t(6;9)(p23;q34)
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Published in Atlas Database: January 1998

Online version is available at: http://AtlasGeneticsOncology.org/Anomalies/t0609.html
DOI: 10.4267/2042/32108

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Phenotype / cell stem origin
M2, M4 ANLL, often preceded by MDS; M1 ANLL or RAEB at times; May be secondary to toxic exposure; A primitive myeloid progenitor is likely to be involved.

Epidemiology
1% of ANLL; Found at any age, but median age (25-30 yrs) is less than usual in ANLL; Rare in the elderly; Sex ratio: 1M/1F; Blood data: marked basophilia (> 1% of nucleated cells) in one third to half of the patients.

Cytology
TdT +; Auer rods.

Prognosis
Remission difficult to obtain; CR in only half cases; median survival around 1 yr.

Cytogenetics

Cytogenetics, morphological
May be over looked.

Additional anomalies
Most often none (80%); recurrent, although rare, additional anomalies are: +8, +13, +21.

Variants
Three way complex t(6;9;Var) exist.

Genes involved and Proteins

DEK
Location: 6p23
Protein
Contains acidic domains and a nuclear localisation signal; DNA binding protein; transcriptional regulation and signal transduction.
The translocation t(6;9)(p23;q34) results in the formation of a chimeric fusion gene: DEK (6q23) and CAN (9q34). CAN is a putative oncogene which may be activated by fusion of its 3' end to other genes than DEK. One such recently reported gene is called SET and leads to expression of a SET/CAN fusion RNA. The t(6;9)(p21-22;q34) may be seen in either AML M2 or less frequently in M4 or MDS and acute myelofibrosis often in association with excess basophils. The t(6;9) is reported mostly in young adults. The prognosis of patients carrying the t(6;9) is unfavorable - Courtesy Georges Flandrin, CD-ROM AML/MDS G.Flandrin/ICG. TRIBVN.

**CAN**

**Location:** 9q34

**Protein**
Contains dimerization domains → forms homodimers; nuclear membrane localisation; associated with the nuclear pore complex.

**Results of the chromosomal anomaly**

**Hybrid gene**

**Description**
5' DEK - 3' CAN on der(6);
Head to tail DEK/CAN fusion gene (SET/CAN exceptional); breakpoint clusters in a single intron of 8 kb (ICB9: ‘intron containing breakpoint 9’) in CAN, and in a single intron (of 12 kb) as well (ICB6) in DEK.

**Transcript**
5.5 kb RNA; no CAN-DEK reciprocal transcript on chromosome 9.

**Detection protocol**
RNA-PCR.

**Fusion protein**

**Description**
165 kDa; N-term with almost the entire DEK protein fused to the C-terminal two-thirds of the CAN protein.

**Expression localisation**
Nuclear localisation.

**References**


This article should be referenced as such: