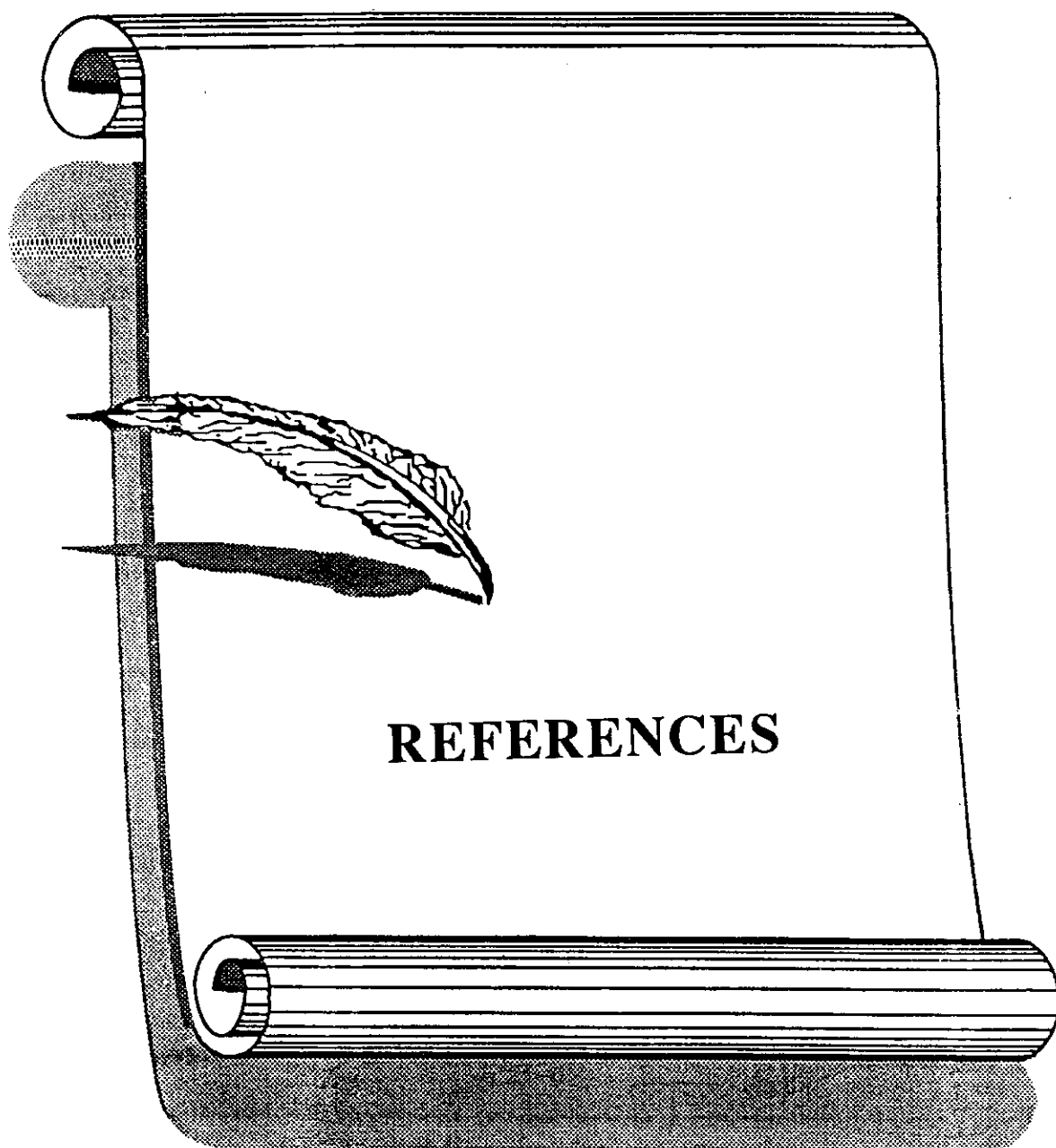




REFERENCES

- Abbud Filho M, Dy M, Label B, Luffau D, Hamburger J.** In vitro and in vivo histamine-producing cell-stimulating factor (or IL-3) production during *Nippostrongylus brasiliensis* infection: Coincidence with self-cure phenomenon. *Eur J Immunol* 1983; 13:841.
- Abbud Filho M, Kupiec-Weglinski JW, Araujo JL, Heidecke CD, Tilney NL, Strom TB.** Cyclosporine therapy of rat heart allograft recipients and release of interleukins (IL-1, IL-2, IL-3): a role for IL-3 in graft tolerance. *J. Immunol.* 1984; 133:2582.
- Aderka D, Holtmann M, Toker L, Hahn T, Wallach D.** Tumour necrosis factor induction by Sendai virus. *J. Immunol.* 1986; 136:1938.
- Aggarwal BB, Kohr ED, Hass PE, Moffat B, Spencer SA, Menzel WD, Bringman TS, Nedwin GE, Goeddel DV, Harkins RN.** Human tumor necrosis factor: production, purification and characterization. *J Biol Chem* 1985; 260:2345.

Alan B Lumsden, J Michael Henderson, Michael M Kutner.

Endotoxin levels measured by a chromogenic assay in portal, hepatic and peripheral venous blood in patients with cirrhosis. *Hepatology* 1988; 8(2):232-6.

Alberti A, Chemellol L, Fattovich G, et al. Acute and chronic

viral hepatitis. *Dig Dis Sci* 1989; 34(10):1559-63.

Al-Tuwaijri A, Akdamar K, DiLuzio NR. Modification of

galactosamine-induced liver injury in rats by reticuloendothelial system stimulation or depression. *Hepatology* 1981; 1:107-13.

Amiri P, Locksley RM, Parslow TG, Sadicke M, Rector E,

Ritter D, Mckerrow JM. Tumour necrosis factor alpha restores granulomas and induces parasite egg-laying in schistosome-infected SCID mice. *Nature* 1992; 356(6370):604-7.

Anastassakos CH, Alexander M, et al. Interleukin-1 and

interleukin-2 activity in chronic hepatitis B virus infection. *Gastroenterology* 1988; 94:999-1005.

Andus T, Geiger T, Hirano T, Kishimoto T, Heinrich PC. Action of recombinant interleukin-6, interleukin-1 β and tumour necrosis factor α on the mRNA induction of acute-phase proteins. Eur J Immunol 1988; 18:739-46.

Angela M, Marcondes S Lima, Rodrigo Correa-Oliveira, Giovanni Gazzinelli, Daniel G Colley. J Immunol 1989; 142(7):2501-2506.

Angela M, George L Freeman, Giovanni Gazzinelli, Daniel G Colley. J Immunol 1990; 145(9):3095-9.

Arakawa T, Hsy Y, Toth E, et al. The antiviral activity of recombinant human tumour necrosis factor- α . J Interferon Res 1987; 5:215.

