REFERENCES

1. Levy, J.A., " Human Immunodeficiency Viruses and the pathogenesis of AIDS," JAMA SEA, 35-45, 1989.
2. _____ ,Shimabukuro J , McHugh T , et at., "AIDS-associated retrovirus (ARV) can productively infect other cells besides human T helper cells," Virology , 147, 441-8, 1985.
3. Nicholson, J.K.A., Cross, G.D., Callaway, C.S.,et al., "In vitro infection of human monocytes with human T-lymphotropic virus type III/ lymphadenopathy-associated virus (HTLV-III/LAV)," J Immunol, 137, 323-9, 1986.
4. Robinson, W.E., Montefiori, D.C., Mitchell, W.M., "Antibody-dependent enhancement of human immunodeficiency virus type 1 infection," Lancet, 1, 790-795, 1988.
5. Homsy, J., Tateno, M., Levy, J.A., "Antibody-dependent enhancement of HIV infection," Lancet , 1, 1285-1286, 1988.
6. Takeda, A., Tuazon, C.U., Ennis, F.A., "Antibody-enhanced infection by HIV-1 via Fc receptor-mediated entry," Science, 242, 580-583, 1988.
7. Lifson, J.D., Reyes, G.R., McGrath, M.S., Stein, B.S., Engelman, E.G., "AIDS retrovirus induced cytopathy : giant cell formation and involvement of CD_4 antigen," Science, 232, 1123-7, 1986.
8. Harawi, S.J., O'Hara, C.J., "Pathology and pathophysiology of AIDS and HIV-related diseases," Manual of AIDS pathology, University press, Cambridge,pp.21-36,1989.
9. Phanuphak, P., Locharernkul, C., Panmoung, W., Wilde, H., "A report of three cases of AIDS in Thailand," Asian Pacific J. Allergy Immunol., 3, 195-9, 1985.

10. AIDS Newsletter., Vol.44, No.2, 16 January 1991.

11. Mitsuya, H., Weinhold, K.J., Furman, P.A., et al., "3'-Azido-3' deoxythymidine (BW A509U): An antiviral agent that inhibits the infectivity and cytopathic effect of human T-lymphotropic virus type III/lymphadenopathy-associated virus in vitro," Proc. Natl. Acad. Sci. USA, 82, 7096-7100, 1985.

12. Fischl, M.A., Richman, D.D., Grieco, M.H., et al., "The efficacy of azidothymidine (AZT) in the treatment of patients with AIDS and AIDS-related complex. A double-blind, placebo-controlled trial," N. Engl. J. Med., 317, 185-191 , 1987.

13. Richman, D.D., Fischl, M.A., Griecl, M.H. , et al., "The toxicity of azidothymidine (AZT) in the treatment of patients with AIDS and AIDS-related complex. A double-blind, placebo-controlled trial," N. Engl. J. Med., 317, 192-197, 1987.

14. Detels, R., Visscher, B.R., Fahey, J.L., et al., " Predictors of clinical AIDS in young homosexual men in a high-risk area," Int. J. Epidemiol., 16, 271-6, 1987.

15. Penneys, N.S., "Skin manifestations of AIDS," London, Martin Dunitz, 210 pp., 1990.

16. Cunha, B.A., Strampfer, M.J. "Clinical clues to AIDS: Recognizing the dermatologic and nondermatologic manifestations," Postgrad. Med., 83, 165-179, 1988.

17. Nicholson, J.K., Spira, T.J., Aloisio, C.H., Jones, B.M., Kennedy, M.S., Holman, R.C., McDougal JS. "Serial determinations of HIV-1 titers in HIV- infected homosexual men : association of rising titers with CD_4^+ T cell depletion and progression in AIDS," AIDS Res. Hum. Retrovirus., 5, 205-215, 1989.

18. Taylor, J.M.G., Fahey, J.L., Detels, R., Giorgi, J.V., "CD_4 percentage, CD_4 number and CD_4/CD_8 ratio in HIV infection : which to choose and how to use," J. Acquir. Immune. Defic. Symdr., 2, 114-124, 1989.

19. Bhalla, R.B., Safai B, Mertelsman R, Schwartz, M.K., "Abnormally high concentrations of β_2-microglobulin in AIDS patients," Clin Chem 29, 1560, 1983.

20. Jacobson, M.A., Abrams, D.I., Volberding, P.A., Bacchetti, P., Wilber, J., Chaisson, R.E., Crowe, S., Howard, W., Moss, A., "Serum β_2-microglobulin decreases in patients with AIDS or ARC treated with azidothymidine," J. Infect. Dis., 159, 1029-1036, 1989.

21. Fuchs, D., Hausen, A., Reibnegger, G., Werner, E.R., Dierich, M.P., Wachter, H., "Neopterin as a marker for activated cell-mediated immunity : application in HIV infection," Immunol. Today, 9, 150-155, 1988.

