

Jurlander J., Hartmann-Geisler C. & Hansen M.M. Treatment of hypogammaglobulinaemia in chronic lymphocytic leukemia by low-dose intravenous gammaglobulin. *Eur J Haematol* 53: 114-118, 1994.

Kaina B., Lohrer H., Kavin M. & Herrlich P. Overexpressed human metallothionein II: A gene protects Chinese hamster ovary cells from killing by alkylating agents. *Proc Natl Acad Sci USA* 87: 2710-2714, 1990.

Kalyanaraman V.S., Sarngadharan M.G. & Robert-Guroff M. A new type of human T-cell leukemia virus (HTLV-2) associated with a T-cell variant of hairy cell leukemia. *Science* 218: 561-563, 1982.

Kantor A. A new nomenclature for B cells. *Immunol Today* 12:388-392, 1991.

Karray S., Vazquez A., Merle-Bérral H., Olive D., Debre P. & Galanaud P. Synergistic effect of recombinant IL2 and interferon gamma on the proliferation of human monoclonal lymphocytes. *J Immunol* 138: 2824-2830, 1987.

Karray S., DeFrance T., Merle-Bérral H., Banchereau J Debre P. & Galanaud P. Interleukin 4 counteracts the interleukin 2-induced proliferation of monoclonal B cells. *J Exp Med* 168: 85-94, 1988.

Kastan M.B., Onyekwere O., Sidransky D., Voglestein B. & Craig R.W. Participation of p53 protein in the cellular response to DNA damage. *Cancer Res* 51: 6304-6311, 1991.

Kay N.E., Johnson J.D., Staner R. & Douglas S.D. T-cell subpopulations in chronic lymphocytic leukemia. Abnormalities in distribution and in vitro receptor maturation. *Blood* 54: 540-543, 1979.

Kay N.E. Abnormal T-cell subpopulation function in CLL; excess suppressor($T\gamma$) and deficient helper ($T\mu$) activity with respect to B cell proliferation. *Blood* 57: 418-420, 1981.

Keating M.J., Kantarjian H., Talpaz M., Redman J., Koller C., Barlogie B., Velasquez W., Plunkett W., Freireich E.J. & McCredie K.B. Fludarabine: A new agent with major activity against chronic lymphocytic leukemia. *Blood* 74: 19-25, 1989.

Keating M.J., O'Brien S., Kantarjian H., Robertson L.B., Koller C., Beran M. & Estey E. Nucleoside analogs in the treatment of chronic lymphocytic leukemia. *Leuk Lymphoma* 10: 139-145, 1993a.

Keating M.J., O'Brien S., Kantarjian H., Plunkett W., Estey E., Koller C., Beran M. & Freireich E.J. Long-term follow-up of patients with chronic lymphocytic leukemia treated with fludarabine as a single agent. *Blood* 81: 2878-2884, 1993b.

Keating M.J.: Leukemia, whither goest thou? *Mayo Clin Proc* 69: 397-398, 1994.

Keller R.H., Libnoch J.A. & Kallas G. Sequential T-cell immunoregulatory subsets and function in B-CLL. In Gale RP & Rai K (eds) *Chronic Lymphocytic Leukemia: Recent Progress and Future Directions*, pp 147-163. New York: Alan R Liss, 1987.

Kelley S.L., Basu A., Teicher B.A., Hacker M.P., Hamer D.H. & Lazo J.S. Overexpression of metallothionein confers resistance to anticancer drugs. *Science* 241: 1813-1815, 1988.

Khoury I.F., Keating M.J., Vriesendorp H.M., Reading C.L., Przepiorka D., Huh Y.O., Andersson B.S., van Besien K.W., Mehra R.C. & Giralt S.A. Autologous and allogeneic bone marrow transplantation for chronic lymphocytic leukemia: preliminary results. *J Clin Oncol* 12: 748-758, 1994.

Kimby E. & Mellstedt H. Chlorambucil/prednisone versus CHOP in symptomatic chronic lymphocytic leukemia of B-cell type: A randomized trial. *Leuk Lymphoma* 5(Suppl): 93-96, 1991.

Kinoshita K., Amagasaki P., Ikeda S., Suzuyama J., Toriya K., Nishino K., Tagawa M., Ichimaru M., Kamihira S. & Yamada Y. Preleukemic state of adult T-cell leukemia: Abnormal T-lymphocytosis induced by human T-cell leukemia-lymphoma virus. *Blood* 66: 120-127, 1985.

Kipps T.J., Tomhave E., Chen P.P. & Carson D.A. Autoantibody associated κ light chain variable region gene expressed in chronic lymphocytic leukemia with little or no somatic mutation, implications for etiology and immunotherapy. *J Exp Med* 167: 840-852, 1988.

Kipps T.J., Tomhave E., Pratt L.F., Duffy S., Chen P.P. & Carson D.A. Developmentally restricted immunoglobulin heavy chain variable region

gene expressed at high frequency in chronic lymphocytic leukemia. *Proc Natl Acad Sci USA* **86**: 5913-5919, 1989.

Knopf K.W., Yamada M. & Weissbach A. Hela cell DNA polymerase gamma: further purification and properties of the enzyme. *Biochemistry* **15**: 4540-4548, 1976.

Koelling T.M., Yeager A.M., Hilton J., Haynie D.T. & Wiley J.M. Development and characterization of a cyclophosphamide-resistant subline of acute myeloid leukemia in the Lewis x Brown Norway hybrid rat. *Blood* **76**: 1209-1213, 1990.

Kohn F.R. & Sladek N.E. Aldehyde dehydrogenase activity as the basis for the relative insensitivity of murine pluripotent hematopoietic stem cells to oxazaphosphorines. *Biochem Pharmacol* **34**: 3465-3471, 1985.

Kohn K.W. Interstrand crosslink of DNA by 1,3-(2-chloroethyl)-1-nitrosourea and other 1-(2-haloethyl)-1-nitrosoureas. *Cancer Res* **37**: 1450-1454, 1977.

Kohn K.W., Ewig R.A.G., Erickson L.C. & Zwelling, L.A. Measurement of strand breaks and cross-links in DNA by alkaline elation.

In E.C. Friedberg and P.C. Hanawalt (Eds), DNA Repair. A Laboratory Manual of Research Procedures Part B, pp 379-401, Marcel Dekker, New York, 1981.

Korsmeyer S.J. Hierarchy of immunoglobulin gene rearrangements in B-cell leukemias. *Ann Intern Med* **102**: 497-510, 1985.

Korsmeyer S.J. *Bcl₂* initiates a new category of oncogenes: regulators of cell death. *Blood* **80**: 879-886, 1992.

Kramer R.A., Greene K., Ahmad S. & Vistica D.T. Chemosensitization of L-phenylalaline mustard by the thiol-modulating agent buthionine sulfoximine. *Cancer Res* **47**: 1593-1597, 1987.

Kuerbitz S.J., Plunkett B.S., Walsh W.V. & Kastan MB. Wild-type p53 is a cell cycle checkpoint determinant following irradiation. *Proc Natl Acad Sci USA* **89**: 7491-7495, 1992.

Laemmli U.K. Cleavage of structural proteins during the assembly of the head of bacteriophage T4. *Nature* **227**: 680-685, 1970.

Lavabre-Bertrand T., Exbrayat C., Bourquard P., Lavabre-Bertrand C., Fegueux N., Poncelet P., Rousset T., Taib J., Emberger J.M. & Navarro M. CD23 antigen density is related to serum gamma globulin level, bone marrow reticulin pattern and treatment in B-cell chronic lymphocytic leukemia. *Leuk Lymphoma* 13: 89-94, 1994.

Lee J.S., Dixon D.O., Kantarjian H.M., Keating M.J. & Talpaz M. Prognosis of chronic lymphocytic leukemia: A multivariate regression analysis of 325 untreated patients. *Blood* 69: 929-936, 1987.

LeMaistre C.F., Rosenblum M., Reuben J.M., Parkinson D.R., Meneghetti C.M., Parker K., Shaw J.P., Deisseroth A.B. & Woodworth T. Therapeutic effects of genetically engineered toxin(DAB486IL-2) in a patient with chronic lymphocytic leukaemia. *Lancet* 337: 1124-1125, 1991.

LeMaistre C.F., Meneghetti C., Rosenblum M., Reuben J., Parker K., Shaw J., Deisseroth A., Woodworth T. & Parkinson D.R. Phase I trial of an interleukin-2(IL-2) fusion toxin (DAB486IL-2) in hematologic malignancies expressing the IL-2 receptor. *Blood* 79: 2547-2554, 1992.

Levy R. Idiotype/granulocyte-macrophage colony-stimulating factor fusion protein as a vaccine for B-cell lymphoma. *Nature* 362: 755-758, 1993.

Lion T., Razvi N., Golomb H.M. & Brownstein R.H. B-lymphocytic hairy cells contain no HTLV-II DNA sequences. *Blood* 72: 1428-1430, 1988.

Litz G.E. & Brunning R.D. Chronic lymphoproliferative disorders: Classification and diagnosis. *Baillière's Clin Haematol* 6: 767-783, 1993.

