Circulating T cells derived from patients with untreated acute myelogenous leukemia are heterogeneous and can be activated through the CD3/TCR complex.
CIRCULATING T CELLS IN PATIENTS WITH UNTREATED ACUTE MYELOGENOUS LEUKEMIA ARE HETEROGENEOUS AND CAN BE ACTIVATED THROUGH THE CD3/TCR COMPLEX

Elisabeth Ersvær, Peter Hampson, Øystein Wendelbo, Janet M Lord, Bjørn Tore Gjertsen, Øystein Bruserud

1Institute of Medicine and 2Division for Infectious Diseases; University of Bergen and Haukeland University Hospital, Bergen, Norway. 3 MRC Centre for Immune Regulation, University of Birmingham, Birmingham, United Kingdom.

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Corresponding author:

Elisabeth Ersvær, Section for Hematology, Institute of Medicine, The University of Bergen, N-5021 Bergen, Norway.

Phone + 47 55 97 50 00 Fax + 47 55 97 29 50

E-mail: elisabeth.ersvar@med.uib.no
Objectives. T lymphocyte defects may contribute to the immune insufficiency seen in acute myelogenous leukemia (AML). We therefore characterized the T cell system for untreated AML patients.

Methods. T lymphocyte subsets were analyzed by flow cytometry for 45 AML patients. The \textit{in vitro} interferon-\(\gamma\) (IFN\(\gamma\)) release in response to stimulation with anti-CD3 plus anti-CD28 in the presence of autologous AML cells was examined for 31 patients.

Results. The majority of circulating lymphocytes were CD3\(^+\) T cells, and CD19\(^+\) B cells usually constituted <10\% of the lymphocytes. Most T cells expressed the \(\alpha\beta\) T cell receptor (TCR\(\alpha\beta\)), and only a minority of the cells was TCR\(\gamma\delta\). Both CD4\(^+\) and CD8\(^+\) T cells were detected, the CD4:CD8 ratio showed a wide variation but was generally >1.0. The majority of CD4\(^+\) and CD8\(^+\) T cells were CD45RA\(^+\) cells. The T cells could be stimulated to release IFN\(\gamma\) in response to anti-CD3 plus anti-CD28 ligation even in the presence of excess autologous AML blasts, and for a subset of patients (6 of 27) these IFN\(\gamma\) levels could be further increased by the novel protein kinase C (PKC) agonist PEP005.

Conclusions. Circulating T cells in patients with untreated AML are mainly CD4\(^+\) or CD8\(^+\) TCR\(\alpha\beta\); both CD45RA\(^+\) and CD45R0\(^+\) can be detected, and these cells can be activated through the CD3/TCR complex even in the presence of excess AML cells. For a subset of patients T cell responsiveness can be further increased by targeting PKC and these data therefore suggest that T cell function is not inhibited in AML patients.

Key words: cytopenia – T lymphocytes – chemotherapy – cytokines – AML