ATP INDUCES DIFFERENTIATION OF HUMAN HEMATOPOIETIC AND LEUKEMIC STEM CELL

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Acute myeloid leukemia (AML) is a malignant disease, characterized by the overproduction of leukocytes and cells with different characteristics in the morphology, immunophenotype and genetic alterations. Leukemic stem cells (LSCs) have been increasingly described as a population present in leukemia, in which self-renewal abilities are enhanced and proliferative rates are reduced. These cells commonly are resistant to most used chemotherapy drugs. ATP induces differentiation of murine hematopoietic stem cells. The aim of this study was investigated the ATP ability to induce cell differentiation in human hematopoietic and leukemic stem cells and cell signalling involved. For this proposal, human hematopoietic cells were obtained from AML samples and volunteers donors in accordance ethical guidelines. Peripheral blood was isolated by ficoll histopaque gradient and maintained in co-culture system with stromal cells (MS-5). The immunophenotype analyzes (Lin−CD38−CD34+) were verified by flow cytometer after treatment with ATP (300, 700 and 1000 µM) for 24 and 72 h. The results showed increases of Lin−CD38−CD34+ population in a concentration-dependent manner, mainly after 72 h and low concentration. Therefore, our results indicate that ATP was able to differentiate human and leukemic stem cells.

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Keywords

ATP, Differentiation, Leukemia.