22. ———, Spira, T.J., Hausen, A., Reibnegger, G., Werner, E.R., Felmayer, G.W., Wachter, H., "Neopterin as a predictive marker for disease progression in Human Immunodeficiency Virus type 1 infection," Clin Chem, 35, 1746-1749, 1989.

23. Kramer, A., Wiktor, S.Z., Fuchs, D., Milstien, S., Gail, M.H., Yellin, F.J., Biggar, R.J., Wachter, H., Kaufman, S., Blattner, W.A., Gioedert, J.J., "Neopterin : a predictive marker of Acquired Immune Deficiency Syndrome in HIV infection," J. Acquir. Immune. Defic. Syndr., 2, 291-296, 1989.

24. Wachter, H., Fuchs, D., Hausen, A., Reibnegger, G., Werner, E.R., "Neopterin as marker for activation of cellular immunology : immunologic basis and clinical application," Adv. Clin. Chem., 27, 81-141, 1989.

25. Cao, Y.Z., Valentine, F., Hojvat , S., et al., " Detection of HIV antigen and specific antibodies to HIV core and envelope proteins in sera of patients with HIV infection," Blood, 70,575-8,1987.

26. Lange, J.M.A., Paul, D.A., Huisman, M.G., de-wolf-F, van-den-Berg, H., Coutinho, R.A., Danner, S.A., van-der-noordaa, J., Goudsmit J., "Persistent HIV antigenemia and decline of HIV core antibodies associated with transition to AIDS," Br. Med. J. , 293, 1459-1462, 1986.

27. Wittek, A.E., Phelan, M.A., Wells, M.A. et al., " Detection of human immunodeficiency virus core protein in plasma by enzyme immunoassay. Association of antigenemia with symptomatic disease and T-helper cell depletion," Ann. Intern. Med., 107, 286-92,1987.

28. Paul, D.A., Falk, L.A., Kessler, M.A., Chase, R.M., Blaauw, B., Chudwin, D.S., Landay, A.L., "Correlation of serum HIV antigen and antibody with clinical status in HIV-infected patients," J. Med. Virol., 22, 357-363, 1987.

29. Francioli, P., Clement, F., "Beta 2-microglobulin and immunodeficiency in a homosexual man," N. Engl. J. Med., 307, 1402-1403, 1982.

30. Fahey, J.L., Prince, H., Weaver, M., et al., "Quantitative changes in T helper or T suppressor / cytotoxic lymphocyte subsets that distinguish acquired immune deficiency syndrome from other immune subset disorders," Am. J. Med. , 76, 95-100, 1984.

31. Detels, R., English, P.A., Giorgi, J.V., et al., "Patterns of CD_4^+ cell changes after HIV-1 infection indicate the existence of a codeterminant of AIDS," J Acquir. Immune. Defic. Syndr., 1, 390-395, 1988.

32. Goudsmit, J., deWolf, F., Paul D.A., et al., "Expression of human immunodeficiency virus antigen (HIV-Ag) in serum and cerebrospinal fluid during acute and chronic infection," Lancet , 2, 177-180, 1986.

33. Lange, J.M.A., Coutinho, R.A., Krone, W.J.A., et al., "Distinct IgG recognition patterns during progression of subclinical infection with lymphadenopathy associated virus / human T lymphotropic virus ," Br. Med. J. , 292, 228-30, 1986.

34. Centers for Disease Control., "Pneumocystis pneumonia Los Angelis," Morbid. Mortal. Weekly. Rep. , 30, 250-2, 1981.

35. Davis, K.C., Horsburgh, C.R. Jr., Hasiba, U., et al., "Acquired immunodeficiency syndrome in a patient with hemophilia," Ann. Intern. Med., 98, 284-6, 1983.

36. Centers for Disease Control. "Kaposi's sarcoma and Pneumocystis pneumonia among homosexual men in New York and California ", Morbid. Mortal. Weekly Rep. , 30, 305-8, 1981.

37. ____." Task Force on Kaposi 's sarcoma and Opportunistic Infections. Epidemiological aspects of the current outbreak to Kaposi 's sarcoma and opportunistic infections," N. Engl. J. Med. , 306, 248-52, 1982.

38. Barre-Sinoussi, F., Cherman, C., Rey, F., et al., "Isolation of a T-lymphotropic retrovirus from a patient at risk of acquired immune deficiency syndrome (AIDS)," Science, 220, 868-70, 1983.

39. Gallo, Rc., Salahuddin, S.Z., Popovic, M. et al., "Frequent detection and isolation of cytopathic retroviruses (HTLV-III) from patient with AIDS and at risk of AIDS," Science , 224, 500-3, 1984.

40. Acquired Immunodeficiency Syndrome (AIDS)., "Human immunodeficiency virus," Wkly Epidem Rec , 61, 229, 1986.

41. Brian Jones., "AIDS : A guide to current knowledge and prospects for control," Hong-Kong University Press, pp.41, 1989.

42. Calvel, F., Guctard, D., Brun-Vezinet, F. et al., "Isolation of a new human retrovirus from west African patients with AIDS," Science, 223, 343-6, 1986.

