G.W. (1987) Local allergen challenge and BAL of allergic asthmatic lungs: description of the model and local airway inflammation. *Am Rev Resp Dis*, vol. 135, pp. 433-440.

Meyers, D.A., Postma, D.S., Panhuysen, C.I.M., Xu, J., Amelung, P.J., Levitt, R.C. and Bleeker, E.R. (1994) Evidence for a locus regulating total serum IgE levels mapping to chromosome 5. *Genomics*, vol. 23, pp. 464-470.

Moffatt, M.F., Hill, M.R., Cornelis, F., Schou, C., Faux, J.A., Young, R.P., James, A.L., Ryan, G., leSouef, P., Musk, A.W., Hopkin, J.M. and Cookson, W.O.C.M. (1994) Genetic linkage of T-cell receptor α/δ complex to specific IgE responses. *Lancet*, vol. 343, pp. 1597-1600.

Morley, J. (1993) Immunopharmacology of asthma. *Immunology Today*, vol. 14, no.6, pp. 317-321.

Moqbel, R., Hamid, Q. and Ynig, S. (1991) Expression of mRNA and immunoreactivity for the granulocyte/macrophage colony-stimulating factor in activated human eosinophils. *J Exp Med*, vol. 174, pp. 749-752.

Muegge, K. and Durum, S.K. (1990) Cytokines and transcription. *Cytokine*, vol. 2, pp. 1-8.

Murray, A.B. and Morrison, B.J. (1988) Passive smoking and the seasonal difference of severity of asthma in children. *Chest*, vol. 94, pp. 710-708.

Naclerio, R.M., Proud, D. and Tigias, A.G. (1985) Inflammatory mediators in late antigen induced rhinitis. *N Engl J Med*, vol. 313, pp. 65-70.

Neas, L.M., Dockery, D.W., Ware, J.H., Spengler, J.D., Speizer, F.E. and Ferris B.J.J. (1991) Associations of indoor nitrogen dioxide with respiratory symptoms and pulmonary function on children. *Am J Epidemiol*, vol. 134, pp. 204-219.

Nesse, R.M. and Williams, G. (1994) Nothing to sneeze at. *The Sciences*, vol. 36, no. 4, pp. 34-39.

Nilsson, G. and Schwartz, L.B. (1995) Mast cell heterogeneity: structure and mediators. In: Busse, W.W. and Holgate, S.T. eds. *Asthma and Rhinitis*, Boston: Blackwell Scientific Publications, pp.195-208.

Nivikskas, H. and Cole, K.D. (1996) Environmentally benign staining procedure for electrophoresis gels using Coomassie Brilliant Blue. *BioTechniques*, vol. 20, pp. 380-385.

Nukiwa, T., Brantly, M., Ogushi, F., Fells, G., Satoh, K., Stier, L., Courtney, M. and Crystal, R.G. (1987) Characterization of the M1(Ala 213) type of α_1 -antitrypsin, a newly recognised, common "normal" α_1 -antitrypsin haplotype. *Biochemistry*, vol. 26, pp. 5259-5265.

Ogushi, F., Fells, G.A., Hubbard, R.C., Straus, S.D. and Crystal, R.G. (1987) Z type alpha-1-antitrypsin is less competent than M1 type alpha-1-antitrypsin as an inhibitor of neutrophil elastase. *J Clin Invest*, vol. 80, pp. 1366-1374.

Ogushi, F., Fells, G.A. and Hubbard, R.C. (1988) Evaluation of the S-type alpha-1-antitrypsin as an *in vivo* and *in vitro* inhibitor of neutrophil elastase. *Am Rev Respir Dis*, vol. 137, pp. 364-370.

Ohe, M., Munakata, M., Hizawa, N., Itoh, A., Doi, I., Yamaguchi, E., Homma Y. and Kawakami Y. (1995) Beta₂ adrenergic receptor gene restriction fragment polymorphism and bronchial asthma. *Thorax*, vol. 50, pp.353-359.

Page, C.E. (1995) Platelets and asthma. In: Busse, W.W. and Holgate, S.T. eds. *Asthma and Rhinitis*, Boston: Blackwell Scientific Publications, pp.530-535.