Argiles JM, Lopez-Soriano FJ, Wiggins D, Williamson DH. Comparative effects of tumour necrosis factor- α (cachectin), interleukin-1 beta and tumour growth on amino acid metabolism in the rat in vivo: absorption and tissue uptake of α -amino (1-14C) isobutyrate. Biochem J 1989; 261:357-62.

Armitage RJ, Namen AE, Sassenfeld HM, Grabstein KH.

Regulation of human T cell proliferation by IL-7. J Immunol 1990; 144(3):938-41.

Arthur MJP, Kowalski-Saunders P, Wright R. Effect of endotoxin

on release of reactive oxygen intermediates by rat hepatic macrophages. Gastroenterology 1988;

95:1588-94.

Baumann H, Onorato V, Gauldie J, Jahreis GP. Distinct sets of

acute phase plasma proteins are stimulated by separate human hepatocyte-stimulating factors and monokines in rat hepatoma cells. J Biol Chem 1987; 262:9756-68.

Beckmann M, Schooley KA, Gallis S, Bos TV, Friend D, Albert

AR, Ranino R, Park LS. Monoclonal antibodies block murine IL-4 receptor function. J Immunol 1990; 144(11):4212-17.

Begg GS, Pepper DS, Chestermann CN, Morgan FJ. Complete

covalent structure of human B-thromboglobulin. Biochemistry 1978; 17:1739.

Ben Sasson S, Gross G, Conard D, Funkelman F, Paul W. IL-4 production by T cells from native donors: IL-2 is required for IL-2 production. J Immunol 1990; 145(4):1127-36.

Bereta J, Kurdowska A, Koj A, Hirano T, Kishimoto T, Content

J, Fiers W, et al. Different preparations of natural and recombinant human interleukin-6 (IFN-B2, BSF-2) similarly stimulate acute phase protein synthesis and uptake of α -aminoisobutyric acid by cultured rat hepatocytes. Int J Biochem 1989; 21:361-6.

Bereta J, Szuba K, Fiers W, Gauldie J, Koj A. Transforming growth factor-B and epidermal growth factor modulate basal and interleukin-6-induced amino acid uptake and acute phase protein synthesis in cultured rat hepatocytes. FEBS Lett 1990; 266:48-50.

Bibby DC, Grimble RF. Temperature and metabolic changes in rats after various doses of tumour necrosis factor α . J Physiol (Lond) 1989; 410:367-80.

Boros DL. Immunoregulation of granuloma formation in murine schistosomiasis mansoni. Ann NY Acad Sci 1986;

Brown AL, Graham DE, Nissley SP, Hill DJ, Strain AJ, Rechler MM. Developmental regulation of insulin-like growth factor II mRNA in different rat tissues. J Biol Chem 1986; 261:13144-50.

Brunetto MR, Oliveri F, Rocca G, Grisculo D, Chiaberge E, Capalbo M, David E, et al. Natural course and response to interferon of chronic hepatitis B accompanied by antibody to hepatitis Be antigen. Hepatology 1989; 10:198-202.

Busam KJ, Bauer TM, Bauer J, Gerok W, Decker K. Interleukin-6 release by rat liver macrophages. J Hepatol 1990; 191:575-82.

Carman WF, Jacyna MR, Hadziyannis S, Karayiannis P, McGarvey MJ, Makris A, Monias HC. Mutation preventing formation of hepatitis Be antigen in patients with chronic hepatitis B infection. Lancet 1989; 2:588-90.

Carswell EA, Old LJ and Kassell RL, et al. An endotoxin induced factor that causes necrosis of tumour. Proc Nat Sci USA 1975; 72:3666.

Castell J, Andus T, Kunz D, Heinrich PC. Interleukin-6: the major regulator of acute phase protein synthesis in man and rat. In: Shegal PB, Grieninger G, Tasato G, eds. Regulation of the acute phase and immune responses: interleukin-6. Ann NY Acad Sci 1989; 557:87-99.

Castor CW, Miller JW, Walz DA. Structural and biological characteristics of connective tissue activating peptide (CTAP-III), a major human platelet-derived growth factor. Proc Natl Acad Set, USA 1983; 80:765.

Chajek-Shaul T, Friedman G, Stein O, Shiloni E, Etienne J, Stein Y. Mechanism of the hypertriglyceridemia induced by tumour necrosis factor administration to rats. Biochem Biophys Acta 1989; 1001:316-24.

Charon JA, Luger TA, Mergenhagen SE, Oppenheim JJ. Increased thymocyte-activating factor in human gingival fluid during gingival inflammation. Infect Immunol 1982; 38:1190.

Chensue SW, Terebuh PD, Warmington KS, Hershey SD,

Evanoff HL, Kinkel SI, Migashi GL. Role of IL-4 and

IFN-gamma in *Schistosoma mansoni* egg-induced

relationship to macrophage function. *J Immunol* 1992;

148(3):900-6.

Clark-Lewis I, Schrader JW. P cell-stimulating factor:

biochemical characterization of a new T cell-derived

factor *J Immunol* 1981; 127:1941.

Coffey RJ Jr, Kost LJ, Lyons RM, Moses HL, La Russo NF.

Hepatic processing of transforming growth factor beta

in the rat: uptake, metabolism, and biliary excretion.

J Clin Invest 1987; 80:750-7.

Coffman RL, Ohara J, Bond MW, Cart Y, Zlotnik A, Paul WE.

B cell stimulatory factor-1 enhances the IgE response

of lipopolysaccharide-activated B cells. *J Immunol*

1986; 136:4538.

Coffman RL, Carty J. A T cell activity that enhances polyclonal

IgE production and its inhibition by interferon-gamma.

J Immunol 1986; 139:949.

Colley DG. Immune responses and immunoregulation in experimental and clinical schistosomiasis. In *Parasitic Diseases*, Vol 2, JM Mansfield (Ed). Marcel Dekker, New York, 1981; P 1.

Colley DG, Garcia AA, Lambertucci JR, Parra JC, Katz N, Rocha RS, Gazzinelli G. Immune responses during human schistosomiasis. Differential responsiveness in patients with hepatosplenic disease. *Am J Trop Med Hyg* 1986; 35:793.

Content J, De Wit L, Poupart D, Openakker G. Van Damme J, Billiau A. Induction of a 26 KDa-protein mRNA in human cells treated with an interleukin-1, related leukocyte-derived factor. *Eur J Biochem* 1985; 152:253.

Cox GC, Mathieson BJ, Giardina SL, Varesio L. Characterization of IL-2 receptor expression and function on murine macrophages. *J Immunol* 1990; 145(6):1719-26.

Craig PI, Williams SJ, Cantrill E, Farrell GC. Rat but not human interferons suppress hepatic oxidative drug metabolism in rats. *Gastroenterology* 1989; 97:999-1004.