43. Gallo, R.C., Wong-Staal, F., Montagnier, L., Haseltine, W.A., Yoshida, M., "HIV/HTLV gene nomenclature," Nature, 333, 504, 1988.

44. Rabson, A.S., Koenig, S., Daugherty, D.F., Gendelman, H.E., "Molecular pathogenesis of human immunodeficiency virus infection," Gene. Anal. Tech. , 5 , 41-53, 1988.

45. Robey, W.G., Safai, B., Oroszlan, S., L.O., M.A. et al., "Characterization of envelope and core structural gene products of HTLV-III with sera from AIDS patients", Science 228, 593-95, 1985

46. Gelderblom, H.R., Hausmann, E.H.S., Ozel, M., Pauli, G., Koch,M.A., "Fine structure of human immunodeficiency virus (HIV) and immunolocalization of structural proteins," Virology, 156, 171-6, 1987.

47. Fauci, A.S., Masur, H., Gelmann, E.P., et al., "The acquired immunodeficiency syndrome : An update," Ann. Intern. Med., 102, 800-813 , 1985.

48. Wiley, C.A., Schrier, R.D., Nelson, J.A., et al., " Cellular localization of human immunodeficiency virus infection within the brains of acquired immunodeficiency syndrome patients," Proc. Natl. Acad. Sci. USA, 83 , 7089-7093 , 1986.

49. Montagnier, L., Gruest, J., Chamaret, S., et al., "Adaption of lymphadenopathy associated virus (LAV) to replication in EBV-transformed B lymphoblastoid cells lines," Science , 225, 63-66 , 1984.

50. _____, Alizon, M., "The human immune deficiency virus (hiv : an update.)," In : Gluckman, J.C., Vilmer, E. (eds) : Acquired Immunodeficiency Syndrome Paris, Elsevier, : pp.21, 1987.

51. "Statistic from the World Health Organization and the Centers for Disease Control", AIDS , 2 , 235-8, 1988.

52. Eales, L.J., Parkin, J.M., "Current concepts in the immunopathogenesis of AIDS and HIV Infection," Br. Med. Bull. , 44 , 38-55, 1988.

53. Levy, J.A., "The human immunodeficiency viruses : detection and pathogenesis," In : Levy, J.A., ed. AIDS : Pathogenesis and Treatment. New York, NY : Marcel. Dekker. Inc. ,: 159-230, 1989.

54. _____," The transmission of AIDS :the case of the infected cell," JAMA, 259 , 3037-3038, 1988.

55. Dean, N.C., Golden, J.A., Evans, L., et al., "Human immunodeficiency virus recovery from bronchoalveolar fluid in patients with AIDS," Chest, 93 : 1176-1179, 1988.

56. Levy, J.A., Kaminsky, L.S., Morrow, W.J.W., et al., "Infection by the retrovirus associated with the acquired immunodeficiency syndrome," Ann. Intern. Med., 103 , 694-699, 1985.

57. Ho, D.D., Byington, R.E., Schooley, R.T., Flynn, T., Rota, T. R., Hirsch, M.S., "Infrequency of isolation of HTLV-III virus from saliva in AIDS," N. Engl. J.Med., 313, 1606, 1985.

58. Lifson, A.R., "Do alternate modes for transmission of human immunodeficiency virus exist," JAMA ,259 (9), 1353-1356, 1988.

59. Fisher, A.G., Collalti, E., Ratner, L., et al., "A molecular clone of HTLV-III with biological activity," Nature, 316, 262-265 , 1985.

60. Lifson, J.D., Feinberg, M.B., Reyes, G.R., et al., "Induction of CD_4-dependent cell fusion by the HTLV-III / LAV envelope glycoprotein," Nature, 323, 725-728 , 1986.

61. Sodroski, J., Goh, W.C., Rosen, C., et al., " Role of the HTLV-III / LAV envelope in syncytium formation and cytopathicity," Nature, 322, 470-474 , 1986.

62. Ziegler, J.L., Stites, D.P., "Hypothesis : AIDS is an autoimmune disease directed at the immune system and triggered by a lymphotropic retrovirus," Clin. Immunol. Immunopathol., 41 ,305-13, 1986.

63. Rook, A.H., Lane, H.C., Folks, T., et al., "Sera from HTLV-III/LAV antibody positive individuals mediate antibody-dependent cellular cytotoxicity against HTLV-III/LAV-infected T cells," J. Immunol., 138, 1064-7, 1987.

64. Ojo-Amaize, E.A., Nishanian, P., Keith, D.E.J., et al., "Antibodies to human immunodeficiency in human sera induce cell-mediated lysis of human immunodeficiency virus-infected cells," J. Immunol., 139 ,2458-63, 1987.

65. Ljunggren, K., Bittiger, B., Biberfeld, G. et al., "Antibody-dependent cellular cytotoxicity-inducing antibodies against human immunodeficiency virus," J. Immunol., 139 , 2263-2267, 1987.

