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Letter to the Editor

Further Observation on Interferon Production by Chronic Lymphocytic Leukemia Cells*

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THERE have been several reports [1–6] confirming our early observation [7, 8] of a depressed interferon (IFN) production by chronic lymphocytic leukemia (CLL) leukocytes in response to a viral stimulus. In these studies control cells were obtained from normal, age-matched individuals and consisted of either a mixed leukocyte preparation of granulocytes, monocytes and lymphocytes or unfractionated mononuclear cells (MC) of lymphocytes and monocytes. Sendai virus or Newcastle disease virus (NDV) was employed at a single dose as an interferon inducer. Presumably the dose was predetermined as being optimal for stimulating the control cell suspension to produce IFN. We now reasoned that such a comparison might not be adequate, especially in the light of two recent relevant pieces of information; one defined the major source of Sendai virus- and NDV-induced human IFN to come from non-T lymphocytes [9, 10] and the other documented that most patients with CLL have both normal T and B lymphocytes and leukemic cells of B cell origin bearing 'monoclonal' membrane-bound immunoglobulin in the peripheral blood [11].

In this study we have compared the cell source of IFN production by normal and CLL peripheral MC populations in response to stimulation with NDV at a broad range of concentrations. Details of the methods for preparing MC, enriched populations of T, non-T (B-enriched) and monocytic cells as well as for IFN production and assay were as described previously [12, 13]. Ten of the 17 CLL patients had not received any treatment prior to testing.

The results as shown in Fig. 1 indicated that non-T (B-enriched) cells produced consistently and significantly higher levels of IFN than the unfractionated MC or the monocytes over a broad range of NDV concentration. On the other hand, the E-rosetted T cells produced very little or no IFN within the range of NDV concentration studied.

Figure 1 also depicts IFN response of non-T (B-

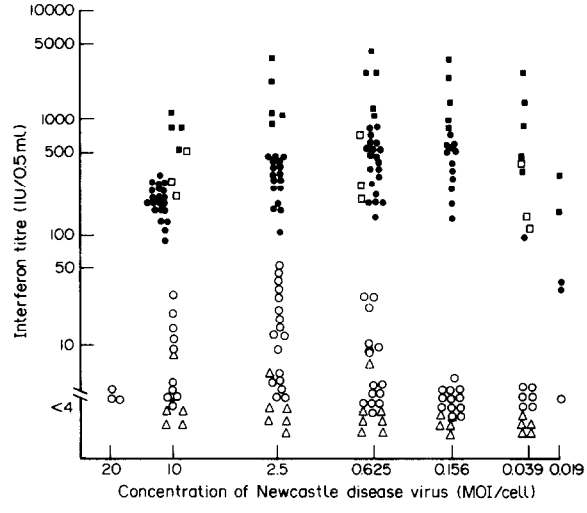

Fig. 1. Interferon production by various human peripheral mononuclear cell populations from normal adult controls and CLL-non-T (B-enriched) (○) cells in response to stimulation with Newcastle disease virus. Normal cell populations studied included unfractionated mononuclear cells (●), E-rosette T (△), non-T (B-enriched) (■) cells and adherent monocytes (□). Twenty control and 17 CLL-donors contribute to the IFN values shown.

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enriched) cells from CLL donors. These results confirmed and extended earlier studies that CLL leukemic cells or non-T (B-enriched) cells as shown here produced a negligible amount or a significantly lower level of IFN than control unfractionated MC or non-T (B-enriched) cells over a range of NDV concentrations. Since CLL have normal T and B cells in the peripheral blood as well as leukemic B cells [11], it was quite likely that the low-level IFN response might be attributed to the presence of a small number of normal B cells. Like control T cells, the E-rosette T cells from CLL were found to be unresponsive to IFN induction by NDV over a range of NDV concentrations. It should be reminded also that reduced production of IFN in CLL was demonstrated not only with viral inducers but also with mitogenic stimuli to T and B cells [14].

In conclusion, our results show that non-T (B-enriched) cells from normal adults represented the major cell source of IFN in human MC cultures induced by NDV. In contrast, non-T cells from CLL showed an apparent defect in IFN production.

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