Liu L.F. & Miller K.G. Eukaryotic DNA topoisomerase: Two forms of type I DNA topoisomerases from Hela cell nuclei. *Proc Natl Acad Sci USA* 78:3487-3491, 1981.

Liu L.F. DNA topoisomerases—enzymes that catalyse the breaking and rejoining of DNA. *CRC Crit Rev Biochem* 15: 1-24, 1983.

Liu L.F. DNA topoisomerase poisons as antitumor drugs. *Ann Rev Biochem* 58: 351-375, 1989.

Lock R.B. Inhibition of p34Cdc2 kinase activation, p34Cdc2 tyrosine dephosphorylation, and mitotic progression in Chinese hamster ovary cells exposed to etoposide. *Cancer Res* 52: 1817-1822, 1992.

Logtenberg T., Young F.M., VanEs J.H., Gmelig-Meyling F.H. & Alt F.W. Autoantibodies encoded by the most JH proximal human immunoglobulin heavy chain variable region gene. *J Exp Med* 170: 1347-1355, 1989.

Lotem J. & Sachs L. Regulation by bcl₂, c-myc and p53 of susceptibility to induction of apoptosis by head shock and cancer chemotherapy compounds in differentiation competent and defective myeloid leukemic cells. *Cell Growth Differ* 4: 41-47, 1993.

Louie K.G., Behren B.C., Kinsella T.J., Hamilton T.C., Grotzinger K.R., Mckoy N.M., Winkler M.A. & Ozols, R.F. Radiation survival parameters of antineoplastic drug sensitive and resistant human ovarian cancer cell lines and their modification by glutathione sulfoximine. *Cancer Res* 45: 2110-2115, 1985.

Lucivero G., Prchal J.T., Lawton A.R., Antonaci S. & Bonomo L. Abnormal T-cell functions in B-cell chronic lymphocytic leukemia do not imply T-lymphocyte involvement in the leukemic process: report of a case with demonstrated "polyclonality" of T lymphocytes. *J Clin Immunol* 3: 111-116, 1983.

Luck-Huhle C. α -Irradiation-induced G₂ delay: a period of cell recovery.

Radiat Res 89: 298-308, 1982.

Ludlum D.B. Alkylating agents and the nitrosoureas. In: Becker FF,(ed):

Cancer: A comprehensive treatise. New York: Plenum Press. Vol 5. 285-307, 1977.

Luo H., Rubio M., Biron G., Delespesse G. & Sarfati M. Anti-proliferative effects of interleukin 4 in B-chronic lymphocytic leukemia.

J. Immunother 10: 418-425, 1991.

Mactolcsy A., Inghirami G. & Knowles D.M. Molecular genetic demonstration of the diverse evolution of Richter's syndrome(chronic lymphocytic leukemia and subsequent large cell lymphoma) *Blood* 83:

1363-1372, 1994.

Mainou-Fowler T., Coppelstone J.A. & Prentice A.G. Effect of interleukin 4 (IL4) on apoptotic cell death in B-CLL cells. *Br J Haematol*

84: 69a(Abst), 1993.

Mainou-Fowler T., Craig V.A., Copplestone J.A., Hamon M.D. & Prentice A.G. Interleukin-5(IL-5) increases spontaneous apoptosis of B-cell chronic

lymphocytic leukemia cells in vitro independently of bcl-2 expression, and is inhibited by IL-4. *Blood* 84:2297-2304, 1994.

Mainou-Fowler T. & Prentice A.G. Modulation of apoptosis by cytokines in B-cell chronic lymphocytic leukemia. *Leuk Lymphoma* 19: 369-378, 1996.

Mann D.L., DeSantis P. & Mark G. HTLV-I associated B-cell chronic lymphocytic leukemia: Indirect role for retrovirus in leukemogenesis. *Science* 236: 1103-1107, 1987.

Mann D.L., LeSane F., Boumpas D., Dean M. & Blattner W.A. HTLV-I infection and chronic lymphocytic leukemia. *Nouv Rev Fr Hematol* 30: 267-273, 1988.

Manohar V., Brown E., Leiserson W.M. & Chused T.M. Expression of Ly-1 by a subset of B lymphocytes. *J Immunol* 129: 532-538, 1982.

Marini J.C., Miller K.G. & England P.T. Decatenation of kinetoplast DNA by topoisomerases. *J Biol Chem* 255: 4976-4979, 1980.

Masuda H., Ozols R.F., Lai G-M., Fojo A., Rothenberg M. & Hamilton T.C. Increased DNA Repair as a mechanism of acquired resistance to *cis*-diamminedichloroplatinum (II) in human ovarian cancer cell lines. *Cancer Res* 48: 5713-5716, 1988.

Matsumoto Y., Fujiwara T., Honjo Y., Sasaoka N., Tsuchida T. & Nagao S. Quantitative analysis of DNA topoisomerase I activity in human and rat glioma: characterization and mechanism of resistance to antitopoisomerase chemical, camptothecin-II. *J Surg Oncol* 53: 97-103, 1993.

Matsumoto Y. & Kim K. Excision of deoxyribose phosphate residues by DNA polymerase beta during DNA repair. *Science* 269: 699-702, 1995.

Matutes E., Brito Babapulle V., Worner I., Sainati L., Foroni L. & Catovsky D. T cell chronic lymphocytic leukemia: the spectrum of mature T cell disorders. *Nouv Re Fr Hematol* 30: 347-351, 1988.

Matutes E., Owusu-Ankomah K., Morilla R., Garcia Marco J. Houlihan A., Que T.H. & Catovsky D. The immunologic profile of B-cell disorders and proposal of a scoring system for the diagnosis of CLL. *Leukemia* 8: 1640-1645, 1994.

Maung Z.T., Wood A.C., Jackson G.H., Turner G.E., Appleton A.L. & Hamilton P.J. Transfusion-associated graft-versus-host disease in fludarabine-treated B-chronic lymphocytic leukemia. *Br J Haematol* 88: 649-652, 1994.

McConkey D.J., Aguilar-Santelises M., Hartzell, P., Erikson I., Mellstedt H., Orrenius S. & Jondal M. Induction of DNA fragmentation in chronic B-lymphocytic leukemia cells. *J Immunol* 146: 1072-1076, 1991.

McGown A.T. & Fox B.W. A proposed mechanism of resistance to cyclophosphamide mustard in a Yoshida cell line in-vitro. *Cancer Chemother Pharmacol* 17: 223-226, 1986.

Medeiros L.J., Van Krieken J.H., Jaffe E.S. & Raffeld M. Association of *bcl-1* rearrangement with lymphocytic lymphoma of intermediate differentiation. *Blood* 76: 2086-2090, 1990.

Mehta J., Powels R., Singhal S., Iveson T, Trreleaven J. & Catovsky D. Clinical and hematologic response of chronic lymphocytic and prolymphocytic leukemia persisting after allogeneic bone marrow transplantation with the onset of acute graft-versus-host disease: Possible role of graft versus leukemia. *Bone Marrow Transplant* 17: 371-375, 1996.

Melo J.V., Catovsky D. & Galton D.A.G. The relationship between chronic lymphocytic leukemia and prolymphocytic leukemia. I. Clinical and laboratory features of 300 patients and characterisation of an intermediate group. *Br J Haematol* 63: 377-387, 1986.

Melo J.V., Hedge U., Parreirra A., Thompson I., Lampert I.A. & Catovsky D. Splenic B cell lymphoma with circulating villous lymphocytes: differential diagnosis of B cell leukemias with large spleens. *J Clin Pathol* 40: 642-651, 1987.

Merle-Béral H., Boumsell L., Michel A. & Debré P. CD1 expression on B CLL lymphocytes. *Br J Haematol* 71: 209-212, 1989.

Michallet M., Corront B., Hollard D., Gratwohl A., Milpied N., Dauriac C., Brunet S., Soler J., Jouet J.P. & Esperou-Bourdeau H. Allogenic bone marrow transplantation in chronic lymphocytic leukemia: 17 cases. Report from the EB-MTG. *Bone Marrow Transplant* 7: 275-279, 1991.

Michallet M., Archimbaud E. & Rowlings P.A. Hematopoietic stem cell transplant for chronic lymphocytic leukemia. *Bone Marrow Transplant* 17(Suppl 1): S3(abstr), 1996.

Michieli M., Raspadori D., Damiani D., Geromin A., Gallizia C., Michelutti A., Fanin R., Fasola G., Russo D. & Tazzari P. The expression of the multidrug resistance-associated glycoprotein in B-cell chronic lymphocytic leukemia. *Br J Haematol* 77:460-465, 1991.

Miller R.A. & Gralow J. The induction of Leu-1 antigen expression in human malignant and normal B cells by phorbol myristic acetate(PMA). *J Immunol* 133: 3408-3414, 1984.

Miller R.H., Linet M.S., Van-Natta M.L., McCaffrey L.D. & Humphrey R.L. Serum protein electrophoresis patterns in chronic lymphocytic leukemia. *Arch Intern Med* 147: 1614-1617, 1987.

Minot G.P. & Isaacs R. Lymphatic leukemia. Age incidence, duration and benefit derived from irradiation. *Boston Med Surg J* 191: 1-9, 1924.