Crapper RM, Clark-Lewis I, Schrader DW. The invivo functions and properties of persisting cell-stimulating factor. J Immunol 1984; 139:135.

Crapper RM, Schrader JW. Antibody-mediated stimulation of hemopoietic cells. Blood 1985; 65:869.

Curtsinger JM, Fan DP. Interleukin-3 augments the murine primary cytolytic T lymphocyte response to allogenic tumour cells. J Immunol 1984; 133:267.

Czech MP, Oppenheim CL, Massague J. Inter-relationship among the receptor structures for insulin and peptide growth factors. Fed Proc 1983; 42:2598.

Dayer JM, Beutler B, Cerami A. Cachectin/tumour necrosis factor stimulates collagenase and prostaglandin E₂ production by human synovial cells and dermal fibroblasts. J Exp Med 1985; 162:2163.

Decker T, Lohmann-Matthes ML, Karck U, Peters T, Decker K. Comparative study of cytotoxicity, TNF and Prostaglandin release after stimulation of rat Kupffer cells, murine Kupffer cells and murine inflammatory liver macrophages. J Leukoc Biol 1989; 45:139-146.

Deimann W, Fahimi HD. The appearance of transition forms between monocytes and Kupffer cells in the liver of rats treated with glucan. *J Exp Med* 1979; 149:883.

Deuel TF, Keim PS, Farmer M, Heinrikson RL. Amino acid sequence of human platelet factor 4. *Proc Natl Acad Sci USA* 1977; 74:2256.

Devos R, PLAetinck G, Cheroutre H, Simons G, Degrave W, Tavernier H, Remaut E, Fiers W. Molecular cloning of human interleukin-2 cDNA and its expression in *E. coli*. *Nucleic Acids Res* 1983; 11:4307.

Diez RA, Perderau B, Falcoff E. From old results to new perspectives a look at interferon's fate in the body. *J Interferon Res* 1987; 7:553-7.

Dinarello CA. Multiple biological properties of recombinant human interleukin-1 β . *Immunobiology* 1986; 172:301.

Dinarello CA. IL-1 and its biologically related cytokines. *Adv Immunol* 1989; 44:153-205.

Domzig W, Stadler BM, Herberman RB. Interleukin-2 dependence of human natural killer cell activity. *J Immunol* 1983; 130:1970.

Doumas BT, et al. Clin Chim Acta 1971; 31:87. Quoted from pamphlet of albumin kit, bioMerieux Laboratory Reagents and Instruments.

Druez C, Coule P, Uyttenhove C, Snick JV. Functional and biochemical characterization of mouse P40/IL-9 receptors. J Immunol 1990; 145(8):2494-99.

Dubois RS, Silverman A. Treatment of chronic active hepatitis in children. Postgrad Med J 1974; 50:386.

Duguid JP, Marmion BP, Swain RHA. Bacterial pathogenicity, endotoxins. Medical Microbiology 1978; Vol 1, 13th ed.

El-Defrawy MS. Humoral immunity in chronic liver disease. MD Thesis, Pediatrics, Benha Faculty of Medicine, Zagazig University 1987.

End DW, Look RA, Garrabrane T, Persico FJ. Identification of some interleukin-1 (IL-1) sensitive organs in vivo using the induction of ornithine decarboxylase (ODC) following injection of recombinant IL-1 beta in mice. Lymphokine Res 1987; 6:325-34.

Endo Y. Induction of histidine or ornithine decarboxylase activities in mouse tissues by recombinant interleukin-1 and tumour necrosis factor. *Biochem Pharmacol* 1989; 38:1287-92.

Farrar J, Benjamin W, Hilfiker M, Howard M, Farrar W, Fuller-

Farrar J. The biochemistry, biology and role of IL-2 in the induction of cytotoxic T cells and antibody forming B cells responses. *Immunol Rev* 1982; 63:129.

Feingold KR, Soued M, Serio MK, Moser AM, Dinarello CA, Grunfeld C. Multiple cytokines stimulate hepatic lipid synthesis invivo. *Endocrinology* 1989; 125:267-4.

Ferraiolo BL, Moore JA, Crase D, Gribbling P, Wilking H, Baughman RA. Pharmacokinetics and tissue distribution of recombinant human tumour necrosis factor- α in mice. *Drug Metab Dispos* 1988; 16:270-5.

Ferrari C, Penna A, Giuberti T, Tong MJ, Ribera E, Fiaccodori F, Chisari FV. Intrahepatic, nucleocapsid antigen-specific T cells in chronic active hepatitis B. *J Immunol* 1987; 139:2050-2058.

Ferrari C, Chisari FV, Ribera E, Penna A, Mondelli MU.

Functional modulation of hepatitis B core antigen-specific T lymphocytes by an autoreactive T cell clone. J Immunol 1988; 141:1155-60.

Finhelman FD, Katona IM, Urban JF, Holmes J, Ohara J, Paul

WE. IL-4 is required to generate and sustain in vivo IgE responses. J Immunol 1988; 141:2335.

Flynn A, Finke JH, Hilker ML. Placental mononuclear phagocytes as a source of interleukin-1. Science 1982; 218:475.

Franco A, Barnaba V, Natali P, Balsano C, Musca A, Balsano F.

Expression of class I and class II major histocompatibility complex antigens on human hepatocytes. hepatology 1988; 8:449-54.

Freemark M. Epidermal growth factor stimulates glycogen synthesis in fetal rat hepatocytes: comparison with the glycogenic effects of insulin-like growth factor-1 a and insulin. Endocrinology 1986; 119:522-6.

Garman RD, Jacobs KA, Clark SC, Raulet DH. B cell-stimulatory factor 2 functions as a second signal for interleukin-2 production by mature murine T cells. Proc Natl Acad Sci USA 1987; 84:7629.

Gauldie J, Richards C, Hanrish D, Lansdorp P, Bauman H. Interferon beta2/B-cell stimulatory factor type 2 shares identity with monocyte-derived hepatocyte-stimulating factor and regulates the major acute phase protein response in liver cells. Proc Natl Acad Sci USA 1987; 84:7251-5.

Gauldie J, Northemann W, Fet GH. IL-6 functions as an exocrine hormone in inflammation. J Immunol 1990; 144(10):3804-8.

Gery I, Gershon R, Waksman BH. Potentiation of the thymocyte response to mitogens. I. The responding cells. J Exp Med 1976; 136:128.

Ghezzi P, Saccardo B, Bianchi M. Recombinant tumour necrosis factor depresses cytochrome P450-dependent microsomal drug metabolism in mice. Biochem Biophys Res Commun 1986; 136:316-21.

