Abstract
Recent studies have shown that leukemic cells are able to remodel the bone marrow niche by secreting specific cytokines or dampening its hematopoietic-supporting functions. In turn, a suitable microenvironment for leukemic cell proliferation but not for normal hematopoietic cell growth is created. Intrinsically, the leukemic condition impairs the normalcy of hematopoietic stem and progenitor cells and alters their signaling networks; consequently, it exhausts hematopoietic progenitor cells and forces stem cells into a more quiescent state, which would allow a reversible suppression of hematopoietic regeneration. The deepened quiescence of hematopoietic stem cells in leukemic marrow was achieved in part via transcription factor Egr3.

Summary
These findings provide new insights into the mechanisms underlying hematopoietic suppression in response to leukemic cell outgrowth and offer new strategies to further improve current therapies for leukemias, placing more emphasis on the augmentation of normal hematopoietic regeneration when targeting leukemic cells.

Keywords
hematopoietic stem and progenitor cells, leukemic cells, microenvironment, normal blood cells