66. Koenig, S., Gendelman, H.E., Orenstein, J.M. et al., "Detection of AIDS virus in macrophages in brain tissue from AIDS patients with encephalopathy," Science, 233 , 1089-1093, 1986.

67. Miles, S.A., "Diagnosis and staging of HIV infection," AFP, 38, 248-256, 1988.

68. Centers for Disease Control. "Classification system for human T-lymphotropic virus type III / lymphadenopathy associated virus infections," Morbid. Mortal. Weekly Rep., 35 , 334-9, 1986.

69. Redfield, R.R., Wright. D.C., Tramont, E.C.. "The Walter Reed staging classification for HTLV-III/LAV infection," N. Engl. J. Med., 314, 131-132, 1986.

70. Selizman, M., Chess, L., Fahey, J.L., et al,. "AIDS an immunologic reevaluation," N. Engl. J. Med., 311, 1289-91, 1984.

71. Koenig, S., Fauci, A.S., "AIDS : Immunopathogenesis and immune response to the Human Immunodeficiency Virus," In : Devita, V.T., Hellman, S., Rosenberg, S.A., (eds), AIDS : etiology, diagnosis, treatment, and prevention, Pennsylvania, pp.61-77, 1988.

72. Schochetman, G., Epstein, J.S., Zuck, T.F., "Serodiagnosis of infection with the AIDS virus and other human retroviruses," Annu. Rev. Microbiol. ,43 , 629-659, 1989.

73. Centers for Disease Control, "Update : serologic testing for antibody to human immunodeficiency virus," Morbid. Mortal. Weekly Rep., 39, 833-840, 1988.

74. Martin, P.W., Burger, D.R., Caouette, S., Goldstein, A.S., Peetoom, F., "Importance of confirmatory tests after strongly positive HTLV-III screening tests," N. Engl. J. Med., 317, 1577-1578, 1986.

75. Gnann, J.W., Schwimmbeck, P.L., Nelson, J.A., et al., "Diagnosis of AIDS by using a 12-amino acid peptide representing an immunodominant epitope of the human immunodeficiency virus," J. Infect. Dis., 156 (2), 261-267, 1987.

76. Francis, H.L., Kabeya, M., Kaufuama, N., Riggins, C., "Colebunders, R., et al., "Comparison of sensitivities and specificities of latex agglutination and an enzyme-linked immunosorbent assay for detection of antibodies to the human immunodeficiency virus in African sera," J. Clin. Microbiol., 16, 2462-2464, 1988.

77. Suarez, A., Hodges, S., Petruska, J., Scheffel, J., "Passive hemagglutination assay for HIV antibody screening," Abstr. Int. Conf. AIDS. 4th, Stockholm, Stockholm : Swed. Minist. Health Soc. Aff. (Abstr)., 2,262, 1988.

78. Santos, J.I., Galvao-Castro, B., Mello, D.C., Pereira, H.G., Pereira, M.S., "Dot enzyme immunoassay : a simple, cheap and stable test for antibody to human immunodeficiency virus (HIV)," J. Immunol. Methods, 99, 191-194, 1987.

79. Heyward, W.L., Curran, J.W., "Rapid screening tests for HIV infection (editorial)," J. Am. Med. Assoc., 260(4), 542, 1988.

80. Tsang, V.C.W., Peralta, J.M., Simons, A.R., "Enzyme-linked immunoelectrotransfer blot techniques (EITB) for studying the specificities of antigens and antibodies separated by gel electrophoresis," Methods Enzymol., 92, 377-391, 1983.

81. Gallo, D., Diggs, J.L., Shell, G.R., Dailey, P.J., Hoffman, M.N., Riggs, J.L., "Comparison of detection of antibody to the acquired immune deficiency syndrome virus by enzyme immunoassay, immunofluorescence and Western blot method," J. Clin. Microbiol., 23, 1049-1051, 1986.

82. Sandstrom, E.G., Schooley, R.T., Ho, D.D., et al., "Detection of human anti-HTLV-III antibodies by indirect immunofluorescence using fixed cells," Transfusion Philadelphia, 25, 308-312, 1985.

83. Jackson, J.B., Coombs, R.W., Sannerud, K., Rhame, F.S., Balfour, H.H. Jr., "Rapid and sensitive viral culture method for human immunodeficiency virus type 1," J. Clin. Microbiol. , 26, 1416-1418, 1988.

84. Hart, C., Schochetman, G., Spira, T., Lifson, A., Moore, J. et al., "Direct detection of HIV RNA expression in seropositive persons," Lancet, 2, 596-599, 1988.

85. Ou, C.Y., Kwok, S., Mitchell, S.W., Mack, D.H., Sninsky, J.J. et al., "DNA amplification for direct detection of HIV-1 in DNA of peripheral blood mononuclear cells," Science, 239, 295-297, 1988.