Goodwin RG, Lupton S, Schmierer A, Kierrold KD, Jerzy K, Cosman D. Human IL-7: Molecular cloning and growth factor activity on human and murine B-lineage cells. Proc Natl Acad Sci USA 1989; 86:302.

Gornall AC, Bardawill CJ, David MM. J Biol Chem 1949; 177:751. Quoted from pamphlet of total protein kit, BioMerieux Laboratory Reagents and Instruments.

Grabner G, Luger TA, Smolin G, Oppenheim JJ. Corneal epithelial cell derived thymocyte activating factor. Invest Ophthalmol Vis Sci 1982; 23:757.

Grabstein KH, Park LS, Morrissey PJ, Sassenfeld H, Price V, Urdal DL, Widmer MB. Regulation of urine T cell proliferation by B cell stimulatory factor-1. J Immunol 1987;139-1148.

Greene WC, Leonard ED. The human interleukin-2 receptor. Ann Rev Immunol 1986; 4:69.

Gullberg M, Ivarsa F, Coutinho A, Larsson E. Regulation of T cell growth factor production: arrest of TCGF production after 18 hours in normal lectin stimulated mouse spleen cell cultures. J Immunol 1981; 127:407.

Ham's Histology. Liver sinusoids and the space of Disse 1987; 528-9.

Hancock WW, Muller WA, Cotran RS. IL-2 receptors are expressed by alveolar macrophages during pulmonary sarcoidosis and are inducible by lymphokine treatment of normal human being macrophages, blood monocytes and monocyte cell lines. J Immunol 1987; 139:1342.

Harlan JM, Harker LA, Reidy NA, Gajdusek CM, Scharz SM, Striker GE. Lipopolysaccharide-mediated bovine endothelial cell injury invitro. Lab Invest 1983; 48:269-74.

Harriman GR, Kunimoto DY, Elliott JF, et al. The role of IL-5 in IgA B cell differentiation. J immunol 1988; 140:3033-9.

Hart PG, Vitti GF, Burgess DR, Whitty GA, Piccoll DS, Hamilton JA. Potential antiinflammatory effects of interleukin-4: Suppression of human monocyte tumour necrosis factor alpha, interleukin-1 and prostaglandin E₂ Proc Natl Acad Sci USA 1989; 86:3803.

Hartshorn MA, Scott CD, Baxter RC. Immunofluorescent localization of type II insulin-like growth factor receptor in rat liver and hepatoma cells. J Endocrinol 1989; 121:221-7.

Hassanein BM. Study of enzymatic activity in chronic liver diseases in Egyptian children. MD Thesis, Pediatrics, Benha Faculty of Medicine, Zagazig University 1984.

Hasselgren PO, Pedersen P, Sax HC, Warner BW, Fischer JE. Current concepts of protein turnover and aminoacid transport in liver and skeletal muscle during sepsis. Arch Surg 1988; 123:992-9.

Hefeneider SH, Colon PD, Menney CS, Gillis S. Invivo interleukin-2 administration augments the generation of alloreactive cytolytic T lymphocytes and resident natural killer cells. J Immunol 1983; 130:222.

Heinrich L, Martin Grun. Endotoxins in liver disease. Progress in Liver Diseases 1978; 313-26.

Heinrich PC, Castell JV, Andus T. Interleukin-6 and the acute phase response. Biochem J 1990; 265:621-36.

Helena M Daniels, Anthony M, Eddleston A, Alexander G, Williams R. Spontaneous production of tumour necrosis factor α and interleukin- 1β during interferon- α treatment of chronic HBV infection. The Lancet 1990; 875-7.

Hermann F, Cannistra SA, Levin H, Friffin JH. Expression of IL-2 receptors and binding of IL-2 by IFN-gamma induced human leukemic and normal monocytic cells. J Exp Med 1985; 162:111.

Hilbert D, Michael P, Scherele P, Nordan R, Van Snick J, Gerhard W, Rudikoff S. T cell derived IL-6 is differentially required for antigen-specific antibody secretion y primary and secondary B cells. J Immunol 1989; 4019-24.

Hirano T, Taga T, Nakano N, Yasukawa K, Kashiwamura S, Schimizu K, Nakajima K, Pyun KH, Kishimoto T. Purification to homogeneity and characterization of human B cell differentiation factor (BCDF or BSFp-2). Proc Natl Acad Sci USA 1985; 82:5490.

Hirano T, Yasukawa K, Haeada H, Taga T, Watanabe Y, Matsuda T, et al. Complementary DNA for a novel human interleukin (BSF-2) that induces B lymphocytes to produce immunoglobulin. *Nature* (1986; 324:73.

Hirohata S, Davis LS, Lipsky PE. Role of IL-2 in the generation of CD4 suppressors of human B cell responsiveness. *J Immunol* 1989; 142(9):3104-12.

Hiroshi E, Patricia A, Robert S. Kupffer cell activity and hepatic microvascular events after acute ethanol ingestion in mice. *Hepatology* 1991; 13(4):123-6.

Holter W, Goldman CK, Casabo L, Nelson DL, Greene WC, Waldmann TA. Expression of functional IL-2 receptors by lipopolysaccharide and interferon-gamma stimulated human monocytes. *J Immunol* 1987; 138:2917.

Houssian FA, Lonlie PG, Van Snick J. Distinct roles of IL-1 and IL-6 in human T cell activation. *J Immunol* 1989; 143:2520.

Howard M, Farrar J, Milfiker M, Jhonson B, et al. Identification of the T-cell derived B cell growth factor distinct from interleukin-2. J Exp Med 1982; 155:914.

Ikebuchi K, Wong GF, Clark SC, Ihle JN, Hirai Y, Ogawa M. Interleukin-6 enhancement of interleukin-3 dependent proliferation of multipotential hemopoietic progenitors. Proc Natl Acad Sci USA 1987; 84:9035.

Inaba K, Granelli-Piperno A, Steinmann RM. Dendritic cells induce T lymphocyte to release B cell stimulating factors by an interleukin-2 dependent mechanism. J Exp Med 1983; 158:2024.

Iribe H, Kega T, Kotani S, Kumoto S, Shiba T. Stimulating effect of MDP and its adjuvant-active analogues on guinea pig fibroblasts for the production of thymocyte-activating factor. J Exp Med 1983; 157:2190.

Jacob R, Barrette E, Plewe G, Fagin KD, Sherwin RS. Acute effects of insulin-like growth factor 1 on glucose and aminoacid metabolism in the awake fasted rat: comparison with insulin. J Clin Invest 1989; 83:1717-23.

James P Nolan, Daniel S Camara. Endotoxin, sinusoidal cells

and liver injury. Progress in Liver Diseases 1981;
361:376.

Jankovic D, Gibert M, Baran D, Ohara J, Paul W, Theze J.