Mintzer D. & Hauptman S.P. Lymphosarcoma cell leukemia and other non Hodgkin's lymphoma in leukemic phase. *Am J Med* 75: 110-120, 1983.

Mitchell R.B., Moschel R.C. & Dolan M.E. Effect of O-6-benzylguanine on the sensitivity of human tumor xerografts to 1,3-bis(2-chloroethyl)-1-

nitrosourea and on DNA interstrand cross-link formation. *Cancer Res* **52**: 1171-1175, 1992.

Miyashita T. & Reed J.C. *Bcl₂* gene transfer increases relative resistance of S49-1 and WEH 17.2 lymphoid cells to cell death and DNA fragmentation induced by glucocorticoids and multiple chemotherapeutic drugs. *Cancer Res* **52**: 5407-5411, 1992.

Miyashita T. & Reed J.C. *Bcl₂* oncoprotein blocks chemotherapy-induced apoptosis in a human leukemia cell line. *Blood* **81**: 151-157, 1993.

Molica S. & Alberti A.S. Prognostic value of lymphocyte doubling time in chronic lymphocytic leukemia. *Cancer* **60**: 2712-2716, 1987.

Molica S. Infections in chronic lymphocytic leukemia: Risk factors and impact on survival, and treatment. *Leuk Lymphoma* **13**: 203-214, 1994.

Möller P., Eichelmann A., Koretz K. & Mechtersheimer G. Adhesion molecules VLA-1 to VLA-6 define discrete stages of peripheral B lymphocyte development and characterize different types of B cell neoplasia. *Leukemia* **6**: 264, 1992.

Montserrat E., Alcalá A., Parody R., Domingo A., Garcia-Conde J., Bueno J., Ferran C., Sanz M.A., Giralys M. & Rubio D. Treatment of chronic lymphocytic leukemia in advanced stage: A randomized trial comparing chlorambucil plus prednisone versus cyclophosphamide, vincristine, and prednisone. *Cancer* 56: 2369-2375, 1985.

Montserrat E., Sánchez-Bisonó J., Viñolas N. & Rozman C. Lymphocyte doubling time in chronic lymphocytic leukemia. Analysis of its prognostic significance. *Br J Haematol* 62: 567-575, 1986.

Montserrat E., Viñolas N., Reverter J.C. & Rozman C. Nature history of chronic lymphocytic leukemia: On the progression and prognosis of early clinical stages. *Nouv Rev Fr Hematol* 30: 359-361, 1988a.

Montserrat E., Alcalá A., Alonso C., Besalduch J., Moraleda J.M., Garcia-Conde J., Gutierrez M., Gomis F., Garijo J. & Guzman M.C. A randomized trial comparing chlorambucil plus prednisone vs. cyclophosphamide, melphalan, and prednisone in the treatment of chronic lymphocytic leukemia stages B and C. *Nouv Rev Fr Hematol* 30: 429-432, 1988b.

Montserrat E., Gomis F., Vallespi T., Rios A., Romero A., Soler J. Alcala A., Morey M., Ferran C. & Diaz-Mediavilla J. Presenting features and prognosis of chronic lymphocytic leukemia in younger adults. *Blood* 78: 1545-1551, 1991a.

Montserrat E., Viñolas N. & Reverter J.C. 'Smouldering' chronic lymphocytic leukaemia. *Leuk Lymphoma* 5(Suppl): 183-187, 1991b.

Montserrat E., Villamor N. & Urbano-Ispizua A. Alpha interferon in chronic lymphocytic leukaemia. *Eur J Cancer* 27(Suppl 4): 74-77, 1991c.

Montserrat E. & Rozman C. Chronic lymphocytic leukaemia treatment. *Blood Rev* 7: 164-175, 1993.

Morabito F., Prasthofer E.F., Dunlap N.E., Grossi C.E. & Tilden A.B. Expression of myelomonocytic antigens on chronic lymphocytic leukemia B cells correlates with their ability to produce interleukin 1. *Blood* 70: 1750-1757, 1987.

Moulin B., Ronco P.M., Mougnot B., Francois A., Fillastre J.P. & Mignon F. Glomerulonephritis in chronic lymphocytic leukemia and related B-cell lymphomas. *Kidney Int* 42: 127-135, 1992.

Muesch A., Hartmann E., Rohde K., Rubartelli A., Sitia R. & Rapoport T.A. A novel pathway for secretory proteins? *Trends Biochem Sci* 15: 86-88, 1990.

Mulligan S. & Catovsky D. Splenic lymphoma with villous lymphocytes. *Leuk Lymphoma* 6: 97-105, 1991.

Myint H., Copplestone A., Orchard J., Craig V. Curtis D., Prentice A.G., Hamon M.D., Oscier D.G. & Hamblin T.J. Fludarabine-related autoimmune haemolytic anaemia in patients with chronic lymphocytic leukaemia. *Br J Haematol* 91: 341-344, 1995.

Nabors M.W., Griffin C.A., Zehnbauer B.A., Hruban R.H., Phillips P.C., Grossman S.A., Brem H. & Colvin O.M. Multidrug resistance gene(MDR1) expression in human brain tumors. *J Neurosurg* 75: 941-946, 1991.

Nadler L.M. B cell/leukemia panel workshop: summary and comments. *In Leucocyte Typing II*, pp 3-47, Berlin: Springer, 1986.

Naito M., Oh-hara.T., Yamazaki A., Danki T. & Tsuruo T. Reversal of multidrug resistance by an immunosuppressive agent FK506. *Cancer*

Chemother Pharmacol 29:195-200, 1992.

Nakagawa K., Saijo N., Tsuchida S., Sakai M., Tsunokawa Y., Yokota J., Muramatsu M., Sato K., Terada M. & Tew K.D. Glutathione-S-transferase pi as a determinant of drug resistance in transfectant cell lines. *J Biol Chem* 265: 4296-4300, 1990.

Nelson E.M., Tewey K.M. & Liu L.F. Mechanisms of antitumour drug action: poisoning of mammalian topoisomerase II on DNA by mAMSA. *Proc Natl Acad Sci USA* 81: 1364-1365, 1984.

Nelson W.G., Pienta K.J., Barrack E.R. & Coffey D.S The role of the nuclear matrix in the organization and function of DNA. *Ann Rev Biophys Chem* 15: 457-475, 1986.

Neri A., Knowles D.M., Greco A., McCormick F. & Dalla-Favera R. Analysis of RAS oncogene mutation in human lymphoid malignancies. *Proc Natl Acad Sci USA* 85: 9268-9272, 1988.

Neuland C.Y., Blattner W.A., Mann D.L., Fraser M.C., Tsai S. & Strong D.M. Familial chronic lymphocytic leukemia. *J Natl Cancer Inst* 71: 1143-1150, 1983.

Newcomb E.W., Rao L.S., Giknavorian S.S. & Lee S.Y. Alterations of multiple suppressor genes(p53 [17p13], p16INKA[9p21], and DBM [13q14]) in B-cell chronic lymphocytic leukemia. *Mol Carcinog* 14: 141-146, 1995.

Newman R.A., Peterson B., Davey F.R., Brabyn C., Collins H., Brunetto V.L., Duggan D.B., Weiss R.B., Royston I. & Millard F.E. Phenotypic markers and *BCL-1* gene rearrangements in B-cell chronic lymphocytic leukemia: A Cancer and Leukemia Group B study. *Blood* 82:1239-1246, 1993.

Nishida C., Reinhard P. & Linn S. DNA repair synthesis in human fibroblasts requires DNA polymerase δ . *J Biol Chem* 263: 501-510, 1988.

Nishiyama H. Relative frequency and mortality rate of various types of leukemia in Japan. *Gann* 60: 71-81, 1969.

Nooter K. & Herweijer H. Multidrug resistance(mdr) genes in human cancer. *Br J Cancer* 63: 663-667, 1991.

Nowell P.C., Moreau L., Growney P. & Besa E.C. Karyotype stability in chronic B-cell leukemia. *Cancer Genet Cytogenet* 33: 155-160, 1988.

O'Brien S., Kantarjian H., Beran M., Smith T., Koller C., Estey E., Robertson L.E., Lerner S. & Keating M. Results of fludarabine and prednisone therapy in 264 patients with chronic lymphocytic leukemia with multivariate analysis-derived prognostic model for response to treatment.

Blood 82: 2878-2884, 1993.

O'Brien S., Kantarjian H., Beran M., Robertson L.E., Koller C., Lerner S. & Keating M.J. Interferon maintenance therapy for patients with chronic lymphocytic leukemia in remission after fludarabine therapy. *Blood* 86:

1296-1300, 1995.

O'Connor P.M., Ferris D.K., White G.A., Pines J., Hunter T., Longo D.L. & Kohn K.W. Relationship between *cdc2* kinase, DNA cross-linking, and cell cycle perturbations induced by nitrogen mustard. *Cell Growth Diff*

3: 43-52, 1992.

Oda N., Saxena J.K, Jenkins T.M., Prasad R., Wilson S.H. & Ackerman E.J. DNA polymerase alpha and beta are required for DNA repair in an

efficient nuclear extract from *Xenopus* oocytes. *J Biol Chem* 271: 13816-13820, 1996.

O'Dwyer P.J., LaCreta F., Nash S., Tinsley P.W., Schilder R., Clapper M.L., Tew K.D., Panting L., Litwin S. & Comis R.L. Phase I study of thiotepa in combination with the glutathione transferase inhibitor ethacrynic acid. *Cancer Res* 51: 6059-6065, 1991.

O'Dwyer P.J., Hamilton T.C., Young R.C., LaCreta F.P., Carp N., Tew K.D., Padavic K., Comis R.L. & Ozols R.F. Depletion of glutathione in normal and malignant human cells in vivo by buthionine sulfoximine: clinical and biochemical results. *J Natl Cancer Inst* 84: 264-267, 1992.

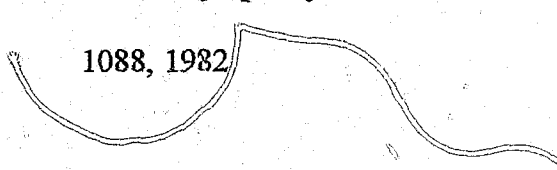
Offit K., Louie D.C., Parsa N.Z., Filippa D., Gangi M., Siebert R. & Chaganti R.S. Clinical and morphological features of B-cell small lymphocytic lymphoma with del(6)-(q21q23). *Blood* 83: 2611-2618, 1994.

Oguru M., Suzuki-Hori C., Nagano H., Mano Y. & Ikegami S. The mode of inhibitory action by aphidicolin on eukaryotic DNA polymerase- α . *Eur J Biochem* 97: 603-607, 1979.

Ohno H., Takimoto G. & McKeithan T.W. The candidate proto-oncogene bcl-3 is related to genes implicated in cell lineage determination and cell cycle control. *Cell* 60: 991-997, 1990.

Ohno H., Doi S., Yabumoto K., Fukuhara S. & McKeithan T.W.
Molecular characterization of the t(14;19)(q32;q13) translocation in
chronic lymphocytic leukemia. *Leukemia* 7: 2057-2063, 1993.

Okamura J., Gelfand E.W. & Letarte M. Heterogeneity of the response of
chronic lymphocytic leukemia cells to phorbol ester. *Blood* 60: 1082-
1088, 1982



Olive P.L., Wlodek D. & Banath J.P. DNA double-strand breaks measured
in individual cells subjected to gel electrophoresis. *Cancer Res* 51: 4671-
4676, 1991.

Oscier D.G., Fitchett M. & Hamblin T.J. Chromosomal abnormalities in B-
CLL. *Nouv Rev Fr Hematol* 30: 397-398, 1988.

Osheroff N., Zechiedrich E.L. & Gale K.C. Catalytic function of DNA
topoisomerase II. *Bioassays* 13: 269-273, 1991.

Panayiotidis P., Ganeshaguru K., Jabbars A.B. & Hoffbrand V.
Interleukin 4 inhibits apoptotic cell death and loss of the bcl₂ protein in B-
chronic lymphocytic leukemia cells in-vitro. *Br J Haematol* 85: 439-445,
1993.

Pangalis G.A., Rousso P.A., Kittas C., Kokkinou S. & Fessas P. B-chronic lymphocytic leukemia: Prognostic implication of bone marrow histology in 120 patients. Experience from a single hematology unit. *Cancer* 59: 767-771, 1987.

Pangalis G.A., Moutsopoulos H.M. & Papadopoulos N.M. Monoclonal and oligoclonal immunoglobulins in the serum of patients with B-chronic lymphocytic leukemia. *Acta Haematol* 80: 23-27, 1988.

Pangalis G.A., Boussiatis V.A. & Kittas C. Malignant disorders of small lymphocytes. *Am J Clin Pathol* 99: 402-408, 1993.

Pangalis G.A., Poziopoulos C.H., Angelopoulou M.K., Siakantaris M.P. & Panayiotidis P. Effective treatment of anaemia in B-chronic lymphocytic leukemia patients with recombinant human erythropoietin. *Br J Haematol* 89: 627-629, 1995.

Parsons P.G., Carter F.B., Morrison L. & Mary R. Mechanism of melphalan resistance developed in vitro in human melanoma cells. *Cancer Res* 41:1525-1534, 1981.

Parsons P.G., Lean J., Kable E.P., Favier D., Khoo S.K., Hurst T., Holmes R.S. & Bellet A.J.D. Relationship between resistance to cross-linking agents and glutathione metabolism, aldehyde dehydrogenase isozymes and adenovirus replication in human tumour cell lines. *Biochem Pharmacol* 40: 2641-2649, 1990.

Pastan I. & Gottesman M.M. Multidrug resistance. *Annu Rev Med* 42: 277-286, 1991.

Pedrali P.G., Carter F.B., Morrison L. & Regius M. Effect of aphidicolin on viral and human DNA polymerases. *Biochem Biophys Res Commun* 88: 1194-1202, 1979.

Pegg A.E. Mammalian O6-alkylguanine-DNA alkyltransferase: regulation and importance in response to alkylating carcinogenic and therapeutic agents. *Cancer Res* 50: 6119-6129, 1990.

Peng B., Mehta N.H., Fernandes H., Chou C.C. & Raveche E. Growth inhibition of malignant CD5+ B(B-1) cells by antisense IL-10 oligonucleotide. *Leuk Res* 19: 159-167, 1995.

Pera M.F. Quantitative aspects of the formation and loss of DNA-interstrand crosslinks in Chinese Hamster cells following treatment with *cis*-diamminedichloroplatinum(II) (cisplatin), II. Comparison of results from alkaline elution, DNA renaturation and DNA sedimentation studies. *Biochim Biophys Acta* 655: 152-166, 1981.

Perez-Losada A., Wessman M., Tiainen M., Hopman A.H., Willard H.F., Sole F., Caballin M.R., Woessner S. & Knuutila S. Trisomy 12 in chronic lymphocytic leukemia: An interphase cytogenetic study. *Blood* 78:775-780, 1991.

Pernis B., Brouer J.C. & Seligmann M. Ig D and Ig M on the membrane of lymphoid cells in macroglobulinemia. Evidence for identity of membrane IgD and IgM antibody activity in a case with IgG receptors. *Euro J Immunology* 4: 776-781, 1974.

Perrino F.W. & Loeb L.A. Animal cell DNA polymerases in DNA repair. *Mutat Res* 236: 289-300, 1990.

Peters R.H., Jollow D.J. & Stuart R.K. Role of glutathione in the vitro synergism between 4-hydroperoxy-cyclophosphamide and cisplatin in leukemia cell lines. *Cancer Res* 51: 2536-2541, 1991.

Peterson L.C., Lindquist L.L. & Church S. Frequent clonal abnormalities of chromosome band 13q14 in B-cell chronic lymphocytic leukemia: Multiple clones, subclones, and nonclonal alterations in 82 Midwestern patients. *Genes Chromosomes Cancer* 4: 273-277, 1992.

Peterson L.C., Parsons R. & Church S. Karyotypic evolution correlates with disease progression in B-cell chronic lymphocytic leukemia(B-CLL). *Proc ASCO* 12: 313 (Abstr), 1993.

Pieper R.O., Futscher B.W., Dong Q. & Erickson L.C. Effects of streptozotocin/bis-chloroethylnitrosourea combination therapy on O-6-methylguanine DNA methyltransferase activity and mRNA levels in HT-29 cells in vitro. *Cancer Res* 51: 1581-1585, 1991.

Pincus S., Bianco C. & Nussenweig V. Increased proportion of complement receptor 3 lymphocytes in the peripheral blood of patients with chronic lymphocytic leukemia. *Blood* 40: 303-312, 1972.

Pinto A., Vecchio L.D., Carbone A., Roncadin M., Volpe R., Serraino D., Monfardini S., Colombatti A. & Zagonel V. Expression of myelomonocytic antigens is associated with unfavorable clinical prognostic factors in B-cell chronic lymphocytic leukemia. *Ann Oncol*

2: 107-113, 1991.

Pirofsky B. When autoimmune hemolytic anemia complicates chronic lymphocytic leukemia. *Geriatrics* 33: 71-79, 1978.

Pittman S. & Catovsky D., Prognostic significance of chromosome abnormalities in chronic lymphocytic leukaemia. *Br J Haematol* 58: 649-660, 1984.

Polliack A., Rabinowitz R., Leizerowitz R., Keren-Zur Y. & Schlesinger M. Myelomonocytic antigens are rarely expressed on B-lymphocytic leukemia cells. *Leuk Lymphoma* 9: 125-131, 1993.

Pommier Y., Kerrigan D., Hartman K.D. & Glazer R.I. Phosphorylation of mammalian DNA topoisomerase I and activation by protein kinase C. *J Biol Chem* 265: 9418-9422, 1990.

Pommier Y. DNA topoisomerase I and II in cancer chemotherapy: update and perspectives. *Cancer Chemother Pharmacol* 32: 103-108, 1993.

Popanda O. & Thielmann H.W. The function of DNA polymerases in DNA repair synthesis of ultraviolet-irradiated human fibroblasts. *Biochim*

Biophys Acta 1129: 155-160, 1992.