86 Schochetman, G., Ou, C.Y., Jones, W., "Polymerase chain reaction." J. Infect. Dis., 158, 1154-1157, 1988.

87. Imagawa, D.T., Lee, M.H., Wolinsky, S.M. et al., "Human immunodeficiency virus type 1 infection in homosexual men who remain seronegative for prolonged periods," N. Engl. J. Med., 320, 1458-1462, 1989.

88. Fahey, J.L., Taylor, J.M.G., Detels, R., "The prognostic value of cellular and serologic markers in infection with human immunodeficiency virus type 1," N. Engl. J. Med., 322 , 166-172, 1990.

89. Polk, B.F., Fox, R., Brookmeyer, R., et al., "Predictors of the acquired immunodeficiency syndrome developing in a cohort of seropositive homosexual men," N. Engl. J. Med., 316, 61-66, 1987.

90. Goudsmit, J., Lange, J.M.A., Paul, D.A., Dawson, G.J., "Antigenemia and antibody titers to core and envelope antigens in AIDS, AIDS-related complex, and subclinical human immunodeficiency virus infection," J. Infect. Dis, 155(3), 558-560, 1987.

91. Gupta, S., Good, R.A., "Subpopulations of human T lymphocytes : Laboratory and clinical studies," Immunol. Rev., 56, 89-114, 1981.

92. Poulik, M.D., "Presence of β_2-microglobulin on B- and T-cells and lymphotoxicity of anti-β_2-microglobulin sera," Immunol. Commun., 2, 403-414, 1973.

93. Nilssen, K., Evrin, P.E., Berggard, I., Panten, J., "Involvement of lymphoid and non-lymphoid cells in the production of β_2-microglobulin - a homologue of the constant domain of IgG," Nature New Biol., 244, 44-45, 1973.

94. Burkes, R.L., Sherrod, A.E., Stewart, M.L., Gill, P.S., Aguilar, S., Taylor, C.R., Krailo, M.D., Levine, A.M., "Serum beta-2 microglobulin levels in homosexual men with AIDS and with persistent, generalized lymphadenopathy," Cancer, 57, 2190-2192, 1986.

95. Cooper, E.H., Forbes, M.A., Hambling, M.H., "Serum β_2-microglobulin and C reactive protein concentrations in viral infections," J.Clin.Pathol., 37, 1140-1143, 1984.

96. Milstein, S., Kaufman, S., "Biosynthesis of tetrahydrobiopter in : conversion of dihydroneopterin triphosphate to tetrahydropterin intermediates," Biochem. Biophys. Res. Commun., 128, 1099-1107, 1985.

97. Huber, C., Batchelor, J.R., Fuchs, D., et al., "Immune response-associated production of neopterin," J. Exp. Med., 160, 310-6, 1984.

98. Boyum, A., "Isolation of lymphocytes, granulocytes and macrophages," Scand. J. Immunol., 5, 9-15, 1976.

99. Hoffman, T., Kunkel, H., "The E-rosette test," In vitro methods in cell-mediated and tumor immunity (Bloom, B.R., David, J.R., eds.), Academic press, New York, pp.71-82, 1976.

100. Reiherz, E.L., Kung, P.C., Glodstein, G., Schlossman, S.F., "A monoclonal antibody with selective reactivity with functionally mature human thymocytes and all peripheral human T-cell," J. Immunol., 123, 1312-1317, 1979.

101. Reiherz, E.L., Kung, P.C., Goldstein, G., Schlossman, S.F., "Separation of functional subsets of human T-cells by a monoclonal antibodies," Proc. Natl. Acad. Sci., 123, 2894-2896, 1979.

102. Kjellstrom, T. and Piscator, M., "Quantitative analysis of β_2-microglobulin in urine as an indicator of renal tubular damage induced by cadmium. Phadedoc Diagnostic communications," Pharmacia Diagnostics AB, Uppsala, Sweden., No.1, 1979.

103. McDougal, J.S., Cort, S.P., Kennedy, M.S., "Immunoassay for the detection of infectious human retrovirus," J. of Immun. Met., 76 , 171-178, 1985.

104. Kaplan, E.L., Meier, P., "Nonparametric estimation from incomplete observations," J. Am. Stat. Assoc., 53 , 457-81 , 1958.

105. Tibshirani, R., " Clinical and Investigative Medicine, " 5 (1), 63-68.

106. Bernstein, L., Anderson, J. and Pike, M.C., "Estimation of the Proportional Hazard in Two-Treatment-Group Clinical Trials," Biometrics, 37, 513-519, 1981.

107. Cox, D.R., "Regression models and life tables (with discussion)," J.R. Stat. Soc. B., 34, 187-220, 1972.

108. Kaplan, J.E., Spira, T.J., Fishbein, D.B., Bozeman, L.H., Pinsky, P.F., Schonberger, L.B., " A six - year follow-up of HIV-infected homosexual men with lymphadenopathy : evidence for an increased risk for developing AIDS after the third year of lymphadenopathy," JAMA, 260, 2694-2697, 1988.