Activation by IL-2 but not IL-3, upregulates the
expression of the PSS subunit of IL-2R on IL-2 and IL-
4 dependent T cell lines. J Immunol 1989; 143:144.

Jansen JH, Wientjens GH, Fibbe WE, Willemze R, Kluin-

Nelemans HC. Inhibition of human macrophage
colony formation by interleukin-4. J Exp Med 1989;
170-577.

Jendrassik L, et al. Biochem Z 1938; 297:81. Quoted from

pamphlet of test-combination Bilirubin, Boehringer
Mannheim GmbH Diagnostica, 1990.

Jones A, Selby PJ, Viner C, Hobbs S, Gore ME, McElwain TD.

Tumour necrosis factor, cholestatic jaundice and
chronic liver disease. Gut 1990; 31:938-9.

Junmingle, Jan Vilcek. Tumour necrosis factor and interleukin

1: cytokines with multiple overlapping biological
activities. Lab Invest 1987; 56(3):234-8.

Kanai T, Tsuzuki T, Ueda M, Sugioka A, Nakayasu K, Tashiro

Y. Large liver cell adenoma: consideration in the differential diagnosis with well-differentiated hepatocellular carcinoma. *Acta Hepatol Jpn* 1990; 31:796-803.

Kato K, Yokoi T, et al. detection by in situ-hybridization of cells

expressing IL-6 mRNA. *J Immunol* 1990; 144(4):1377-22.

Kawano M, Hirano T, Matsudo T, Taga T, et al. Autocrine

generation and requirement of BSF-2/IL-6 for human multiple myelomas. *Nature* 1988; 332:83.

Keever C, Pekle K, Gazzola M, Collins N, Bourhis J, Gillio A.

Natural killer and lymphokine-activated killer cell activities from human marrow precursors. The Effects of IL-3 and IL-4. *J Immunol* 1989; 143(10):3241-9.

Kido H, Fukusen N, Katunuma N. Epidermal growth factor as a

new regulator of induction of tyrosine aminotransferase and tryptophan oxygenase by glucocorticoids. *FEBS Lett* 1987; 223:223-6.

Kinashi T, Harada N, Severinson E, et al. Cloning of complementary DNA encoding T cell replacing factor and identity with B cell growth factor II. *Nature* 1986; 324:70.

King PRV, King EG. *J Clin Path* 1954; 7:322. Quoted from pamphlet of alkaline phosphatase kit, **Biomeux** Laboratory Reagents and Instruments.

King AG, Wierda D, Landreth KS. Bone marrow stromal cell regulation of B-lymphopoiesis. I. The role of macrophages, IL-1 and IL-4 in pre-B cell maturation. *J Immunol* 1988; 14:2016.

Kishi K, Ihle JN, Urdal DL, Ogawa M. B cell stimulatory factor-1 interleukin-4 is a multi-CSF which acts directly on primitive hemopoietic progenitors. *Blood* 1988; 72:123a.

Kishimoto T, Hirano T. Molecular regulation of B lymphocyte response. *Ann Rev Immunol* 1988; 6:485.

Klapproth J, Castell J, Geiger T, Andus T, Heinrich PC. Fate and biological action of human recombinant interleukin-1B in the rat invivo. *Eur J Immunol* 1989;

Klasing KC. Nutritional aspects of leukocytic cytokines. J Nutr 1988; 188:1436-46.

Kohase M, Henriksen-Oestefano D, May LT, Vileck J, Shegal PB. Induction of β_2 -interferon by tumour necrosis factor: a homeostatic mechanism in the control of cell proliferation. Cell 1986; 45:659.

Kondo F, Wada K, Nagato Y, et al. Biopsy diagnosis of well differentiated hepatocellular carcinoma based on new morphological markers of hepatocellular carcinoma. Cancer 1990; 65:84-7.

Kovacs EJ, Brock B, Baresio L, Young HA. IL-2 induction of IL- 1β mRNA expression in monocytes. J Immunol 1989; 143(11):3532-7.

Kupper T, Horowitz M, Lee F, Robbo R, Flood PM. Autocrine growth of T cells independent of interleukin-4 (IL-4, BSF-1) as an autocrine growth factor for a cloned antigen-specific helper T cell. J Immunol 1987; 138:4280.

Kurihara N, Bertolini D, Suda T, Akymam Y, Roodman G. IL-6 stimulates osteoclast like cell formation. J Immunol 1990; 144(11):4226-30.

Kushner I. The phenomenon of the acute phase response. Ann
NY Acad Sci 1982; 389:39-48.

Laborde NP, Gordin M, Buenaflor G, Brown P, Fisher DA.
Ontogenesis of epidermal growth factor in liver of BALB
mice. Am J Physiol 1988; 255:E28-E32.

Le PT, Lazorick S, Wichard LP, et al. Human thymic epithelial
cells produce IL-6, granulocyte monocyte-CSF and
leukemia inhibitory factor. J Immunol 1990;
145(10):3310-15.

Lehn M, Weiser WY, Englhorn S, Gillis S, Renold HG. IL-4
inhibits H₂O₂ production and antileishmanial capacity
of human cultured monocytes mediated by IFN-
gamma. J Immunol 1989; 143(9):3020-4.

**Liorente L, Crevon MC, Karray S, Defrance T, Banchereau J,
Galanaud P.** Interleukin-4 (IL-4) counteracts the
helper effect of IL-2 on antigen-activated human B
cells. Eur J Immunol 1989; 19:765.

Lovette DH, Ryan JL, Sterzel RB. Athymocyte activating factor
derived from glomerular mesangial cells. J Immunol
1983; 130:1796.

Luger TA, Stadler BM, Katz SI, Oppenheim JJ. Epidermal cell (keratinocyte)-derived thymocyte-activating factor (ETAf). J Immunol 1981; 127:1493.

Luster AD, Ravetch JV. Biochemical characterization of an interferon-inducible cytokine IL-10. J Exp Med 1987; 166:1084.

Marmenout A, Fransen L, Tavernierd J, Tizard R. Molecular cloning and expression of human tumour necrosis factor and comparison with mouse tumour necrosis factor. Eur J Biochem 1985; 152:515.

McDonald C, Barbara J. Med Lab Sci 1988; 45:277. Quoted from pamphlet of immuno/hepa-quick test, Immunostics Co, Inc.

Merluzzi VJ, Davage DM, Mertelsmann R, Welte K. Generation of non-specific murine cytotoxic T cells in vitro by purified human interleukin-2. Cell Immunol 1984; 84:74.

Mertelsmann R, Welte K. Human interleukin-2: molecular biology, physiology and clinical possibilities. Immunobiology 1986; 172:400.

Mestan J, Digel W, Mittnacht S, Hillen H, Blohm O, et al.

Antiviral effects of recombinant tumour necrosis factor
in vitro. *Nature* 1986; 323:816.