Prchal J., Lucivero G., Carroll A.J., Lawton A.R. & Scott C.W. A study of a patient with chronic lymphocytic leukemia (CLL) which demonstrates that proliferation of the lymphocytic clone in CLL does not include T lymphocytes. *Clin Immunol Immunopathol* 13: 231-236, 1979.

Preud'homme J.L. & Seligmann M. Surface bound immunoglobulins as a cell marker in human proliferative diseases. *Blood* 40: 777-789, 1972.

Pu Q.Q. and Bezwoda W.R. Induction of alkylator(melphalan) resistance in HL60 cells is accompanied by increased levels of topoisomerase II expression and function. *Mol Pharmacol* (In Press);

Puchalski R.B. & Fahl W.E. Expression of recombinant glutathione-S-transferase pi, Ya or Yb1 confers resistance to alkylating agents. *Proc Natl Acad Sci USA* 87: 2443-2447, 1990.

Qian X.D. & Beck W.T. Progesterone photoaffinity labels P-glycoprotein in multidrug-resistant human leukemic lymphoblasts. *J Biol Chem* 265: 18753-18756, 1990.

Que T.H., García-Macro J., Ellis J., Matutes E., Babapulle V.B., Boyle S. & Catovsky D. Trisomy 12 in chronic lymphocytic leukemia detected by fluorescence in situ hybridization: Analysis by stage, immunophenotype, and morphology. *Blood* 82:571-575, 1993.

Rabinowe S.N., Grossbard M.L. & Nadler L.M. Innovative treatment strategies for chronic lymphocytic leukemia: Monoclonal antibodies, immunoconjugates, and bone marrow transplantation. In Cheson BD(ed): *Chronic Lymphocytic Leukemia: Scientific Advances and Clinical Developments*. pp337-367, New York: Marcel Dekker, Inc. 1993a.

Rabinowe S.N., Soiffer R.J., Gribben J.G., Daley H., Freedman A.S., Daley J., Pesek K., Neuberg D., Pinkus G. & Leavitt P.R. Autologous and allogeneic bone marrow transplantation for poor prognosis patients with B-cell chronic lymphocytic leukemia. *Blood* 82: 1366-1376, 1993b.

Raghoebier S., van Krieken J.H., Kluin-Nelemans J.C., Gillis A., van Ommen G.J., Ginsberg A.M., Raffeld M. & Kluin P.M. Oncogene rearrangements in chronic B-cell leukemia. *Blood* 77:1560-1564, 1991.

Rai K.R., Sawitsky A., Cronkite E.P., Chanana A.D., Levy R.N. & Pasternack B.S. Clinical staging of chronic lymphocytic leukemia. *Blood*

46: 219-234, 1975.

Rai K.R. & Han T. Prognostic factors and clinical staging in chronic lymphocytic leukemia. *Hematol Oncol Clin North Am* 4: 447-456, 1990.

Rai K.R. An outline of clinical management of chronic lymphocytic leukemia. In Cheson BD(ed): *Chronic Lymphocytic Leukemia: Scientific Advances and Clinical Developments*. pp 241-252, New York: Marcel Dekker, Inc. 1993.

Rai K.R., Peterson B., Kolitz J., Elias L., Shepherd L., Hines J., Cheson B. & Schiffer C. Fludarabine induces a high complete remission rate in previously untreated patients with active chronic lymphocytic leukemia(CELL): A randomized intergroup study. *Blood* 86(Suppl 1): 607a(Abstr), 1995.

Ramu A., Glaubiger D. & Fuks . Reversal of acquired resistance to doxorubicin in P388 murine leukemia cells by tamoxifen and other triparanol analogues. *Cancer Res* 44: 4392-4396, 1984.

Rao P.N. The molecular basis of drug-induced G2 arrest in mammalian cells. *Mol Cell Biochem* 29: 47-57, 1980.

Raphael B., Anderson J.W., Silber R., Oken M., Moore D., Bennett J., Bonner H., Hahn R., Knospe W.H. & Mazza J. Comparison of chlorambucil and prednisone versus cyclophosphamide, vincristine, and prednisone as initial treatment for chronic lymphocytic leukemia: Long-term follow-up of an Eastern Cooperative Oncology Group randomized clinical trial. *J Clin Oncol* 9: 770-776, 1991.

Rechavi G., Katzir N., Brok-Simoni F., Holtzman F., Mandel M., Gurfinkel N., Givol D., Ben-Bassat I. & Ramot B. A search for *bcl-1*, *bcl-2*, and *c-myc* oncogene rearrangements in chronic lymphocytic leukemia. *Leukemia* 3:57-60, 1989.

Redwood W.R. & Colvin M Transport of melphalan by sensitive and resistant L1210 cells. *Cancer Res* 40:1144-1149, 1980.

Reinisch W., Willheim M., Hilgarth M., Gasche C., Mader R., Szepefalusi S., Steger G., Berger R., Lechner K. & Boltz-Nitulescu G. Soluble CD23 reliably reflects disease activity in B-cell chronic lymphocytic leukemia. *J Clin Oncol* 12: 2146-2152, 1994.

Richon V.M., Schulte N. & Eastman A. Multiple mechanisms of resistance to *cis*-diamminedichloroplatinum (II) in murine leukemia L1210

cells. *Cancer Res* 47: 2056-2061, 1987.

Richon V.W., Schulte N. & Eastman A Multiple mechanisms of resistance to cis-diamminedichloroplatinum (II) in human non-small cell lung cancer cell lines: Relation to DNA damage and repair. *Cancer Res* 50: 2549-2553, 1990.

Robertson L.E. & Keating M.J. Fludarabine phosphate in the treatment of chronic lymphocytic leukemia: Biology, clinical impact and future directions. *Cancer Treat Res* 64: 105-119, 1993a.

Robertson L.E., Huang P., McDonnell T & Plunkett W. Apoptosis in chronic lymphocytic leukemia: Clinical correlations and in-vivo evidence. *Blood* 82: 390a(Abst), 1993b.

Robertson L.E., Pugh W., O'Brien S., Kantarjian H., Hirsch-Ginsberg C., Cork A., McLaughlin P., Cabanillas F. & Keating M.J. Richter's syndrome: A report of 39 patients. *J Clin Oncol* 11: 1985-1989, 1993c.

Robson C.N., Alexander J., Harris A.L. & Hickson I.D. Isolation and characterization of a Chinese hamster ovary cell line resistant to bifunctional nitrogen mustards. *Cancer Res* 45:5304-5309, 1985.

Robson C.N., Lewis A.D., Wolf C.R., Hayes J.D., Hall A., Proctor S.J., Harris A.L. & Hickson I.D. Reduced levels of drug-induced DNA cross-linking in nitrogen mustard-resistant Chinese hamster ovary cells expressing elevated glutathione-S-transferase activity. *Cancer Res* 47: 6022-6027, 1987.

Roninson I.B., Chin J.E., Choi K.G., Gros P., Housman D.E., Fojo A., Shen D.W., Gottesman M.M. & Pastan I. Isolation of human mdr DNA sequences amplified in multidrug-resistant KB carcinoma cells. *Proc Natl Acad Sci USA* 83: 4538-4542, 1986.

Roninson I.B. The role of the MDR1(P-glycoprotein) gene in multidrug resistance in vitro and vivo. *Biochem Pharmacol* 43: 95-102, 1992.

Rosenberg M.C., Colvin O.M., Griffith O.W., Bigner S.H., Elion G.B., Horton J.K., Lilley E., Bigner D.B. & Friedman H.S. Establishment of a melphalan-resistant rhabdomyosarcoma xenograft with cross-resistance to vincristine and enhanced sensitivity following buthionine sulfoximine-mediated glutathione depletion. *Cancer Res* 49: 6917-6922, 1989.

Ross W.E., Ewing R.A.G. & Kohn K.W. Differences between melphalan and nitrogen mustard in the formation and removal of DNA crosslinks

Cancer Res 38:1502-1506, 1978.

Rozman C., Montserrat E., Feliu E., Granena A., Marin P., Nomdedeu B. & Vives-Corrons J.L. Prognosis of chronic lymphocytic leukemia: A multivariate survival analysis of 150 cases. *Blood* 59: 1001-1005, 1982.

Rozman C., Montserrat E., Rodríguez-Fernández J.M., Ayats R., Vallespi T., Parody R., Rios A., Prados D., Morey M. & Gomis F. Bone marrow histologic pattern--the best single prognostic parameter in chronic lymphocytic leukemia: A multivariate survival analysis of 329 cases. *Blood* 64: 642-648, 1984.

Royston I., Majda J.A., Baird S.M., Meserve B.L. & Griffiths J.C. Human T-cell antigens defined by monoclonal antibodies: the 65000 Dalton antigen of T cells(T65) is also found on chronic lymphocytic leukemia cells bearing surface immunoglobulin. *J Immunol* 125: 725-731, 1980.

Russo J.E., Hilton J. & Colvin O.M. The role of aldehyde dehydrogenase isozymes in cellular resistance to the alkylating agent cyclophosphamide. *Prog Clin Biol Res* 290: 65-79, 1989.

Rutman R.J., Chun E.H.L. & Lewis F.S. Permeability differences as a source of resistance to alkylating agents in Ehrlich tumor cells. *Biochem Biophys Res Commun* 32: 650-657, 1968.

