differentiation based upon studies of B cell malignancies postulates 

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REFERENCES


5. Velardi A, Grossi CE, Cooper MD: A large subpopulation of lymphocytes with T helper phenotype (Leu3+/T4-+) exhibits the property of binding to NK cell targets and granular lymphocyte morphology. J Immunol (in press)


B CELL DIFFERENTIATION

To the Editor:

In the June 1984 issue of Blood, Dr. Anderson et al.1 in an attempt to define a model for normal B cell differentiation, are using data derived from their studies on B cell malignancies. They proposed that pre-B cells evolve from an Ia+ CALLA+B1- to an Ia+ CALLA+B1+ cell expression, followed by an Ia+ CALLA+B1+ and cytoplasmic I gM (clgM)+ stage. As pre-B cells enter the “isotype diversity” compartment and become more mature, they lose the expression of CALLA and clgM and they acquire the B2 antigen as well as surface immunoglobulins (slgs).

Recently we observed an acute lymphoblastic leukemia with 69% Ia+ and 10% B1+ cells in the bone marrow (80% blasts) population, but the cells were negative for CALLA, B2, slgs, clgM and TDT. The WBC count was 2109/L with 81% lymphocytoid microblasts and 19% Ia+. As in bone marrow, the circulating cells were negative for B1, B2, CALLA, and slgs. There are two possible explanations for the Ia+ B1+ phenotype in the bone marrow: (1) these cells represent a different pathway than the one mentioned by Dr. Anderson et al., which proceeds or is independent of the CALLA+ pathway, or (2) these cells are in a transitory stage from the pre-B to immature B cell compartment. In that stage they have lost the CALLA and clgM expression prior to the acquisition of the B2 and slgM while they remain Ia+ B1+.

We therefore consider that a transitory stage may exist between the pre-B and immature B compartment proposed by Dr. Anderson. The phenotype at that stage is Ia+ B1+ CALLA- clgM- B2-. unless a different pathway of maturation exists and which is independent of the one described.

To the Editor:

Dr. Efremidis correctly points out that our model of B cell differentiation based upon studies of B cell malignancies postulates that pre-B cells evolve through the following sequence: Ia+ B4+ CALLA- B1- Ia+ B4+ CALLA+ B1- Ia+ B4+ CALLA+ B1+ and Ia+ B4+ CALLA+ B1+ cytoplasmic u+. As cells enter the post-pre-B cell stages of B cell differentiation, CALLA and cytoplasmic u(+) are lost and cell surface immunoglobulin (slg) and B2 antigen are acquired. They observed a patient with acute lymphoblastic leukemia (ALL) who had 69% Ia+ cells, 10% B1+ cells, and 80% blasts in the bone marrow. In addition, this patient was circulating Ia+ B1- B2- CALLA- slg- tumor cells. On the basis of the Ia+ B1+ CALLA- B2- cu+ phenotype which may identify marrow tumor cells, they suggest this patient may reflect an alternative pathway of B cell differentiation or an additional differentiative stage within our model of B cell differentiation. An alternative interpretation is that those bone marrow cells which were Ia+ were in fact largely blasts (69% Ia+, 80% blasts), but that the 10% anti-B1 reactive cells were either normal B cells or else a minority of tumor cells.

Dual fluorescence experiments could be done to examine whether Ia and B1 are coexpressed on these tumor cells. If, in fact, the B1+ cells were normal B cells, then the phenotype of the tumor cells within both bone marrow and blood would be Ia+ CALLA- B1- B2- cu+. Twenty-five of 138 patients with non-T ALL recently studied (18%) expressed this phenotype. Moreover, the B4
B cell differentiation [letter]

AP Efremidis, JG Bekesi and MS Vessoniaraki

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