Review > Oncology (Williston Park). 1990 Oct;4(10):23-30; discussion 35-6.

Clinical significance of the cytogenetics of acute leukemias

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PMID: 2149823

Abstract

Numerous chromosome abnormalities are repeatedly found in the acute leukemias. These abnormalities have both diagnostic and prognostic utility. Some abnormalities, such as the t(4;11) (q21;q23) and t(9;22) (q34;q11) are found in both lymphoid and myeloid leukemias. In both disorders, these rearrangements are associated with a poor prognosis. Some abnormalities are found exclusively in myeloid malignancies, e.g., the t(8;21) (q22;q22) and rearrangements of chromosome 16q22, both of which carry a good prognosis. Other abnormalities are found only in lymphoid malignancies, like those of chromosome 14 at band q11 which involve T lymphoblasts. T-cell receptor (TRC) genes have been mapped to the 14q11 band. Recombinations involving the TCR alpha gene and the myc oncogene have been found in the t(8;14) (q24;q11). Similar involvement of immunoglobulin heavy chain genes and the myc oncogene has been well documented in molecular studies of B-cell lymphoma patients with a t(8;14) (q24;q32).

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