Paul, W.E. and Seder, R.A. (1994) Lymphocyte responses and cytokines. *Cell*, vol. 76, pp. 241-251.

Pearce, N.E., Beasley, R., Crane, J. and Burgess, C. (1995) Epidemiology of asthma mortality. In: Busse, W.W and Holgate, S.T. eds. *Asthma and Rhinitis*, Boston: Blackwell Scientific Publications, pp. 58-69.

Pelz, G. (1991) A role for CD4⁺ T-cell subsets producing a selective pattern of lymphokines in the pathogenesis of chronic inflammatory and allergic diseases. *Immunological Reviews*, vol. 123, pp. 23-25.

Perlino, E., Cortese, R. and Ciliberto, G. (1987) The human α_1 -AT gene is transcribed from two different promoters in macrophages and hepatocytes. *EMBO J*, vol. 6, pp. 2769-2771.

Perlmutter, D.H., Cole, F.S., Kilbridge, P., Rossing, T.H. and Colten, H.R. (1985) Expression of the α_1 -PI gene in human monocytes and macrophages. *Proc Natl Acad Sci*, vol. 82, pp. 795-799.

Pfeffer, S.R. and Rothman, J.E. (1987) Biosynthetic protein transport and sorting by the endoplasmic reticulum and golgi. *Ann Rev Biochem*, vol. 56, pp. 829-852.

Pinto, A.R., Maciel, L.S., Carniero, F., Resende, C., Chaves, F.C. and Freitas, A.F. (1993) Systemic nodular panniculitis in a patient with alpha-1-antitrypsin deficiency (PiSS phenotype). *Clin Exp Dermatol*, vol. 18, pp. 154-155.

Pociot, F., Mølviq, J., Wogensén, L., Worsaae, H. and Nerup, J. (1992) A Taq I polymorphism in the human interleukin-1 β (IL-1 β) gene correlates with IL-1 β secretion in vitro. *Eur J Clin Invest*, vol. 22, pp.396-402

Postma, D.S., Bleeker, E.R., Amelung, P.J., Holroyd, K.J., Xu, J., Panhuysen, C.I.M., Meyers, D.A. and Levitt, R.C. (1995) Gene susceptibility to asthma - bronchial hyper-responsiveness coinherited with a major gene for atopy. *N Engl J Med*, vol. 333, pp. 894-900.

Postnett, D.N., Schmelkin, I., Burton, D.A., August, A., McGrath, H. and Mayer, L.F. (1990) T cell antigen receptor V gene usage: increases in V β 8+ T cells in Crohn's disease. *J Clin Invest*, vol. 85, pp. 1770-1776.

Potter, P.C., Weinberg, E. and Shores, S.C.L. (1984) Acute severe asthma. *SAMJ*, vol. 66, pp. 397-402.

Pueringer, R.J. and Casale, T.B. (1995) Functional activity of lower-airway nerves. In: Busse, W.W. and Holgate, S.T. eds. *Asthma and Rhinitis*, Boston: Blackwell Scientific Publications, pp. 635-651.

Razin, A. and Cedar, H. (1994) DNA methylation and genomic imprinting. *Cell*, vol. 77, pp. 473-476.

Reed, A. (1995) In: Busse, W.W and Holgate, S.T. eds. *Asthma and Rhinitis*, Boston: Blackwell Scientific Publications, pp. xxi-xxv.

Reihnsaus, E., Innis, M., MacIntyre, N. and Liggett, S.B. (1993) Mutations in the gene encoding for the β_2 -adrenergic receptor in normal and asthmatic subjects. *Am J Respir Cell Mol Biol*, vol. 8, pp. 334-339.

Richards, I.M., Shields, S.K., Griffin, R.L., Fidler, S.F. and Dunn, C.J. (1992) Novel steroid-based inhibitors of lung inflammation. *Clin Exp Allergy*, vol. 22, pp. 432-439.

Robard, D., Chrambach, A. and Weiss, G.H. (1974) Optimization of resolution in analytical and preparative polyacrylamide gel electrophoresis. In: Richards, E.G. and Lecanidou, R. eds. *Electrophoresis and Isoelectric Focussing in Polyacrylamide Gels*, Berlin: Walter de Gruyter.