109. Resenberg, Z.F., Fauci, A.S., "Immunopathogenic mechanisms of HIV infection : cytokine induction of HIV expression," Immunol. Today, 11, 176-180, 1990.

110. de Wolf, F., Goudsmit, J., Paul, D.A., et al., "Risk of AIDS related complex and AIDS in homosexual men with persistent HIV antigenaemia," Br. Med. J., 295, 569-72, 1987.

111. Allain, J.P., Laurian, Y., Paul, D.A., et al., "Long-term evaluation of HIV antigen and antibodies to p24 and gp41 in patients with hemophilia : potential clinical importance," N. Engl. J. Med., 317, 1114-21, 1987.

112. Lelie, P.N., Reesink, H.W., Bakker, E., Huisman, J.G., ten Veen, J.H., "Clinical importance of HIV antigen and anti-HIV core markers in persons infected with HIV," N. Engl. J. Med., 318, 1204-5, 1988.

113. Phair, J.P., "Human immunodeficiency virus antigenemia," JAMA, 258, 1218, 1987.

APPENDIX I

CHEMICAL AGENTS AND INSTRUMENTS

A. Chemical substances

Ficoll ; M.W. 400,000 (Sigma, Mo. , USA.)

Heparin 5000 IU/ml; sterile for injection. (Leo Bellerup, Denmark)

Hypaque sodium 50%, diatrizoate sodium injection. (Winthrop, N.Y., USA.)

HEPES (N-2-hydroxyethylpiperazine-N-2-ethanesulfonic acid) (Sigma, Mo., USA.)

Penicillin G; 1,000,000 Units/vial (Dumex, Bangkok, Thailand)

Paraformaldehyde (Sigma, Mo., USA.)

RPMI 1640 (Rosewell Park Memorial Institute formular 1640), with L-glutamine, without antibiotics. (GIBCO ; Grand Island , N.Y. USA.)

Streptomycin sulfate (Dumex, Bangkok, Thailand)

B. Antiserum

OKT_4 & OKT_8 monoclonal antibodies. (Ortho diagnostic , N.J. , USA.)

Rabbit anti-mouse immunoglobulin FITC conjugated (DAKO Igs., Glastrup, Denmark)

C. Glasswares

Glass tube with screw cap lid, size 16x125 mm. (Kimble, Kimex, Ohio, USA.)

Serological pipet (Pyrex, Corning, N.Y., USA.)

Pasteur pipet (Pyrex, Corning, N.Y., USA.)

D. Instruments

Automatic pipet. (Gilson, Lyon, France)

Fluorescence microscope, model BH (Olympus, Tokyo, Japan)

Light microscope, model BH (Olympus, Tokyo, Japan)

Refrigerated centrifuge, Model Centra 7-R (IEC, Boston, Ma., USA.)

Waterbath (Precision Scientific, Chicago, USA.)

E. Reagent kits

ELAVIA Ag I (Diagnostic Pasteur, Marnes La Coquette, France)

Human Immunodeficiency Virus Type 1 (HIV-1) Western Blot IgG Assay (version 1.2) (Diagnostic Biotechnology, Singapore)

Pharmacia B_2-micro EIA (Pharmacia Diagnostics AB, Uppsala, Sweden)

APPENDIX II

REAGENTS AND PREPARATIONS

1. Reagents for white blood cell count

- White blood cell diluent

Glacial acetic acid	3 ml.
Distilled water (DW)	100 ml.

2. Reagent for mononuclear cell preparation

2.1 Ficoll-Hypaque solution

2.1.1 9% Ficoll

Ficoll	9 gm.
DW	100 ml.

Sterile by autoclave

2.1.2 33.9% Hypaque

50% Hypaque	33.9 ml.
DW	16.1 ml.

9% Ficoll was mixed with 33.9% Hypaque in the ratio 2.4 : 1 respectively. This solution should have specific gravity about 1.077.

2.2 RPMI 1640

One case of RPMI 1640 was added with $NaHCO_3$ 2 gm and DW to 1000 ml. After adjusted pH to 7.4 with 1 M NaOH or 1 M HCl, it was steriled by filtration with 0.22 um membrane filter.

2.3 Penicillin 10,000 Units/ml.

2.3.1 Stock penicillin 100,000 Units/ml.

Penicillin G 1,000,000 Units per ampule was reconstituted with sterile DW 10 ml. and mixed.

2.3.2 Working penicillin 10,000 Units/ml.

Stock penicillin 100,000 Units/ml.	0.1 ml.
RPMI 1640	0.9 ml.

2.4 Streptomycin 10,000 ug/ml.

2.4.1 Stock streptomycin 100,000 ug/ml.

Streptomycin 1 gm was reconstituted with sterile DW 10 ml and mixed.

2.4.2 Working streptomycin 10,000 ug/ml.

Stock streptomycin 100,000 ug/ml.	0.1 ml.
RPMI 1640	0.9 ml.