Sadoun A., Patri S., Delwail V., Chomel J.C., Cogne M., Brizard A., Kitzis A. & Guilhot F. Molecular remission after allogeneic bone marrow transplantation for chronic lymphocytic leukemia. *Bone Marrow Transplant* 13: 217-219, 1994.

Saffhill R., Margison G.P. & O'Connor P.J. Mechanisms of carcinogenesis induced by alkylating agents. *Biochim Biophys Acta* 823: 111-145, 1985.

Sahovic E.A., Colvin M., Hilton J. & Ogawa M.. Role for aldehyde dehydrogenase in survival of progenitors for murine blast cell colonies after treatment with 4-hydroperoxycyclophosphamide in vitro. *Cancer Res* 48: 1223-1226, 1988.

Salacinski P.R.P., Mclean C., Sykes J.E.C. Clement-Jones V. & Lowry P.J. Iodination of proteins, glycoproteins, and peptides using a solid-phase oxidizing agent, 1,3,4,6-tetrachloro-3 α , 6 α -diphenyl glycoluril(Iodogen). *Anal Biochem* 117: 136-146, 1981.

Salmon S.E. & Seligmann M. B-cell neoplasia in man. *Lancet* 2: 1230-1235, 1974.

Sancar A. & Sancar G.B. DNA repair enzymes. *Annu Rev Biochem* 57: 29-67, 1988.

Sarfati M., Bron D., Lagneaux L., Fonteyn C., Frost H. & Delespesse G. Elevation of IgE binding factors in serum of patients with B cell derived chronic lymphocytic leukemia. *Blood* 71: 94-98, 1988.

Saven A., Lemon R.H., Kosty M., Koziol J., Ellison D. & Piro L. 2-chlorodeoxyadenosine activity in patients with untreated chronic lymphocytic leukemia. *J Clin Oncol* 13: 570-574, 1995.

Schechter R.L., Woo A., Duong M. & Batist G. In vivo and in vitro mechanism of drug resistance in a rat mammary carcinoma model. *Cancer Res* 51: 1434-1442, 1991.

Schoer K.R., Briles D.E., Vanbonel A. & David J.M. Idiotypic uniformity of cell surface immunoglobulin in chronic lymphocytic leukemia: evidence for monoclonal proliferation. *J Exp Med* 140: 1416-1425, 1974.

Schold S.C. Jr, Brent T.P., von Hofe E., Friedman H.S., Mitra S., Bigner D.D., Swenberg J.A. & Kleihues P. O-6-alkylguanine-DNA alkyltransferase and sensitivity to procarbazine in human brain-tumor xenografts. *J Neurosurg* 70: 573-577, 1989.

Schroeder J.W. Jr & Dighiero G. Clues to the pathogenesis of CLL through the analysis of B-cell CLL antibody repertoires. *Immunol Today* 52: 288-294, 1994.

Shustik C., Mike R., Sliver R., Sawitsky A., Rai K. & Shapiro L. Treatment of early chronic lymphocytic leukemia: Intermittent chlorambucil versus observation. *Hematol Oncol* 6: 7-12, 1988.

Shustik C., Groulx N. & Gros P. Analysis of multidrug resistance(MDR-1) gene expression in chronic lymphocytic leukemia. *Br J Haematol* 79:50-56, 1991.

Sikic B.I. Modulation of multidrug resistance: At the threshold. *J Clin Oncol* 11: 1629-1635, 1993(editorial).

Skapek S.X., Colvin O.M., Griffith O.W., Elion G.B., Bigner D.D. & Friedman H.S. Enhanced melphalan cytotoxicity following buthionine

sulfoximine-mediated glutathione depletion in a human medulloblastoma xenograft in athymic mice. *Cancer Res* 48: 2764-2767, 1988.

Sladek N.E. & Landkamer G.J. Restoration of sensitivity oxazaphosphorines by inhibitors of aldehyde dehydrogenase activity in cultural oxazaphosphorine-resistant L1210 and cross-linking agent-resistant P388 Cell lines. *Cancer Res* 45: 1549-1555, 1985.

Slater L.M., Sweet P., Stupecky M. & Gupta S. Cyclosporin A reverses vincristine and daunorubicin resistance in acute lymphatic leukemia in vitro. *J Clin Invest* 77: 1405-1408, 1986a

Slater L.M., Sweet P., Stupecky M., Wetzel M.W. & Gupta S. Cyclosporin A corrects daunorubicin resistance in Ehrlich ascites carcinoma. *Br J Cancer* 54: 235-238, 1986b.

Small T.N., Knowles R.W., Keever C., Kernan N.A., Collins N., O'Reilly R.J., Dupont B. & Flomenberg N. M241(CD1) expression on B lymphocytes. *J Immunol* 138: 2864-2868, 1987.

Smith A.C., Liao J.T., Page J.G., Wientjes M.G. & Grieshaber C.K. Pharmacokinetics of buthionine sulfoximine(NSC326231) and its effect on

melphalan-induced toxicity in mice. *Cancer Res* 49: 5385-5391, 1989.

Sobol R.W., Horton J.K., Kuhn R., Gu H., Singhal R.K., Prasad R., Flajewsky K. & Wilson S.H. Requirement of mammalian DNA polymerase-beta in base-excision repair. *Nature* 379: 183-186, 1996.

Solanki D.L., McCurdy P.R. & MacDermott P. Chronic lymphocytic leukemia: A monoclonal disease. *Am J Hematol* 13: 159-162, 1982.

Sonneveld P., Nooter K., Burghouts J.T., Herweijer H., Adriaansen H.J. & van Dongen J.J. High expression of the mdr3 multidrug-resistance gene in advanced-stage chronic lymphocytic leukemia. *Blood* 79: 1496-1500, 1992.

Sparrow R., Hall F.J., Siregar H. & Van der Weyden M.B. Common expression of multidrug resistance marker p-glycoprotein in B-cell chronic lymphocytic leukemia and correlation with in vitro drug resistance. *Leukemia Res* 17: 941-947, 1993.

Spanish Cooperative Group PETHEMA Treatment of chronic lymphocytic leukemia: Preliminary report of Spanish(PETHEMA) trials. *Leuk Lymphoma* 5: 89-91, 1991.

Spatz L.A., Wong K.K., Williams M., Desai R., Golier J., Berman J.E., Alt F.W. & Latov N. Cloning and sequence analysis of the VH and VL regions of anti-myelin/DNA antibody from a patient with peripheral neuropathy and chronic lymphocytic leukemia. *J Immunol* 144: 2821-2828, 1990.

Spier C.M., Kjeldberg C.R., Head D.R., DiFiore K.C. & Tudor B. Chronic lymphocytic leukemia in young adults. *Am J Clin Pathol* 84:675-678, 1985.

Stathopoulos G. & Elliot E.V. Formation of mouse or sheep red blood cell rosette by lymphocytes from normal and leukemic individuals. *Lancet* 1: 600-601, 1974.

Stehelin D., Varmus H.E., Bishop J.M. & Vogt P.K. DNA related to the transforming genes(s) of avian sarcoma viruses is present in normal avian DNA. *Nature* 260: 170-173, 1976.

Stevenson F.K., Hamblin T.J., Stevenson G.T. & Tuli A.L. Extracellular idiotypic immunoglobulin arising from human leukemia B lymphocytes. *J Exp Med* 152: 1484-1496, 1980.

Stewart A.K. & Schwart R.S. Immunoglobulin V regions and the B cell.
Blood 83:1717-1730, 1994.

Stoeger Z.M., Wakai M., Tse D.B., Vinciguerra V.P., Allen S.L., Budman
D.R., Lichtman S.M., Schulman P., Weiselberg L.R. & Chiorazzi N.
Production of autoantibodies by CD5- expressing B lymphocytes from
patients with chronic lymphocytic leukemia. *J Exp Med* 169: 255-268,
1989.

Stickney D.R. & Foon K.A. Biologic response modifiers: Therapeutic
approaches to lymphoproliferative diseases. *Curr Opin Oncol* 4: 847-855,
1992.

Stilgenbauer S., Döhner H., Bulgay-Möschel M., Weitz S., Bentz M. &
Lichter P. High frequency of monoallelic retinoblastoma gene deletions
in B-cell chronic lymphocytic leukemia shown by interphase cytogenetics.
Blood 81:2118-2124, 1993.

Stoeger Z.M., Stoeger D., Shtalrid M., Sigleer E., Geltner D. & Berrebi
A. Mechanism of autoimmune hemolytic anemia in chronic lymphocytic
leukemia. *Am J Hematol* 43: 259-264, 1993.

Sugawara I., Kataoka I., Morishita Y., Hamada H., Tsuruo T., Itoyama S. & Mori S. Tissue distribution of P-glycoprotein encoded by a multidrug-resistant gene as revealed by a monoclonal antibody, MRK 16. *Cancer Res* 48: 1926-1929, 1988.

Sultan Y., Maisonneuve P., Kazatchkine M.D. & Nydegger U. Anti-idiotypic suppression of autoantibodies to factor VIII(anti-haemophilic factor) by high-dose intravenous gammaglobulin. *Lancet* 2: 765-768, 1981.