Robinson, P.A. and Hammond, G.L. (1985) Identification and characterization of a human corticosteroid binding globulin variant with a reduced affinity for cortisol. *J Endocr*, vol. 104, pp. 269-277.

Saetta, M., Di Stefano, A., Maestrelli, P., De Marzo, N., Milani, G.F., Pivrotto, F., Mapp, C.E. and Fabbri, L.M. (1992) Airway mucosal inflammation in occupational asthma induced by toluene diisocyanate. *Am Rev Resp Dis*, vol. 145, pp. 160-168.

Saiki, R., Gyllenstein, U.B. and Erlich, H.A. (1988) The Polymerase Chain Reaction. In: Davies, K.E. ed. *Genome Analysis: A Practical Approach*, Oxford:IRL Press, pp. 141-152.

Saiki, R. (1989) The design and optimization of the PCR. In: Erlich, H.E., ed. *PCR Technology: Principles and Applications for DNA Amplification*, New York: Stockton Press, pp. 1-16.

Sandford, A.J., Shirakawa, T., Moffat, M.F., Daniels, S.E., Ra, C., Faux, J.A., Young, R.P., Nakamura, Y., Lathrop, G.M., Cookson, W.O.C.M. and Hopkin, J.M. (1993) Localization of atopy and β subunit of high affinity IgE receptor (Fc ϵ RI β) on chromosome 11q. *Lancet*, vol. 341, pp. 332-334.

Sandford, A., Weir, T. and Paré, P. (1996) The genetics of asthma. *Am J Crit Care Med*, vol. 153, pp. 1749-1765.

Sanger, F., Nicklen, S. and Coulson, A.R. (1977) DNA sequencing with chain terminating inhibitors. *Proc Natl Acad Sci USA*, vol. 74, no. 12, pp. 5463-5467.

Sanger, F., Coulson, A.R., Honk, G.F., Hill, D.F. and Petersen, G.B. (1982) Nucleotide sequence of bacteriophage λ DNA. *J Mol Biol*, vol. 162, pp. 729-733.

Sastre, J., Banks, D.E., Lopez, M., Barkman, H.W. and Salvaggio, J.E. (1990) Neutrophil chemotactic activity in toluene diisocyanate-induced asthma. *J Allergy Clin Immunol*, vol. 85, pp. 567-572.

Schindler, R., Gelfand, J.A. and Dinarello, C.A. (1990) Recombinant C5a stimulates transcription rather than translation of IL-1 and TNF: translational signal provided by LPS or IL-1 itself. *Blood*, vol. 76, pp. 1631-1638.

Sealing, G.E., Berube, D., Gange, R. and Hammond, G.L. (1990) The human corticosteroid binding globulin gene is located on chromosome 14q31-32.1 near two serine protease inhibitor genes. *Hum Genet*, vol. 86, pp. 73-75.

Scadding, J.G. (1983) Definitions and clinical categories of asthma. In: Clark, T.J.H. and Godfrey, S. eds. *Asthma*, London: Chapman and Hall, pp. 6-8.

Scheffer, A.L. (1991) Guidelines for the management of asthma. *Aller & Clin Immunol*, vol.88(Suppl), pp.427-438.

Schwartz, M., Petersen, K.B., Gregersen, N., Hinkel, K. and Newton, C.R. (1989) Parental diagnosis of alpha-1-antitrypsin deficiency using polymerase chain reaction (PCR). Comparison of conventional RFLP methods with PCR used in combination with allele specific oligonucleotides or RFLP analysis. *Clin Genet*, vol. 36, pp. 419-426.

Sheth, K.K. and Lemanske, R.F. (1995) The early and late asthmatic response to allergen. In: Busse, W.W. and Holgate, S.T. eds. *Asthma and Rhinitis*, Boston: Blackwell Scientific Publications, pp. 946-960.

Shirakawa, T., Hashimoto, T., Furuyama, J. and Morimoto, K. (1994) Linkage between severe atopy and chromosome 11q13 in Japanese families. *Clin Genet*, vol. 46, pp. 228-232.

Shirakawa, T., Mao, X-Q., Sasaki, S., Kawai, M., Morimoto, K. and Hopkin, J.M. (1996) Association between FcεRIβ and atopic disorder in a Japanese population. *Lancet*, vol. 347, pg. 394.