3. <u>Reagent for spontaneous E-rosette formation</u>

3.1 Modified Alsever's solution

Glucose	24.6 gm
Sodium citrate	9.6 gm
NaCl	5.04 gm
DW	1200 ml.

Adjusted pH to 6.1 with citric acid and sterile by filtration.

3.2 Sheep red blood cell (SRBC) collection

Peripheral blood of sheep from jugular venepuncture were resuspended in steriled modified Alsever solution in the ratio 4:1 respectively and mixed, store at 4°C.

3.3 Phosphate buffer saline (PBS) pH 7.4

3.3.1 Solution A

$NaH_2HPO_4 \cdot H_2O$	27.6 gm.

3.3.2 Solution B

$Na_2HPO_4 \cdot 12H_2O$	71.63 gm.
DW	1000 ml.

3.3.3 PBS pH 7.4

Solution A	16.5 ml.
Solution B	33.5 ml.
NaCl	8.5 ml.
DW to	1,000 ml.

Adjusted pH to 7.4 and sterile by autoclave

3.4 1% SRBC

SRBC suspension were washed 3 times with PBS pH 7.4 by centrifuged at 300 G for 5 min. Pack SRBC 0.1 ml were resuspended in 9.9 ml of RPMI 1640 and mixed. 1% SRBC was freshly prepared before used.

4. Reagents for T-cell subset determination

4.1 OKT monoclonal antibodies

Lyophilized form of OKT_4 or OKT_8 monoclonal antibodies (Ortho diagnostic, N.J., USA.) were reconstituted with 1 ml of steriled distilled water and then aliquoted 100 ul/vial and kept at -70°C. After thawing, these antibodies were stored at 4°C.

4.2 Rabbit anti-mouse immunoglobulin FITC conjugated

Rabbit anti-mouse immunoglobulin fluorescein labelled (DAKO, Glastrup, Denmark) were diluted to 1:20 with sterile RPMI 1640 and kept in the dark at 4°C.

4.3 1% paraformaldehyde solution

4.3.1 Stock 10% paraformaldehyde

Paraformaldehyde	10	gm.
PBS pH 7.4	100	ml.

4.3.2 Working 1% paraformaldehyde

10% paraformaldehyde	1	ml.
PBS pH 7.4	9	ml.

4.4 mounting media

PBS pH 7.4 was mixed equal volume with glycerine.

APPENDIX III

1987 REVISION OF CASE DEFINITION FOR AIDS FOR SURVEILLANCE PURPOSES

For national reporting, a case of aids is defined as an illness characterized by one or more of the following "indicator" diseases, depending on the status of laboratory evidence of HIV infection, as shown below.

I. Without Laboratory Evidence Regarding HIV Infection

If laboratory tests for HIV were not performed or gave inconclusive results and the patient had no other cause of immunodeficiency listed in Section I.A below, then any disease listed in section I.B indicates AIDS if it was diagnosed by a definitive method

A. Cause of immunodeficiency that disqualify diseases as indicators of AIDS in the absence of laboratory evidence for HIV infection

1. high-doses or long-term systemic corticosteroid therapy or other immunosuppressive/cytotoxic therapy < 3 months before the onset of the indicator disease

2. any of the following diseases diagnosed < 3 months after diagnosis of the indicator disease : Hodgkin's disease, non-Hodgkin's lymphoma (other than primary brain lymphoma), lymphocytic leukemia, multiple myeloma, any other cancer of lymphoreticular or histocytic tissue, or angioimmunoblastic lymphadenopathy

3. a genetic (congenital) immunodeficiency syndrome or an acquired immunodeficiency syndrome atypical of HIV infection, such as one involving hypogammaglobulinemia

B. Indicator diseases diagnosed definitively

1. candidiasis of the esophagus, trachea, bronchi, or lungs

2. cryptococcosis, extrapulmonary

3. cryptosporidiosis with diarrhea persisting > 1 month

4. cytomegalovirus disease of an organ other than liver, spleen, or lymph nodes in a patient > 1 month age

5. herpes simplex virus infection causing a mucocutaneous ulcer that persists longer than 1 month ; or bronchitis, pneumonitis, or esophagitis for any duration affecting a patient > 1 month of age

6. Kaposi's sarcoma affecting a patient < 60 years of age

7. lymphoma of the brain (primary) affecting a patient < 60 years of age

8. lymphoid interstitial pneumonia and/or pulmonary lymphoid hyperplasia (LIP/PLH complex) affecting a child < 13 years of age

9. Mycobacterium avium complex or M.kansasii disease, disseminated (at a site other than or in addition to lungs, skin, or cervical or hilar lymph nodes)

10. Pneumocystis carinii pneumonia

11. toxoplasmosis of the brain affecting a patient > 1 month of age

12. toxoplasmosis of the brain affecting a patient > 1 month of age

II. With Laboratory Evidence for HIV infection

Regardless of the presence of other cause of immunodeficiency (I.A), in the presence of laboratory evidence about HIV infection any disease listed above (I.B) or below (II.A or II.B) indicates a diagnosis of AIDS.