Metcalf D, Nicola NA. Tissue localization and fate in mice of
injected multipotential colony-stimulating factor. *Proc*

Natl Acad Sci USA 1988; 85:3160-4.

Miguel JS, Javier KK, Silas MC. Induction of T helper cell
unresponsiveness to antigen by macrophages from
schistosomal egg granulomas. A basis for
immunomodulation in schistosomiasis. *J Immunol*
1990; 145(8):2697-2700.

Milich DR, Jones JE, Mugher JL, et al. Is a function of the
secreted hepatitis Be antigen to induce immunologic
tolerance in utero: a transgenic model. *Proc Natl Acad*
Sci USA 1990; 87:6599-6603.

Mita S, Tominga A, Hitishi Y, Sakamoto A. Characterization of
high affinity receptors for IL-5 on IL-3 dependent cell
lines. *Proc Natl Acad Sci USA* 1989; 86:2311.

Mohler KM, Butler LD. Differential production of IL-2 and IL-4
mRNA in vivo after primary sensitization. *J Immunol*

Mond JJ, Carmen J, Sarma C, Ohara J, Finkelman FD. IFN-gamma suppresses B cell stimulation factor (BSF-1) induction of class II MHC determinants on B cells. *J Immunol* 1986; 137:3534.

Mondelli MG, Mieli-Vergani G, Alberti A., et al. Specificity of the T lymphocyte cytotoxicity to autologous hepatocytes in chronic hepatitis B virus infection: evidence that T cells are directed against HBV core antigen expressed on hepatocytes. *J Immunol* 1982; 129:2773-81.

Moriarty DM, Disorbo DM, Litwack G, Savage CR. Epidermal growth factor stimulation of ornithine decarboxylase activity in a human hepatoma cell line. *Proc Natl Acad Sci USA* 1981; 78:1752-2756.

Mosmann TR, Coffman RL. Th-1 and Th-2 cells: Different pattern of lymphokine secretion to different functional properties. *Annu Rev Immunol* 1989; 7:145.

Mosmann TR, Schumacher JM, Fiorentino DF, Leverah J, Moore KW. Isolation of monoclonal antibodies specific for IL-4, 5, 6 and a new Th-2 specific cytokine IL-10. *J Immunol* 1990; 195(9):2938-45.

Moule Sk, McGivan JF. Epidermal growth factor stimulation of gluconeogenesis in isolated rat hepatocytes involve the inactivation of pyruvate kinase. *Biochem J* 1988; 255:361-4.

Mueller DL, Jenkins MK, Schwartz RH. Clonal expansion vs functional clonal inactivation. *Annu Rv Immunol* 1989; 7:445.

Murphy LJ, Bell GI, Friesen HG. Tissue distribution of insulin-like growth factor I and II messenger ribonucleic acid in the adult rat. *Endocrinology* 1987; 120:1279-82.

Nakaniski K, Malek TR, Smith KA, Hamoka T, Shevach EM, Paul WE. Both interleukin-2 and a second T cell derived factor in EL-4 supernatants have activity as differentiation factors in IgM synthesis. *J Exp Med* 1984; 160:1605.

Namen AE, Lupton S, Kierrild K, et al. Stimulation of B cell progenitors by cloned murine IL-7. *Nature* 1988; 333:571.

Naworth PP, Stern DM. Modulation of endothelial hemostatic properties by tumour necrosis factor. *J Exp Med* 1986; 163:740.

Nedwin GE, Svedersky LP, Bringman TS, Palladino MA,

Goeddel DV. Effect of interleukin-2, interferon- γ and mitogens on the production of tumour necrosis factors α and β . J Immunol 1985; 135(14)2492-6.

Nelson. Textbook of Pediatrics 1992; Ch 11, pp 545-8.

Ohara J, Paul WE. Receptors for B-cell stimulatory factor-1

expressed on cells of haematopoietic lineage. Nature 1987; 325:537.

Okada M, Kitahara M, Kishimoto S, Matsuda T, Hirona T.,

Kishimoto T. IL-6/BSF-2 functions as a killer helper factor in the invitro induction of cytotoxic T cells. J Immunol 1988; 141:1543.

Old LJ. Tumour necrosis factor (TNF). Science 1985; 230:630.

Oldstone M. Viral persistence. Cell 1989p 56:517-20.

Onji M, Lever AML, Saito I, Thomas HC. Defective response to interferons in cells transfected with the hepatitis B virus genome. Hepatol 1989; 9:92-6.

Oppenheim JJ, Scola G, Kuang YD, Matsushima K, Sztein MB,

Steeg PS. The role of cytokines in promoting accessory cell functions. Prog Immunol 1984; 5:289.

Oppenheim JJ, Riscetti FW, Faltynek CR. Interleukins and interferon. Basic and Clinical Immunology 1987; 82:95.

Ottesen E, Hiatt R, Cheever A. The acquisition and loss of antigen specific cellular immune responsiveness in acute and chronic schistosomiasis in man. Clin Exp Immunol 1978; 33:38-47.

Ozeki T, Imanishi T, Unoki M, Funakoshi K, Kiya Y. Interleukin 1 and 2 in sera of patients with chronic hepatitis (type B). Int J Exp Pathol 1990; 71(6):815-21.

Pabst MJ, Johnston RB Jr. Increased production of superoxide anion by macrophages exposed in vitro to muramyl dipeptide or lipopolysaccharide. J Exp Med 1980; 151:101-14.

Park L.S., Friend D., Sassenfeil HM, Urdal DL. Characterization of the human B cell stimulatory factor 1 receptor. J Exp Med 1987; 166:476.

Parkes JL, Cardell RR, Grleninger G. Insulin-like growth factors (IGF I and IGF II) mimic the effect of insulin on plasma protein synthesis and glycogen deposition in cultured hepatocytes. Biochem Biophys Res Commun 1986;

Patricia EG, Barbara K, Steven NL, John JL, Ronald GT. A new method to monitor Kupffer cell phagocytosis continuously in perfused rat liver. *Hepatology* 1991; 13(3):567-74.

Pearlstein KT, Palladino MA, Wilte K, Vileck J. Purified human interleukin-2 enhances inductions of immune interferon. *Cell Immunol* 1983; 80:1.

Pennica D, Nedwin GE, Hayflick J, et al. Human tumour necrosis factor: Precursor structure, expression and homology to lymphotoxin. *Nature* 1984; 312:724.

Pepys MB, Baltz ML. Acute phase protein with special reference to C-reactive protein and related proteins (Pentaxins) and serum amyloid A protein. *Adv Immunol* 1983; 34:141-212.

Perlmutter DM. Cytokines and the hepatic acute phase response. In: Matschak GM (Ed.). Multiple system organfailure: hepatic regulation of systemic host defence. *Hepatology* 1991; 13(5):977-94.