Suzukaka D., Petro B.J. & Vistica D.T. Reduction in glutathione content of L-PAM resistant L1210 cell confers drug sensitivity. *Biochem Pharmacol* 31: 121-124, 1982.

Tallman M.S. & Hakimian D. Purine nucleoside analogs: Emerging roles in indolent lymphoproliferative disorders. *Blood* 86: 2463-2474, 1995.

Tan K.B., Matern M.R., Boyce R.A. & Schein P.S. Elevated DNA topoisomerase II activity in a nitrogen mustard resistant human cells. *Proc Natl Acad Sci USA* 84:7668-7671, 1987.

Tan K.B., Dorman T.E., Falls K.M., Chung T.D.Y., Mirabelli C.K. Crooke S.T. & Mao J. Topoisomerase II α and Topoisomerase II β genes: characterization and mapping to human chromosomes 17 and 3, respectively. *Cancer Res* 52: 231-234, 1992.

Taylor Y.C., Sawyer J.M., Hsu B. & Brown J.M. Mechanisms of melphalan crosslink enhancement by misonidazole pretreatment. *Int J Radiat Oncol Biol Phys* 10: 1603-1607, 1984.

Teicher B.A., Waxman D.J., Holden S.A., Wang Y.Y., Clark L., Alvarez-Sotomayor E., Jones S.M. & Frei E.3d. Evidence for enzymatic activation and oxygen involvement in cytotoxicity and antitumor activity of N,N',N'' triethylenethiophosphoramidate. *Cancer Res* 49: 4996-5001, 1989.

Teicher B.A., Holden S.A., Herman T.S., Epelbaum R., Pardee A.B. & Diezube B. Efficacy of pentoxifylline as a modulator of alkylating agent activity in vitro and in vivo. *Anticancer Res* 11: 1555-1560, 1991.

Teichner B., Hoden S., Kellet M., Cucchi C., Rosowsky A., Henner W. & Frei E. III. Characterization of a human squamous carcinoma cell line resistant to *cis*-diamminedichloroplatinum(II). *Cancer Res* 47: 388-393, 1987.

Ternynck T., Dighiero G., Follezou J. & Binet J.L. Comparison of normal and CLL lymphocyte surface Ig determinants using peroxidase-labelled antibodies. I: Detection and quantitation of light chain determinants. *Blood* 43: 789-795, 1974.

Tew J.D., Bomber A.M. & Hoffman S.J. Ethacrynic acid and piroprost as enhancers of cytotoxicity in drug resistant and sensitive cell lines. *Cancer Res* 48: 3622-3625, 1988.

Tew K.D. Glutathione-associated enzymes in anticancer drug resistance. *Cancer Res* 54:4313-4320, 1994.

Thiebaut F., Tsuruo T., Hamada H., Gottesman M.M., Pastan I. & Willingham M.C. Cellular localization of the multidrug-resistance gene product P-glycoprotein in normal human tissues. *Proc Natl Acad Sci USA* 84: 7735-7738, 1987.

Thiebaut F., Tsuruo T., Hamada H., Gottesman M.M., Pastan I. & Willingham M.C. Immunohistochemical localization in normal tissues of different epitopes in the multidrug transport protein P170: Evidence for localization in brain capillaries and crossreactivity of one antibody with a muscle protein. *J Histochem Cytochem* 37: 159-164, 1989.

Tietze F. Enzymic method for quantitative determination of nanogram amounts of total and oxidized glutathione: applications on mammalian blood and other tissues. *Anal Biochem* 27: 502-522, 1969.

Tötterman T.H., Nilsson K. & Sundström C. phorbol ester-induced differentiation of chronic lymphocytic leukemia cells. *Nature* 288: 176-178, 1980.

Trentin L., Zambello R., Agostini C., Enthammer C., Cerutti A., Adami F., Zamboni S. & Semenzato G. Expression and regulation of tumor necrosis factor, interleukin-2, and hematopoietic growth factor receptors in B-cell chronic lymphocytic leukemia. *Blood* 84: 4249-4256, 1994.

Trentin L., Ceruti A., Zambello R., Sancretta R., Tassinari C., Facco M., Adami F., Rodeghiero F., Agostini C. & Semenzato G. Interleukin-15 promotes the growth of leukemic cells of patients with B-cell chronic lymphoproliferative disorders. *Blood* 87: 3327-3335, 1996.

Tsai-Pflugfelder M., Liu L.F., Liu AA., Tewey K.M., Whang-Peng J., Knutsen T., Huebner K., Croce C.M. & Wang J.C. Cloning and sequencing of cDNA encoding human topoisomerase II and localization of the gene to chromosome region 17q21-22. *Proc Natl Acad Sci USA*

85: 7177-7181, 1988.

Tsujimoto Y., Yunis J., Onorato-Showe L., Erikson J., Nowell P.C. & Croce C.M. Molecular cloning of the chromosomal breakpoint of B-cell lymphomas and leukemias with the t(11; 14) translocation. *Science* 224: 1403-1407, 1984.

Tsurimoto T., Melendy T. & Stillman B. Sequential initiation of lagging and leading strand synthesis by two different polymerase complexes at the SV40 DNA replication origin. *Nature* 346: 534-539, 1990.

Tsuruo T., Lida H., Tsukagoshi S. & Sakurai Y. Overcoming vincristine resistance in P388 leukemia in vivo and in vitro through enhanced cytotoxicity of vincristine and vinblastine by verapamil. *Cancer Res* 41: 1967-1972, 1981.

Tsuruo T., Lida H., Tsukagoshi S. & Sakurai Y. Increased accumulation of vincristine and adriamycin in drug-resistant P388 tumor cell following incubation with calcium antagonists and calmodulin inhibitors. *Cancer Res* 42: 4730-4733, 1982.

Tsuruo T., Lida H., Kitatani Y., Yokata K., Tsukagoshi S. & Sakurai Y.
Effects of quinidine related compounds on cytotoxicity and cellular
accumulation of vincristine and adriamycin in drug-resistant tumor cells.
Cancer Res 44: 4303-4307, 1984.

Twentyman P.R. & Luscombe M.A. A study of some variables in a
tetrazolium dye (MTT) based assay for cell growth and chemosensitivity.
Br J Cancer 56: 279-285, 1987.

Twentyman P.R. & Fleehen N.M. Resistance modification by PSC-833, a
novel non-immunosuppressive cyclosporin A. *Eur J Cancer* 27: 1639-
1642, 1991.

Twentyman P.R. Cyclosporins as drug resistance modifiers. *Biochem
Pharmacol* 43:109-117, 1992.

Ueda K., Pastan I. & Gottesman M.M. Isolation and sequence of the
promoter region of the human multidrug resistance (P-glycoprotein) gene.
J Biol Chem 262: 17432-17436, 1987.

Ueda K., Okamura N., Hirai M., Tanigawara Y., Saeki T., Kioka N.,
Komano T. & Hori R. Human P-glycoprotein transports cortisol,

aldosterone, and dexamethasone, but not progesterone. *J Biol Chem* 267: 24248-24252, 1992.

Vallespi T., Montserrat E. & Sanz M.A. Chronic lymphocytic leukaemia: Prognostic value of lymphocyte morphological subtypes. A multivariate analysis in 146 patients. *Br J Haematol* 77: 478-485, 1991.

Valverde M.A., Diaz M., Sepulveda F.V., Gill D.R., Hyde S.C. & Higgins C.F. Volume-regulated chloride channels associated with the human multidrug-resistance P-glycoprotein. *Nature* 355: 830-833, 1992.

Van der Blik A.M., Baas F., Ten Houte de Lange T., Kooiman P.M., van der Velde Koerts T. & Borst P. The human *mdr3* gene encodes a novel P-glycoprotein homologue and gives rise to alternatively spliced mRNAs in liver. *EMBO J* 6: 3325-3331, 1987.

Van der Blik A.M., Kooiman P.M., Schneider C. & Borst P. Sequence of *mdr3* cDNA encoding a human P-glycoprotein. *Gene* 71: 401-411, 1988.

Van der Valk P., van Kalken C.K., Ketelaars H., Broxterman H.J., Scheffer G., Kuiper C.M., Tsuruo T., Lankelma J., Meijer C.J., Pinedo H. & Scheper R. Distribution of multidrug resistance-associated P-

glycoprotein in normal and neoplastic human tissues. *Ann Oncol* 1: 56-64, 1990.

Van Kooten C., Rensink I., Aarden L. & van Oers R. Interleukin-4 inhibits both paracrine and autocrine tumor necrosis factor-alpha-induced proliferation of B chronic lymphocytic leukemia cells. *Blood* 80:1299-1306, 1992.

Van Kooten C., Rensink I., Aarden L. & van Oers R. Effect of IL-4 and IL-6 on the proliferation and differentiation of B-chronic lymphocytic leukemia cells. *Leukemia* 7: 618-624, 1993.

Van Krieken J.H., McKeithan T.W., Raghoebar S., Medeiros L.J., Kluin P.M. & Raffeld M. Chromosomal translocation t(14;19) as indicated by bcl-3 rearrangement is a rare phenomenon in non-Hodgkin's lymphoma and chronic lymphocytic leukemia; a molecular genetic analysis of 176 cases. *Leukemia* 4: 811-812, 1990.

