

REFERENCES

- Abbas, A.K. and Lichtman, A.H. (2005) Cellular and Molecular Immunology. W.B saunders company, The Curtis Center, Independent Square West, Philadelphia, Pennsylvania.
- Abbas, A.K. and Lichtman, A.H. (2006) Basic Immunology: Functions and Disorders of immune system. Saunders, The Curtis Center, Independent Square West, Philadelphia, Pennsylvania.
- Abbas, A.K., Lichtman, A.H. and Pillai, S. (2007) Cellular and Molecular Immunology. W.B saunders company, The Curtis Center, Independent Square West, Philadelphia, Pennsylvania.
- Abbas, A.K., Lichtman, A.H. and Pober, J.S. (2000) Cellular and Molecular Immunology. W.B saunders company, The Curtis Center, Independent Square West, Philadelphia, Pennsylvania.
- Abraham, R.T. and Weiss, A. (2004) Jurkat T cells and development of the T-cell receptor signalling paradigm. *Nature Reviews Immunol* 4, 301-8.
- Akira, S., Takeda, K. and Kaisho, T. (2001) Toll-like receptors: critical proteins linking innate and acquired immunity. *Nat Immunol* 2, 675-80.
- Arancibia, S.A., Beltran, C.J., Aguirre, I.M., Silva, P., Peralta, A.L., Malinarich, F. and Hermoso, M.A. (2007) Toll-like receptors are key participants in innate immune responses. *Biol Res* 40, 97-112.

- Beare, A., Stockinger, H., Zola, H. and Nicholson, I. (2008) Monoclonal antibodies to human cell surface antigens. *Curr Protoc Immunol*, Appendix 4:4A.
- Black, J.B. and Pellett, P.E. (1999) Human herpesvirus 7. *Rev. Med. Virol* 9, 245–62.
- Briant, L., Signoret, N., Gaubin, M., Robert-Hebmann, V., Zhang, X., Murali, R., Greene, M.I., Piatier-Tonneau, D. and Devaux, C. (1997) Transduction of activation signal that follows HIV-1 binding to CD4 and CD4 dimerization involves the immunoglobulin CDR3-like region in domain 1 of CD4. *J Biol Chem* 272, 441–50.
- Camerini, D. and Seed, B. (1990) A CD4 domain important for HIV-mediated syncytium formation lies outside the virus binding site. *Cell* 60, 747-54.
- Chiampanichayakul, S., Peng-in, P., Khunkaewla, P. and Kasinrerk, W. (2006) CD147 contains different bioactive epitopes involving the regulation of cell adhesion and lymphocyte activation. *Immunobiology* 211(3), 167-78.
- Chinen, J. and Shearer, W.T. (2005) Basic and clinical immunology. *J Allergy Clin Immunol* 116, 411-8.
- Collins, T.L., Uniyal, S., Shin, J., Strominger, J.L., Mittler, R.S. and Burakoff, S.J. (1992) p56lck association with CD4 is required for the interaction between CD4 and the TCR/CD3 complex and for optimal antigen stimulation. *J Immunol* 148, 2159–62.
- Collman, R., Godfrey, B., Cutilli, J., Rhodes, A., Hassan, N.F., Sweet, R., Douglas, S.D., Friedman, H., Nathanson, N. and Gonzalez-Scarano, F. (1990) Macrophage-tropic strains of human immunodeficiency virus type 1 utilize the CD4 receptor. *J Virol* 64, 4468–76.

- Cruikshank, W.W., Lim, K., Theodore, A.C., Cook, J., Fine, G., Weller, P.F. and Center, D.M. (1996) IL-16 inhibition of CD3-dependent lymphocyte activation and proliferation. *J Immunol* 157, 5240–48.
- Dalgleish, A.G., Beverley, P.C., Clapham, P.R., Crawford, D.H., Greaves, M.F. and Weiss, R.A. (1984) The CD4 (T4) antigen is an essential component of the receptor for the AIDS retrovirus. *Nature* 312, 763–7.
- de StGroth, S.F. and Scheidegger, D. (1980) Production of monoclonal antibodies: strategy and tactics. *J Immunol Methods* 35, 1-2.
- Eales, L.-J. (2003) Immunology for life scientist. John Wiley & Sons.
- Foti, M., Carpentier, J.L., Aiken, C., Trono, D., Lew, D.P. and Krause, K.H. (1997) Second-messenger regulation of receptor association with clathrincoated pits: a novel and selective mechanism in the control of CD4 endocytosis. *Mol Biol Cell* 8, 1377–89.
- Galfre, G. and Milstein, C. (1981) Preparation of monoclonal antibodies: strategies and procedures. *Methods Enzymol* 73, 3-46.
- Garofalo, T., Sorice, M., Misasi, R., Cinque, B., Giamatteo, M., Pontieri, G.M., Cifone, M.G. and Pavan, A. (1998) A novel mechanism of CD4 down-modulation induced by monosialoganglioside GM3. Involvement of serine phosphorylation and protein kinase c delta translocation. *J Biol Chem* 273, 35153–60.
- Glaichenhaus, N., Shastri, N., Littman, D.R. and Turner, J.M. (1991) Requirement for association of p56lck with CD4 in antigen-specific signal transduction in T cells. *Cell* 64, 511–20.
- Goding, J.W. (1996) Monoclonal Antibodies: Principles and Practice Academic Press.