Peschel C, Paul WE, Ohara J, Green I. Effects of B cell stimulatory factor-1/interleukin-4 on hematopoietic progenitor cells. *Blood* 1987; 70:254.

Peters M, Verling J, Gershwin ME, Milich D, Chisari FV,

Hoofnagle J. Immunology and the liver. Hepatology

1991; 13(5):977-94.

Peveri P, Waltz A, Deewated B, Baggiolini M. A novel

neutrophil-activating factor produced by human

monocytes. J Exp Med 1988; 167:1547.

Philips JD, Everson MP, Moldoveanu Z, Lue C, Mestecky J.

Synergistic effect of IL-4 and IFN-gamma on the

expression of polymeric Ig receptor and IgA by human

epithelial cells. J Immunol 1990; 45(6):1740-4.

Rabin EM, Mond JJ, Ohara J, Paul WE. Interferon-gamma

inhibits the action of B cell stimulatory factor (BSF)-1

on resting B cells. J Immunol 1986; 137:1573.

Raetz CRH. Biochemistry of endotoxins. Annu Rev Biochem

1990; 59:129-70.

Ragheb S, Boros DL. Characterization of granuloma T lymphocyte

function from schistosoma mansoni infected mice. J

Immunol 1989; 124:3239.

Ramadori G, Van Damme J, Rieder N, Meyerzum B.

Interleukin-6, the third mediator of acute-phase reaction, modulates hepatic protein synthesis in human and mouse: comparison with interleukin-1 β and the tumour necrosis factor α . Eur J Immunol 1988; 18:1259-64.

Reitman S, Frankel S. Am J Clin Path 1957; 28:56. Quoted from pamphlet of test-combination GPT and GOT, Boehringer Mannheim GmbH Diagnostica, 1990.

Renauld J, Goehals A, Houssian F, Merz H, Roost E, Van Snick J. Human P40/IL-9. J Immunol 1990; 144(11):4235-41.

Remick DG, Chensue SW, Hiserod T, Higashi GI, Kunkel SL. Flow cytometric evaluation of lymphocyte subpopulations in synchronously developing schistosoma mansoni egg and sephadex bead pulmonary granulomas. Am J Pathol 1988; 131:298.

Richard MH. Immunology. 2nd ed. Harwal Publishing Company, Pennsylvania 1992; 5, VE, P 78.

Ritchie DG. Interleukin-6 stimulates hepatic glucose release from prelabeled glycogen pools. *Am J Physiol* 1990; 258:E57-E64.

Roehm NW, Leibson HJ, Zlotnik A, et al. Interleukin-induced increase in Ia expression by normal mouse B cells. *J Exp Med* 1984; 160:679.

Roitt IM. Essential Immunology. Blackwell Scientific Publication, Hong Kong, 1988.

Roh MS, Moldawer LL, Ekman LG, et al. Stimulatory effect of interleukin-1 upon hepatic metabolism. *Metabolism* 1986; 35:419-24.

Rosenbaum J, Mavrier P, Preaux AM, Dhumeaux D. Demonstration of a basic fibroblast growth factor-like molecule in mouse hepatic endothelial cells. *Biochem Biophys Res Commun* 1989; 164:1099-104.

Ruggiero V, Tavernier J, Fiers W, Baglioni C. Induction of the synthesis of tumour necrosis factor receptors by interferon- γ . *J Immunol* 1986; 136:2445.

Saklatvala J, Pilsworth LMC, Sarsfield SJ, Gavrilovic J, Heath

JK. Pig catabolism is a form of interleukin-1: Cartilage and bone resorb, fibroblasts make prostaglandin and collagenase, and thymocyte proliferation is augmented in response to one protein. *Biochem J* 1984; 224:461

Sanders VM, Fernandez-Botran R, Uhr JW, Vitetta

ES. Interleukin-4 enhances the ability of antigen-specific B cells to form conjugates with T cells. *J Immunol* 1987; 139:2349.

Sanderson CJ, O'Garra A, Warren DJ, Klaus GGB. Eosinophil

differentiation factor also has B cell growth factor activity: Proposed name interleukin-4. *Proc Natl Acad Sci USA* 1986; 83:437.

Schrader JW, Clark-Lewis I, Crapper RM, Wong GHW. P-cell

stimulating factor: characterization, action and role, multiple lineages of bone-marrow derived cells and role in oncogenesis. *Immunol Rev* 1983; 76:79.

Schrader JW, Crapper RM. Autogenous production of a

hemopoietic growth factor "P cell stimulating factor" as a mechanism for transformation of bone-marrow derived cells. *Proc Natl Acad Sci USA* 1983; 80:6892.

Schrader JW, Marowitz U, Morita E, Christophers E.

Purification and partial biochemical characterization of a human monocyte-derived, neutrophil-activating peptide that lacks interleukin-1 activity. J Immunol 1987; 139:3474.

Skellern S. Diseases of the liver and biliary system 1993; 293-321.

Sherwin JW. Liver function. In: Clinical Chemistry, Theory, Analysis and Correlation. Kaplan LA, Pesce AJ (Eds.). Mosby Company 1984; P 435.

Shevach GM, Mu-Li J, Mizuguchi J, Ohara J, Mosmann T, Paul WE. B cell stimulatory factor 1 (interleukin 4) is a potent costimulant for normal resting T lymphocytes. J Exp Med 1987; 165:157.

Siegel JP, Sharon M, Smith PL, Leonard WJ. The IL-2 receptor β chain (P 70): role in mediating signals for LAK, NK and proliferative activities. Science 1987; 238:75.

Sim WW, Sipes IG, Earnest DL. Hypervitaminosis A (hyper A) activates hepatic Kupffer cells. Toxicologist 1989; 9:275.

Simpson R, Moritz RL, Gorman JJ, Van Snick J. Complete aminoacid sequence of a new murine T cell-growth factor (P 40). J Exp Med 1989; 169:363.

Smithers SR, Doenhoff MJ. Schistosomiasis. In: Immunology of Parasitic Diseases, Cohen S, Warren KS (Eds.). Blackwell Scientific Publications 1982; p 527.

Sonne O, Davidsen O, Møller BK, Petersen M. Cellular targets and receptors for interleukin-6. I. In vivo and in vitro uptake of IL-6 in liver and hepatocytes. Eur J Clin Invest 1990; 20:366-70.

Spits H, Yssel H, Takebe Y, Arai N, Yokota T, et al. Recombinant interleukin-4 promotes the growth of human T cells. J Immunol 1987; 139:1142.

Standiford TD, Strieter RM, Chensue SW, Westwick J, Kashara K, Kunkel SL. IL-4 inhibits the expression of IL-8 from stimulated human monocytes. J Immunol 1990; 145(4):1435-9.