Vistica D.T., Toal J.N. & Rabinowitz M. Amino acids conferred protection against melphalan: characterization of melphalan transport and correlation of uptake with cytotoxicity in cultured L1210 murine leukemia cells. *Biochem Pharmacol* 27: 2865-2869, 1978.

Vistica D.T. Cytotoxicity as an indicator for transport mechanism.

Biochim Biophys Acta **550**: 309-331, 1979.

Vistica D.T. Cellular pharmacokinetics of the phenylalanine mustards.

Pharmacol Ther **22**: 379-405, 1983.

Vuillier F., Tortevoye P., Binet J.L. & Dighiero G. CD4, CD8 and NK

subsets in B-CLL. *Nouv Rev Fr Hematol* **30**: 331-334, 1988.

Wachsman W., Golde D.W. & Chen S.Y.. Hairy cell leukemia and human

T cell leukemia virus. *Semin Oncol* **11**: 446-450, 1984.

Walker P.R., Smith C., Youale T., Leblanc J., Whitfield J.F. & Sikorska

M. Topoisomerase II-reactive chemotherapeutic drugs induce apoptosis in thymocytes. *Cancer Res* **51**:1078-1085, 1991.

Walton M.I., Whysong D., O'Connor P.M., Hockenbery D., Korsmeyer

S.J. & Kohn K.W. Constitutive expression of human bcl-2 modulates nitrogen mustard and camptothecin-induced apoptosis. *Cancer Res* **53**: 1953-1961, 1993.

Wang C.Y., Good R.A., Ammirak P., Dymbort G. & Evans R.L.
Identification of a p69, 71 complex expressed on human T cells sharing
determinants with B type chronic lymphatic leukemic cells. *J Exp Med*
151: 1539-1544, 1980.

Wang J.C., Steiner W., Aung M.K. & Tobin M.S. primary
hyperparathyroidism and chronic lymphatic leukemia. *Cancer* **42**: 1964-
1969, 1978.

Wang J.C. DNA Topoisomerases. *Annu Rev Biochem* **54**: 665-697, 1985.

Wang J.C. Recent studies of DNA topoisomerases. *Biochim Biophys Acta*
909: 1-9, 1987.

Wang, T.S.-F. Cellular DNA polymerases. In DePamPhilis, M.L.(ed.) DNA
Replication in Eukaryotic Cells. Cold Spring Harbor Laboratory Press.
Cold Spring Harbor, New York, pp. 461-493, 1996.

Warin A.P. & Roberts M.M. Chronic lymphatic leukemia with cutaneous
involvement. *Clin Exp Dermatol* **4**: 241-246, 1979.

Watt P. & Hickson I.D. Structure and function of type II DNA topoisomerases. *Biochem J* 303: 681-695, 1995.

Waud W. Differential uptake of cis-Diamminedichloroplatinum(II) by sensitive and resistant murine L1210 leukemia cells. *Cancer Res* 47: 6549-6555, 1987.

Waxman D.J. Glutathione-S-transferases: role in alkylating agent resistance and possible target for modulation of chemotherapy - A Review. *Cancer Res* 50: 6449-6454, 1990.

Webb C.D., Latham M.D., Lock R.B. & Sullivan D.M. Attenuated topoisomerase II content directly correlates with a low level of drug resistance in a Chinese hamster ovary line. *Cancer Res* 51: 6543-6549, 1991.

Weeks J.C., Tierney M.R. & Weinstein M.C. Cost effectiveness of prophylactic intravenous immune globulin in chronic lymphocytic leukemia. *N Engl J Med* 325: 81-86, 1991.

Weinberg D.H. & Kelly T.J. Requirement for two DNA polymerases in the replication of simian virus 40 DNA in vitro. *Proc Natl Acad Sci USA*

86: 9742-9746, 1989.

Weinberg R.A. Tumor suppressor genes. *Science* 254: 1138-1146, 1991.

Wen T., Mellstedt H. & Jondal M. Presence of clonal T cell populations in chronic B lymphocytic leukemia and smouldering myeloma. *J Exp Med* 171: 659-666, 1990.

Witzig T.E., Borell T.J., Herath J.F., Tefferi A., Li C.Y. & Jenkins R.B. Detection of trisomy by FISH in untreated B-chronic lymphocytic leukemia: Correlation with stage and CD20 antigen expression intensity. *Leuk Lymphoma* 14: 447-451, 1994.

Woessner R.D., Chung T.D.Y., Hofmann G.A., Mattern M.R., Mirabelli C.K., Drake F.H. & Johnson, P.K. Differences between normal and ras-transformed NIH-3T3 cells in expression of the 170kD and 180kD forms of topoisomerase II. *Cancer Res* 50: 2901-2908, 1990.

Woessner R.D., Mattern M.R., Mirabelli C.K., Johnson R.K., & Drake F.H. Proliferation and cell cycle-dependent differences in expression of the 170 kilodalton and 180 kilodalton forms of topoisomerases II in NIH-3T3 cells. *Cell Growth & Differ* 2: 209-214, 1991.

Woessner S., Asensio A., Florensa L., Pedro C., Besses C. & Sans-Sabrafen J. Expression of lymphocyte function-associated antigen(LFA)-1 in B-cell chronic lymphocytic leukemia. *Leuk Lymphoma* 13: 457-461, 1994.

Wolpert M.K. & Rudden R.W. A study on the mechanisms of resistance to nitrogen mustard(HN₂) in Ehrlich ascites tumor cells: comparison of uptake of HN₂-¹⁴C into sensitive and resistant cells. *Cancer Res* 29: 873-877, 1969.

Wormsley S.B., Baird S.M., Gadol N., Rai K.R. & Sobol R.E. Characteristics of CD11c+CD5+ chronic B-cell leukemias and the identification of novel peripheral blood B-cell subsets with chronic lymphoid leukemia immunophenotypes. *Blood* 76: 123-130, 1990.

Worning A.M. & Dragsted J. Chronic lymphocytic leukemia diagnosed through histological evaluation of resected prostatic tissue. *Urol Int* 40: 292-293, 1985.

Wulf G., Kluding H., Ho A.D., Doerner M., Doehner H., Manegold C. & Hunstein W. Multidrug resistance phenotype in patients with chronic lymphocytic leukemia as detected by immunofluorescence and Northern

Blot analysis. *Leukemia Res* 18: 475-484, 1994.

Yamaguchi M., Tanabe K., Taguchi Y.N., Nishizawa M., Takahashi T. & Matsukage A. Chick embryo DNA polymerase β . *J Biol Chem* 255: 9942-9948, 1980.

Yang C.P., DePinho S.G., Greenberger L.M., Arceci R.J. & Horwitz S.B. Progesterone interacts with P-glycoprotein in multidrug-resistant cells and in the endometrium of gravid uterus. *J Biol Chem* 264: 782-785, 1989.

Yunis J.J., Frizzera G., Oken M.M., McKenna J., Theologides A. & Arnesen M. Multiple recurrent genomic defects in follicular lymphoma: A possible model for cancer. *N Engl J Med* 316: 79-84, 1987.

Zheng C.Y., Skinnider L.F., Xian J. & Maksymiuk A. Transfection of chronic lymphocytic leukemia cells with *myc* and *ras*. *Leukemia* 3(Suppl): 34s-37s, 1992.

Zijlstra J.G., Jong S.D.E., Grampel J.C., DeVries E.G.E. & Mulder N.H. Different type of DNA damage caused by three aziridinyl substituted cyclophosphazenes in a human small cell lung carcinoma cell line. *Cancer Res* 46: 2726-2729, 1986.

Zini N., Martelli A.M., Sabatelli P., Santi S., Negri C., Astaldi Riccoti G.C.B. & Maraldi N.M. The 180-K Da isoform of topoisomerase II is localized in the nucleolus and belongs to the structural elements of the nucleolar remnant. *Exp Cell Res* 200: 460-466, 1992.

Zinzani P.L., Levrero M.G. & Lauria F. Alpha-interferon as maintenance drug after initial fludarabine therapy for patients with chronic lymphocytic leukemia and low-grade non-Hodgkin's lymphoma. *Haematologica* 79: 55-60, 1994.

Zwelling L.A., Kohn K.W., Ross W.E., Ewig R.A.G. & Anderson T. Kinetics of formation and disappearance of a DNA cross-linking effect in mouse leukemia L1210 cells treated with cis- and trans-diamminedichloroplatinum(II). *Cancer Res* 38: 1762-1768, 1978.

Zwelling L.A., Anderson T. & Kohn K.W. DNA-Protein and DNA interstrand cross-linking by cis- and trans-platinum(II) diamminedichloride in L1210 mouse leukemia cells and relation to cytotoxicity. *Cancer Res* 39: 365-369, 1979.

Zwelling LA., Michaelis S., Schwartz H., Dobson P.P. & Kohn K.W. DNA cross-linking as an indicator of sensitivity and resistance of mouse

L1210 leukemia to cis-diamminedichloroplatinum (II) and L-phenylalanine
mustard. *Cancer Res* 41: 640-649, 1981.

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