Simpson, W.G. (1995) Gastroesophageal reflux disease and asthma. *Arch Intern Med*, vol. 153, pp. 798-803.

Smith, C.L., Power, S.G.A. and Hammond, G.L. (1992) A Leu-His substitution at residue 93 in human corticosteroid binding globulin results in reduced affinity for cortisol. *J Steroid Biochem Molec Biol*, vol. 42, no. 7, pp. 671-676.

Sporik, R., Holgate, S.T., Platts-Mills, T.A.E. and Cogswell, J.J. (1990) Exposure to house dust mite allergen (*Der p I*) in the development of asthma in childhood: a prospective study. *N Engl J Med*, vol. 32, pp. 502-507.

Stark, J.M. and Graziano, F.M. (1995) Lower airway response to viruses. In: Busse, W.W. and Holgate, S.T. eds. *Asthma and Rhinitis*, Boston: Blackwell Scientific Publications, pp. 1229-1243.

Steinkasserer, A., Spur, N.K, Cox, S., Jeggo, P. and Sim, R.B. (1992) The human IL-1 receptor antagonist gene (IL1RN) maps to chromosome 2q14-q21, in the region of the IL-1 α and IL-1 β loci. *Genomics*, vol. 13, pp.654-657.

Suzuki, H., Matsui, Y. and Kashiwagi, H. (1997) Interleukin-1 receptor antagonist gene polymorphism in Japanese patients with systemic lupus erythmatosus. *Arthritis & Rheumatism*, vol.40, pp.389-390.

Szentivanyi, A. (1968) The β_2 -adrenergic theory of the atopic abnormality in bronchial asthma. *J Allergy*, vol. 42, pp. 203-232.

Szentivanyi, A., Polson, J.B. and Szentivanyi, J. (1985) Adrenergic regulation. In: Weiss, E.B., Segal, M.S. and Stein, M., eds. *Bronchial asthma: mechanisms and therapeutics*. Boston/Toronto Little Brown, pp.126-150.

Tang, M.L.K., Kemp, A.S., Thorburn, J. and Hill, D.J. (1994) Reduced interferon- γ in neonates and subsequent atopy. *Lancet*, vol. 344, pp. 983-985.

Tarlow, J.K., Blakemore, A.I.F., Lennard, A., Solari, R., Hughes, H.N., Steinkasserer, A. and Duff, G.W. (1993) Polymorphism in human IL-1 receptor antagonist gene intron 2 is caused by variable numbers of an 86-bp tandem repeat. *Hum Genet*, vol.91, pp.403-404.

Tindall, K.R. and Kunkell, T.A. (1988) Fidelity of DNA synthesis by the *Thermus aquaticus* DNA polymerase. *Biochemistry*, vol. 27, pp. 6008-6013.

Tosi, M., Duponchel, C., Bourgarel, P., Colomb, M. and Meo, T. (1986) Molecular cloning of human C1 inhibitor: Sequence homologies with α_1 -antitrypsin and other members of the serpins super family. *Gene*, vol. 42, pp. 265-269.

Travis, J. and Salversen, G.S. (1983) Human plasma proteinase inhibitors. *Ann Rev Biochem*, vol. 52, pp. 655-709.

Turki, J., Pak, J., Green, S.A., Martin, R.J. and Liggett, S.B. (1995) Genetic polymorphisms of the β_2 -adrenergic receptor in nocturnal and non-nocturnal asthma. *J Clin Invest*, vol. 95, pp. 1635-1641.

Underhill, D.A. and Hammond, G.L. (1989) Organization of the human corticosteroid binding globulin gene and analysis of its 5' flanking region. *Genomics*, vol. 3, pp. 1448-1454.

Valent, P. (1994) The phenotype of human eosinophils, basophils and mast cells. *J Allergy Clin Immunol*, vol. 94, pp. 1177-1183.

Van Baleen, H., Brepoels, R. and De Moor, P. (1982) Transcortin Leuven: A variant of human corticosteroid binding globulin with decreased cortisol-binding affinity. *J Biol Chem*, vol. 257, pp. 3397-3400.