A. Indicator diseases diagnosed definitively

1. bacterial infections, multiple or recurrent (any combination of at lease two within a 2-year period), of the following types affecting a child < 13 years of age

septicemia, pneumonia, meningitis, bone or joint infection, or abscess of an internal organ or body cavity (excluding otitis media or superficial skin or mucosal abscesses) caused by haemophilus, Staphylococcus (including pneumococcus), or other pyogenic bacteria

2. coccidiomycosis, disseminated (at a site other than or in addition to lungs or cervical or hilar lymph nodes)

3. HIV encephalopathy (also called "HIV dementia", "AIDS dementia" or "subacute encephalitis due to HIV")

4. histoplasmosis, disseminated (at a site other than or in addition to lungs or cervical or hilar lymph nodes)

5. isosporiasis with diarrhea persisting > 1 month

6. Kaposi's sarcoma at any age

7. lymphoma of the brain (primary) at any age

8. other non-Hodgkin's disease lymphoma of B cell or unknown immunologic phenotype and the following histological types:

   a. small noncleaved lymphoma (either Burkitt or non-Burkitt type)

b. immunoblastic sarcoma (equivalent to any of the following, although not necessarily all in combination : immunoblastic lymphoma, large cell lymphoma, diffuse histiocytic lymphoma)

Note : Lymphomas are not included here they are of T-cell immunologic phenotype or their histologic type is not described or is described as "lymphocytic", "lymphoblastic", "small cleaved", or "plasmacytoid lymphocytic"

9. any mycobacterium disease caused by mycobacteria other than M. tuberculosis, dessiminated (at a site other than or in addition to lungs, skin, or cervical or hilar lymph nodes)

10. disease cause by M. tuberculosis, extrapulmonary (involving at least one site outside the lungs regardless of whether there is concurrent pulmonary involvement)

11. Salmonella (nontyphoid) septicemia, recurrent

12. HIV wasting syndrome (emaciation, "slim disease")

B. Indicator diseases diagnosed presumptively

Note : Given the seriousness of diseases indicative of AIDS, it is generally important to diagnose them definitively, especially when therapy that would be used may have serious side effects or when definitive diagnosis is needed for eligibility for antiretroviral therapy. Nonetheless, in some situations, a patient's condition will not permit the performance of definitive test. In other situations excepted clinical practise may be to diagnose presumptively based on the presence of characteristic clinical and laboratory abnormalities.

1. Candidiasis of esophagus
2. Cytomegalovirus retinitis with lost of vision
3. Kaposi's sarcoma

4. Lymphoid interstitial pneumonia and /or pulmonary lymphoid hyperplasia (LIP/PLH complex) affecting a child < 13 years of age

5. Mycobacterial disease (acid-fast bacilli with species not identified by culture), disseminate (involving at least one site other than or in addition to lungs, skin, or cervical or hilar lymph nodes)

6. Pneumocystis carinii pneumonia

7. Toxoplasmosis of the brain affecting of a patient > 1 month of age

III. With Laboratory Evidence Against HIV Infection

With laboratory test results negative for HIV infection a diagnosis of AIDS for surveillance purposes is ruled out unless :

A. all the other causes of immunodeficiency listed above in section I. A are included ; AND

B. the patient has had either :

1. Pneumocystis carinii pneumonia diagnosed by a definitive method ; OR

2. a. any of the other diseases indicative of AIDS listed above in Section I.B diagnosed by a definitive method ; AND

b. a T-helper/inducer (CD_4) lymphocyte count < $400/mm^3$

CURRICULUM VITAE

Miss Sunee Sirivichayakul was born on June 3, 1962 in Bangkok, Thailand. She graduated with the Bachelor degree of Science in Medical Technology from the Faculty of Medicine, Chulalongkorn University in 1985. Her academic position is the faculty member of the Allergy and Clinical Immunology Division, Department of Medicine, Chulalongkorn University. On January 25 - April 2, 1988, she worked as a research fellow at PATH (Program for Appropriate Technology in Health), Seattle, Washington, USA for the development of rapid anti-HIV testing. On March 5-16, 1990, she worked in the development of AIDS test kit suitable for Thai population at Diagnostic Biotechnology, Singapore. On June 20-24, 1990, she participated in 6th International Conference on AIDS in San Francisco, USA. During her occupational experience, she have had the following publications :

1. Phanuphak P, Khawplod P, Sirivichayakul S, Siriprasomsub W, Ubol S, Thaweepathomwat M. "Humoral and cell-mediated immune responses to various economical regimens of purified Vero cell rabies vaccine". Asian Pacific J Allergy Immunol, 5, 33-7, 1989.

2. Phanuphak P, Phanpanich T, Sirivichayakul S, Wongurai S, Sriwanthana B, Panmoung W, Utaisen O, Chutivongse S. "Comparative immunogenicity study of four plasma-derived hepatitis B vaccines in Thai young adults". Vaccine, 7, 253-6, 1989.