- Goldsby, R.A. and Goldsby, R.A.K.i. (2003) Immunology. W.H. Freeman, New York; Houndsills.
- Harlow, E. and Lane, D. (1988) Antibodies: A Laboratory Manual Cold Spring Harbor Laboratory Press New York.
- Harris, R.J., Chamow, S.M., Gregory, T.J. and Spellman, M.W. (1990) Characterization of a soluble form of human CD4. Peptide analyses confirm the expected amino acid sequence, identify glycosylation sites and demonstrate the presence of three disulfide bonds. *Eur J Biochem* 188, 291–300.
- Janeway, C.A., Travers, P., Walport, M. and Shlomchik, M.J. (2004) Immunobiology: The Immune System in Health and Disease Paul Garland Science.
- Kasirerk, W. and Tokrasinwit, N. (1999) Inhibition of PHA induced cell proliferation by polyclonal CD4 antibodies generated by DNA immunization. *Immunol Lett* 67, 237–42.
- Kazazi, F., Mathijs, J.-M., Foley, P. and Cunningham, A.L. (1989) Variations in CD4 expression by human monocytes and macrophages and their relationships to infection with the human immunodeficiency virus. *J Gen Virol* 70, 2661–72.
- Klotman, M.E. and Chang, T.L. (2006) Defensins in innate antiviral immunity. *Nat Rev Immunol* 6, 447-56.
- Knapp, W., Dörken, B., Gilks, W.R., Rieber, E.P., Schmidt, R.E., Stein, H. and von dem Borne, A.E.G.Kr. (1990) Leucocyte Typing IV: White Cell Differentiation Antigens. Oxford University Press.
- Kohler, G. and Milstein, C. (1975) Continuous cultures of fused cells secreting antibody of predefined specificity. *Nature* 256 (5517), 495-7.