Statsny M, Cohen S. Epidermal growth factor IV: the induction of ornithine decarboxylase. Biochem Biophys Acta 1970; 204:578-89.

Sutherland CG, Al-Badri AM, Howatson AG, Farquharson MA,

Foulis AK. Immunolocalization of α -interferon in liver diseases. J Clin Pathol 1989; 42:1065-69.

Tabor DR, Burchott SK, Jacobs RF. Enhanced production of monokines by canine alveolar macrophages in response to endotoxin-induced shock. Proc Soc Exp

Biol Med 1988; 187:408-15.

Takatsu K, Tanaka K, Tominaga A, Kummahara Y, Hamaoka

T. Antigen-induced T cell-replacing factor (TRF). III. Establishment of a T cell hybrid clone continuously producing TRF and functional analysis of released TRF. J Immunol 1980; 125:2646.

Thornhill HM, Haskard DP. IL-4 regulates endothelial cell activation by IL-1, TNF or IFN- α . J Immunol 1990; 145(3):365-72.

Tilo Andus, Bauer J, Gerok W. Effect of cytokines on the liver. Hepatol 1991; 13(2):364-75.

Tiollais P, Pourcel C, Dejean A. The hepatitis B virus. Nature 1985; 317:480-95.

Tominaga A, Matsumoto M, Harada N, Takahashi T, Kileuchi

Y, Takatou K. Molecular properties and regulation of mRNA expression for murine T cell replacing factor (TRF)/IL-5. J Immunol 1988; 140:1175.

Tsuda M, Goldman CK, Bongrovanni KF, et al. The P 75 peptide

is the receptor for IL-2 expressed on large granular lymphocytes and is responsible for IL-2 activation of these cells. Proc Natl Acad Sci USA 1987; 84:5394.

Tsujimoto M, Yip YK, Vilcek J. Tumour necrosis factor: specific

binding and internalization in sensitive and resistant cells. Proc Natl Acad Sci USA 1985; 82:7626.

Tsujimoto M, Yip YK, Vilcek J. Interferon- γ enhances

expression of cellular receptors for tumour necrosis factor. J Immunol 1986; 136:2441.

Twu JS, Lee CH, Lin PM, Schloemer RH. Hepatitis B virus

suppresses expression of human beta interferon. Proc Natl Acad Sci USA 1988; 85:252-6.

Tyson LM, Browne CA, Jenkins G, Thorburn GD. The fate and

uptake of murine epidermal growth factor in the sheep. J Endocrinol 1989; 123:121-30.

Unanue ER, Cerottini JC. Antigen presentation. FASEB J 1990;
3:2496-502.

Van Damme J, Opdenakker G, Simpson RJ, et al. Identification
of the human 26-KD protein, interferon β_2 (IFN- β_2) as
a B cell hybridomal plasmacytoma growth factor
induced by interleukin-1 and tumour necrosis factor.
J Exp Med 1987; 165:914.

Van Damme J, Van Beeumen J, Opdenakker G, Billiau A. A
novel NH₂ terminal sequence characterized human
monokine possessing neutrophil chemotactic, skin
reactive, and granulocyte-promoting activity. J Exp
Med 1988; 167:1364.

Wagner C, Burger DR, McCall E, Vetto RM. Antigen presentation
and IL-1 production by HLA-DR compatible endothelial
cells. Fed Proc 1983; 42:835.

Wang AM, Creasey AA, Ladner MB, et al. Molecular cloning of
the complementary DNA from human tumour necrosis
factor. Science 1985; 228:149.

Wang-Long C, Omata M, Ehata T, et al. Precore mutations and
core clustering mutations in chronic hepatitis B virus
infection. Gastroenterology 1993; 104:263-71.

Warren KS, Pelley RP, Mahmoud A. Immunity and immunopathology following reinfection of mice cured of chronic schistosomiasis mansoni. Am J Trop Med Hyg 1977; 26:957.

Weir DM. Aids to immunology. The English Book Society. Churchill Livingstone. Produced by Longman, Singapore Publishers 1986.

Wei L, Claes-Henrik F. Endotoxins inhibit endocytotic catabolism of low-density lipoproteins in Hep G₂ cells. hepatol 1992; 16(1):224-31.

Welch PA, Namen AE, Goadmin RG, Cooper MD. Human IL-7: a novel T cell growth factor. J Immunol 1989; 143:3562.

Wilkinson SP, Arroyo V, Gazzard BG, Moodie H, Williams R. Relation of renal impairment and haemorrhagic diathesis to endotoxaemia in fulminant hepatic failure. The Lancet 1974; 8:521-8.

Welte K, Mertelsmann R, Einzig A, et al. Recombinant interleukin-2 and human lymphocyte interleukin-2 are able to restore defective mitogen responses in patients with immunodeficiency states. Blood 1983; 62:377.

Wisse E, De Zanger RB. On the morphology and other aspects of Kupffer cell function: observations and speculations concerning pinocytosis and phagocytosis. Edited by M. Liehr and M. Grun: The reticuloendothelial system and the pathogenesis of liver diseases. Amsterdam, Elsevier/North Holland 1980; pp 3-9.

Wong GHW, Goeddel DV. Tumour necrosis factor α and β inhibit virus replication and synergize with interferons. Nature 1986; 323:819.

Wong GG, Witek-Glannotti JS, Temple PA, et al. Stimulation of murine hemopoietic colony formation by human IL-6. J Immunol 1988; 140:3040.

Yamashita T, Boros DL. IL-4 influences IL-2 production and granulomatous inflammation in murine schistosomiasis mansoni. J Immunol 1992; 149(11):3659-64.

Yamazaki S, Onishi E, Enamik A, Natori K. Japan J Med Sci Biol 1986; 39:105. Quoted from pamphlet of ELISA kit for IL-2 and IL-4. Genzyme.

Yasutoshi M, Kayhan TN, Anthony M, et al. Enhanced tumour necrosis factor and interleukin-1 in fulminant hepatic failure. *The Lancet* 1988; 72-4.

Yoshimura T, Matsushima K, Tanaka S, et al. Purification of a human monocyte-derived neutrophil chemotactic factor that shows sequence homology with other host defense cytokines. *Proc Natl Acad Sci USA* 1987; 84:9233.

Yoshioka K, Kakumu S, Arao M, Tsutumi Y, Inoue M. Tumour necrosis factor O production by peripheral blood mononuclear cells of patients with chronic liver disease. *Hepatology* 1989; 10:769.

Zakim D, Boyer T. Kupffer cells. *Hepatology. A Text Book of Liver Disease.* WB Saunders Company 1990; pp 15-7.

Zilberstein A, Ruggieri R, Korn JH, Revel A. Structure and expression of cDNA and genes for human interferon- β_2 , a distinct species inducible by growth-stimulatory cytokines. *EMBO* 1986; 5:2529.