Van Herwerden, L., Harrap, S.B., Wong, Z.Y.H., Abramson, M.J., Kutin, J.J., Forbes, A.B., Raven, J., Lanigan, J. and Walters, E.H. (1995) Linkage of high-affinity IgE receptor gene with bronchial hyper-reactivity, even in the absence of atopy. *Lancet*, vol. 346, pp. 1262-1265.

Wada, M., Klein, C., Schell, J. and Reiss, B. (1994) A functional assay for Taq DNA polymerase in PCR. *BioTechniques*, vol. 16, no. 1, pp. 28-30.

Walker, C., Kaegi, M.K., Braun, P. and Blaser, K. (1991) Activated T-cells and eosinophilia in bronchoalveolar lavages from subjects with asthma correlated with disease severity. *J Allergy Clin Immunol*, vol. 88, pp. 935-942.

Walls, R.S. and Ordman, L.J. (1983) Presentation of patients with asthma at an allergy clinic in Cape Town. *SAMJ*, vol. 64, pp. 942-945.

Walls, A.F. (1995) The roles of neutral proteases in asthma and rhinitis. In: Busse, W.W. and Holgate, S.T. eds. *Asthma and Rhinitis*, Boston: Blackwell Scientific Publications, pp. 801-824.

Watson, R. (1989) The formation of primer artifacts in polymerase chain reactions. *Amplifications*, issue 2, pg. 4.

Weir, T.D., Mallek, N., Sandford, A.J., Bai, T.R., Awadh, N., Liggett, S.B. and Paré, P.D. (1998) β_2 -Adrenergic receptor haplotypes in mild, moderate and fatal/near fatal asthma. *Am J Respir Crit Care Med*, vol. 158, pp. 787-791.

Weller, P.F. (1991) The immunobiology of eosinophils. *New Engl J Med*, vol. 324, pp. 1110-1118.

White, S.R. and Leff, A.R. (1995) Epithelial damage in asthma. In: Busse, W.W. and Holgate, S.T. eds. *Asthma and Rhinitis*, Boston: Blackwell Scientific Publications, pp. 599-611.

Williams, J.F. (1989) Creating PCR profiles. *Amplifications*, issue 2, pp. 7-8.

Wilson, J.D. (1983) The influence of genetic and environmental factors on the development of asthma and allergic rhinitis and eczema. In: Wilson, J.D. ed. *Asthma and Allergic Diseases*, Sydney: ADIS Health Science Press, pp. 18-27.

Wong, D.T.W., Weller, P.F. and Galli, S.J. (1990) Human eosinophils express transforming growth factor- α . *J Exp Med*, vol. 172, pp. 673-681.

Xu, J., Levitt, R.C., Panhuysen, C.I., Postma, D.S., Taylor, E.W., Amelung, P.J., Holroyd, K.J., Bleecker, E.R. and Meyers, D.A. (1995) Evidence for two unlinked loci regulating total serum IgE levels. *Am J Hum Gen*, vol. 57, pp. 425-430.

Young, R.P., Dekker, J.W., Wordsworth, B.P., Schou, C., Pile, K.D., Matthisen, F., Rosenberg, W.M., Bell, J.I., Hopkin, J.M. and Cookson, W.O.C.M. (1994) HLA-DR and HLA-DP genotypes and immunoglobulin E responses to major allergens. *Clin Exp Allergy*, vol. 24, pp. 431-439.

Author Pillay V

Name of thesis Variants Of Inflammatory Mediators: Alpha-1-Protease Inhibitor, Cortisol Binding Globulin, Interleukin-1-Receptor Antagonist And Beta-2-Adrenergic Receptor Genes In Atopic Asthmatic And Non-Asthmatic South Africans Pillay V 1999

PUBLISHER:

University of the Witwatersrand, Johannesburg

©2013

LEGAL NOTICES:

Copyright Notice: All materials on the University of the Witwatersrand, Johannesburg Library website are protected by South African copyright law and may not be distributed, transmitted, displayed, or otherwise published in any format, without the prior written permission of the copyright owner.

Disclaimer and Terms of Use: Provided that you maintain all copyright and other notices contained therein, you may download material (one machine readable copy and one print copy per page) for your personal and/or educational non-commercial use only.

The University of the Witwatersrand, Johannesburg, is not responsible for any errors or omissions and excludes any and all liability for any errors in or omissions from the information on the Library website.