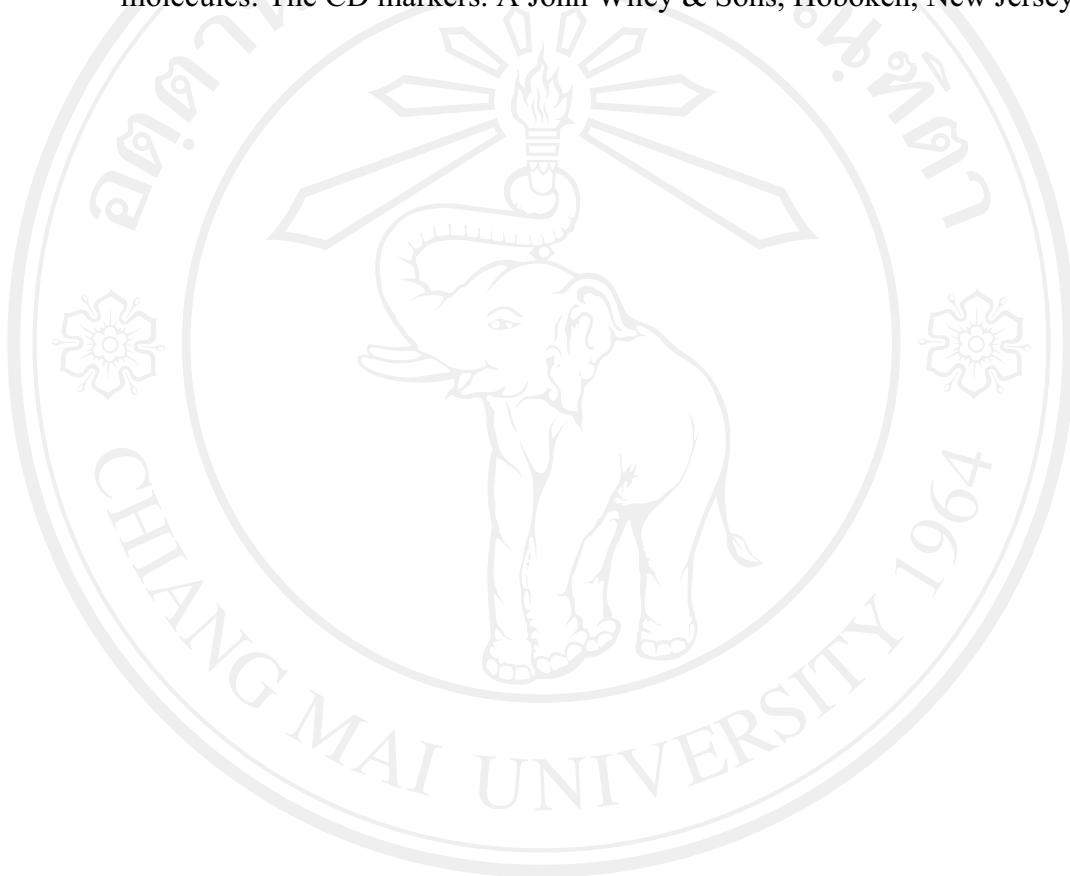
- Langedijk, J.P., Puijk, W.C., van Hoorn, W.P. and Meloen, R.H. (1993) Location of CD4 dimerization site explains critical role of CDR3-like region in HIV-1 infection and T-cell activation and implies a model for complex of coreceptor-MHC. *J Biol Chem* 268, 875–8.
- Littman, D.R. (1996) The CD4 molecule: Roles in T lymphocytes and HIV disease. Springer-Verlag 17, 182.
- Lusso, P., Secchiero, P., Crowley, R.W., Garzino-Demo, A., Berneman, Z.N. and Gallo, R.C. (1994) CD4 is a critical component of the receptor for human herpesvirus 7: interference with human immunodeficiency virus. *Proc Natl Acad Sci* 91, 3872–6.
- Lynch, G.W., Dearden, M., Sloane, A.J., Humphrey-Smith, I. and Cunningham, A.L. (1996) Analysis of recombinant and native CD4 by one- and two-dimensional gel electrophoresis. *Electrophoresis* 17, 227–34.
- Lynch, G.W., Slaytor, E.K., Elliott F.D., Saurajen, A., Turville, S.G., Sloane, A.J., Cameron, P.U., Cunningham, A.L. and Halliday G.M. (2003) CD4 is expressed by epidermal Langerhans' cells predominantly as covalent dimers. *Exp Dermatol* 12, 700–11.
- Lynch, G.W., Sloane, A.J., Raso, V., Lai, A. and Cunningham, A.L. (1999) Direct evidence for native CD4 oligomers in lymphoid and moncytoid cells. *Eur J Immunol* 29 (8), 2590-602.
- Lynch, G.W., Turville, S., Carter, B., Sloane, A.J., Chan, A., Muljadi, N., Li, S., Low, L., Armati, P., Raison, R., Zoellner, H., Williamson, P., Cunningham, A. and Church, W.B. (2006) Marked differences in the structures and protein

- associations of lymphocyte and monocyte CD4: Resolution of a novel CD4 isoform. *Immunology and Cell Biology* 84, 154–65.
- MacDonald, H.R. and Nabholz, M. (1986) T-cell activation. *Annu Rev Cell Biol* 2, 231–53.
- Maddon, P.J., Littman, D.R., Godfrey, M., Maddon, D.E., Ches, L. and Axel, R. (1985) The isolation and nucleotide sequence of a cDNA encoding the T cell surface protein T4: a new member of the immunoglobulin gene family. *Cell* 42, 93–104.
- Male, D.K. (2006) *Immunology*. Mosby Elsevier, Philadelphia, Pa.
- Matthias, L.J., Yam, P.T., Jiang, X.M., Vandegraaff, N., Li, P., Poumbourious, P., Donoghue, N. and Hogg, P.J. (2002) Disulfide exchange in domain 2 of CD4 is required for entry of HIV-1. *Nat Immunol* 3, 727–32.
- Moldovan, M.C., Sabbagh, L., Breton, G., Sekaly, R.P. and Krummel, M.F. (2006) Triggering of T cell activation via CD4 dimers. *J Immunol* 176, 5438–45.
- Parolini, I., Topa, S., Sorice, M., Pace, A., Ceddia, P., Montesoro, E., Pavan, A., Lisanti, M.P., Peschle, C. and Sargiacomo, M. (1999) Phorbol ester-induced disruption of the CD4-Lck complex occurs within a detergent-resistant microdomain of the plasma membrane. Involvement of the translocation of activated protein kinase C isoforms. *J Biol Chem* 274, 176–87.
- Pata, S., Tayapiwatana, C. and Kasinrerk, W. (2009) Three different immunogen preparation strategies for production of CD4 monoclonal antibodies. *Hybridoma* 28, 1-7.

