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Leukaemia Section
Short Communication

t(19;21)(q13.4;q22)

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Clinics and pathology

Disease

Acute non lymphocytic leukemia (ANLL) secondary to toxic exposure.

Note

Only one case, but with features identical to 2 other cases: one case of t(1;21)(p36;q22), and one case of t(18;21)(q21;q22).

Phenotype/cell stem origin

M2-ANLL

Etiology

About 50 years after radiation exposure from nuclear explosion.

Clinics

Pancytopenia preceeded leukemia.

Evolution

Complete remission was obtained and the patient returned to the previous pancytopenia; subsequent relapse occurred.

Genes involved and proteins

AMP19

Location

19q13.4

AML1

Location

21q22

DNA/RNA

Transcription is from telomere to centromere.

Protein

Contains a Runt domain and, in the C-term, a transactivation domain; forms heterodimers; widely expressed; nuclear localisation; transcription factor (activator) for various hematopoietic-specific genes.

Result of the chromosomal anomaly

Hybrid gene

Description

AMP-19 is fused to AML1 out of frame.

Fusion protein

Description

Truncated AML1 with the DNA binding domain, but not a transcriptional activation region.

Oncogenesis

Could function as a dominant negative inhibitor of normal AML1.

References

Hromas RA, Busse TM, Shopnick R, Jumean H, Bowers C, Richkind K. Cloning of an AML1 translocation in a novel syndrome of radiation-induced acute myeloid leukemia. Blood. 1999; 94 (suppl1).

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