

Preface: Special Issue on Critical Reviews in Leukemogenesis

Significant progress has been made toward understanding the molecular basis of acute lymphoid and myeloid leukemia. In this issue of *Critical Reviews in Oncogenesis*, we have selected articles that highlight some of the new discoveries over the past decade. Each of the contributing authors is an expert in his or her field and area of research. The topics range from basic mechanisms of leukemogenesis to potential approaches to treating leukemia.

The reviews in this issue include a variety of molecules that are important for the pathogenesis of lymphoid or myeloid leukemias. The role of Gadd45 in hematopoietic stress response and leukemia is discussed. Among the fundamental themes of normal and aberrant hematopoiesis is the role of critical transcription factors involved in leukemogenesis. Abnormal regulation of these proteins can contribute to myeloid transformation. To address this, discussions on C/EBP α , Hox proteins, Runx1, GATA-1, and CREB in myeloid leukemogenesis are included. Furthermore, the zinc finger transcription factor, Ikaros, has been shown to be mutated in a significant number of cases of high-risk ALL, and its important role in leukemia is discussed. Studies on

a recently described transcription factor, Sall4, and its function in regulating stem cell self-renewal are also found in this issue. The TAM family of receptor tyrosine kinases has recently been shown to activate signaling pathways in leukemia and to act as a target for ALL therapy. Another recent advance in the field of leukemia is the discovery that overexpression of *CRLF2* (*cytokine receptor-like factor 2*) is associated with activating mutations in *IKZF1*, *JAK1* and *JAK2*, and/or *IL-7R α* and a worse prognosis. Additional approaches to treating leukemia, including targeting Notch1 for T-cell lymphoblastic leukemia, are presented. In summary, the reviews in this issue provide a summary of recently identified molecules and pathways that are involved in leukemogenesis and will advance the field in years to come.

Guest Editor: Kathleen Sakamoto, M.D., Ph.D.
Professor and Chief
Division of Hematology/Oncology
Department of Pediatrics
David Geffen School of Medicine
University of California, Los Angeles