- Pelchen-Matthews, A., da Silva, R.P., Bijlmakers, M.J., Signoret, N., Gordon, S. and Marsh, M. (1998) Lack of p56lck expression correlates with CD4 endocytosis in primary lymphoid and myeloid cells. *Eur J Immunol* 28, 3639–47.
- Phillips, A.N., Pezzotti, P., Lepri, A.C. and Rezza, G. (1994a) CD4 lymphocyte count as a determinant of the time from HIV seroconversion to AIDS and death from AIDS: evidence from the Italian Seroconversion Study. *Aids* 8, 1299-305.
- Phillips, A.N., Sabin, C.A., Elford, J., Bofill, M., Janossy, G. and Lee, C.A. (1994b) Use of CD4 lymphocyte count to predict long-term survival free of AIDS after HIV infection. *Bmj* 309, 309-13.
- Preusser, A., Briese, L., Baur, A.S. and Willbold, D. (2001) Direct in vitro binding of full-length human immunodeficiency virus type 1 Nef protein to CD4 cytoplasmic domain. *J Virol* 75, 3960–64.
- Rudd, C.E., Trevillyan, J.M., Dasgupta, J.D., Wong, L.L. and Schlossman, S.F. (1988) The CD4 receptor is complexed in detergent lysates to a protein-tyrosine kinase (pp58) from human T lymphocytes. *Proc Natl Acad Sci* 85, 5190–94.
- Sarrias, M.R., Farnos, M., Mota, R., Sanchez-Barbero, F., Ibanez, A., Gimferrer, I., Vera, J., Fenutria, R., Casals, C., Yelamos, J. and Lozano, F. (2007) CD6 binds to pathogen-associated molecular patterns and protects from LPS-induced septic shock. *Proc Natl Acad Sci* 104, 11724-9.
- Seed, B. (1995) Developments in expression cloning. *Curr Opin Biotechnol* 6, 567-73.
- Sloane, A.J., Raso, V., Dimitrov, D.S., Xiao, X., Deo, S., Muljadi, N., Restuccia D., Turville, S., Kearney, C., Broder, C.C., Zoellner, H., Cunningham, A.L.,

- Bendall, L., and Lynch, G.W. (2005) Marked structural and functional heterogeneity in CXCR4: separation of HIV-1 and SDF-1 alpha responses. *Immunol. Cell Biol* 83, 129–43.
- Stein, D.S., Korvick, J.A. and Vermund, S.H. (1992) CD4+ lymphocyte cell enumeration for prediction of clinical course of human immunodeficiency virus disease: a review. *J Infect Dis* 165, 352-63.
- Straus, D.B. and Weiss, A. (1993) The CD3 chains of the T cell antigen receptor associate with the ZAP-70 tyrosine kinase and are tyrosine phosphorylated after receptor stimulation. *J Exp Med* 178, 1523-30.
- Trobridge, P., Forbush, K. and Levin, S. (2001) Positive and negative selection of thymocytes depends on Lck interaction with the CD4 and CD8 coreceptors. *J Immunol* 166, 809–18.
- Wang, J.H., Meijers, R., Xiong, Y., Liu, J.H., Sakihama, T., Zhang, R., Joachimiak, A. and Reinherz, E.L. (2001) Crystal structure of the human CD4 N-terminal two-domain fragment complexed to a class II MHC molecule. *Proc Natl Acad Sci* 98, 10799–804.
- Wu, H., Kwong, P.D. and Hendrikson, W.A. (1997) Dimeric association and segmental variability in the structure of human CD4. *Nature* 387, 527–30.
- Yasukawa, M., Inoue, Y., Ohminami, H., Sada, E., Miyake, K., Tohyama, T., Shimada, T. and Fujita, S. (1997) Human herpesvirus 7 infection of lymphoid and myeloid cell lines transduced with an adenovirus vector containing the CD4 gene. *J Virol* 71, 1708–12.
- Yelton, D.E. and Scharff, M.D. (1980) Monoclonal antibodies. *Am Sci* 68, 510-6.

- Zola, H., Swart, B., Boumsell, L. and Mason, D.Y. (2003) Human Leucocyte Differentiation Antigen nomenclature: update on CD nomenclature. Report of IUIS/WHO Subcommittee. J Immunol Methods 275, 1-8.
- Zola H., Swart, B., Nicholson, I. and Voss, E. (2007) Leukocyte and stromal cell molecules: The CD markers. A John Wiley & Sons, Hoboken, New Jersey.



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