3. Atzpodien J, Korfer A, Franks CR, Poliwoda H, Kirchner H. Home therapy with recombinant interleukin-2 and interferon-alfa2b in advanced human malignancies. *Lancet* 1990, **335**, 1509–1512.
4. Stein RC, Malkovska V, Morgan S, *et al.* The clinical effects of prolonged treatment of patients with advanced cancer with low dose subcutaneous interleukin 2. *Br J Cancer* 1991, **63**, 275–278.
5. Whitehead RP, Ward D, Hemmingway L, Hemstreet III GP, Bradly E, Konrad M. Subcutaneous interleukin 2 in a dose escalating regimen in patients with metastatic renal cell adenocarcinoma. *Cancer Res* 1990, **50**, 6708–6715.
6. Sosman JA, Kohler PC, Hank JA, *et al.* Repetitive weekly cycles of interleukin-2. II clinical and immunological effects of dose, schedule, and addition of indomethacin. *J Natl Cancer Inst* 1988, **80**, 1451–1461.
7. Weil-Hillman G, Fisch P, Prieve AF, Sosman JA, Hank JA, Sondel PM. Lymphokine activated killer activity induced by *in vivo* interleukin 2 therapy: Predominant role for lymphocytes with increased expression of CD2 and Leu19 antigens but negative expression of CD16 antigens. *Cancer Res* 1989, **49**, 3680–3688.
8. Urba WJ, Steis RG, Longo DL, *et al.* Immunomodulatory properties and toxicity of interleukin-2 in patients with cancer. *Cancer Res* 1990, **50**, 185–192.

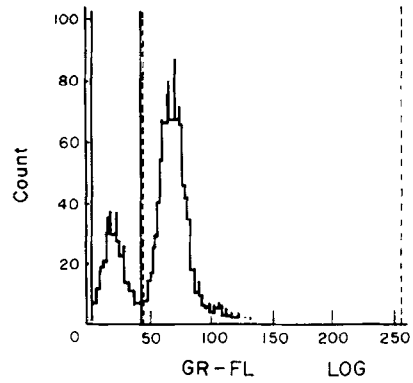

Fig. 1. CD10 intensity distribution in B-CLL patient.

Eur J Cancer, Vol. 28A, No. 10, p. 1771, 1992.
Printed in Great Britain
0964–1947/92 $5.00 + 0.00

CD10 Expression in B-chronic Lymphocytic Leukaemia

Stefano Molica and Angela Dattilo

IN B-CHRONIC lymphocytic leukaemia (B-CLL), rare CD10-positive cases have been reported [1–2]. Patrick *et al.* [1] observed transient CD10 expression in 38% of tested patients, associated with progressive disease. We have investigated CD10 expression in 39 B-CLL patients. There were 29 males and 10 females, average age 65.3 years (SD 8.2). According to Binet *et al.*'s staging [3], 22 patients were stage A, 10 were B and 7 were C. Immunophenotyping was done on peripheral blood cells. In all cases lymphocyte levels exceeded 5 3 10^9/1 and more than 75% of cells were CD5 and CD19 positive. Immunological studies were always done at the time of diagnosis. Fluorescence was read with a CYTORON cytofluorograph (Ortho Diagnostic System).

The results of peripheral blood cell phenotyping were [mean % (range)]: CD19, 77 (43.9–98.8); CD5, 71.8 (30–97.1); CD20, 61.4 (11–96.4); CD23, 75.1 (0.1–98); CD25, 48.6 (0.7–88.9); CD10, 37.4 (0.1–89.1); FMC7, 48.6 (0.5–80.6) and CD19/CD20, 1.8 (0.7–7.8).

A representative CD10 FACS profile is shown in Fig. 1, and suggests a CD10-positive population with weak fluorescence. CD10 density was always lower than that found in acute lymphoblastic leukaemia [mean fluorescence intensity was 84.9 (10.7) vs. 100.4 (11), respectively].

To investigate the clinical significance of CD10 expression in B-CLL, we analysed its relation with clinical stage and bone marrow histology. No significant correlation was found between CD10 expression and Binet *et al.*'s stages [stage A, 33.0% (31.7); B, 18.8% (30.1) and C, 32.5% (37.7); analysis of variance not significant]. The same applied when patients were analysed according to Rai *et al.*'s staging [4]. 11 patients with a non-diffuse bone marrow histology had a significantly higher number of CD10-positive cells [32.6% (30.5)] compared with 5 with a diffuse pattern [1.9% (2.6); $P < 0.02$].

Thus, CD10 can be expressed on cells of patients with othewise typical B-CLL. Kiyokawa *et al.* [5] have reported that CD10 is an activation antigen on mature B cells and is inducible by *in vitro* stimulation. However, expression patterns of CD10 and CD25 were different, suggesting expression in distinct phases of B cell activation. In our series CD10 and CD25 expression was not correlated, which is in agreement with the view that CD10 is an activation antigen transiently expressed at a very early stage of activation.

As for the relation between CD10 expression and clinical findings, our results suggest a correlation with the pattern of bone marrow involvement. Although our series was too small to draw firm conclusions, immunophenotyping including CD10 antigen may be a useful marker in detecting subgroups of CLL patients with different clinical features.

Correspondence to S. Molica at Via Casalinuovo, 6, 88100 Catanzaro, Italy.
A. Dattilo is at the Divisione di Ematologia, Ospedale Regionale "A. Pugliese", Catanzaro, Italy.
Revised 17 Feb. 1992; accepted 4 March 1992.

1. Patrick CW, Libnoch JA, Kallas G, Keller RH. Sequential immunophenotypic studies in chronic lymphocytic leukemia. In: Gale RP, Rai KR, eds. *Chronic Lymphocytic Leukemia: Recent Progress and Future Direction. UCLA Symposia on Molecular and Cellular Biology. New Series.* New York, Liss 1987, Vol. 59, 127–145.
2. Cacciola E, Giustolisi R, Guglielmo P. CALLA (CD10) positive lymphocytes in chronic lymphocytic leukemia. *Blood* 1989, **74** (suppl. 1), 340a.
3. Binet JL, Auquier A, Dighiero G, *et al.* A new prognostic classification of chronic lymphocytic leukemia derived from a multivariate survival analysis. *Cancer* 1981, **48**, 198–206.
4. Rai KR, Sawitsky A, Cronkite EP, Chanana AD, Levy RM, Pasternak BS. Clinical staging of chronic lymphocytic leukemia. *Blood* 1975, **46**, 219–234.
5. Kiyakawa N, Kokay Y, Ishimoto K. Fujita H, Fujimoto J, Hata JI. Characterization of the common acute lymphoblastic leukemia antigen (CD10) as an activation molecule on mature human B cells. *Clin Exp Immunol* 1990, **79**, 322–327.