Leukaemia Section
Mini Review

t(2;11)(q11;q23)
Anne RM von Bergh

Department of Clinical Genetics, Erasmus MC, Dr. Molewaterplein 50, 3015 GE Rotterdam, the Netherlands

Published in Atlas Database: August 2005
Online updated version: http://AtlasGeneticsOncology.org/Anomalies/t0211q11q23ID1196.html
DOI: 10.4267/2042/38266

This work is licensed under a Creative Commons Attribution-Non-commercial-No Derivative Works 2.0 France Licence. © 2006 Atlas of Genetics and Cytogenetics in Oncology and Haematology

Clinics and pathology

**Disease**
Acute lymphocytic leukemia (ALL) with proB phenotype.

**Epidemiology**
Three cases reported to date, two infants and one two-year-old child.

**Prognosis**
Both cases of infant ALL showed a poor survival, 2 and 9 months respectively. The third case, a two-year-old child, achieved complete remission.

Cytogenetics

**Cytogenetics molecular**
The three reported cases carried different rearrangements involving chromosomes 2 and 11: t(2;11)(p15;p14), t(2;11)(q11;q23) and ins(11;2)(q23;q11.2q11.2).

**Probes**
LAF4 specific PACs: RP6-44B23 and RP6-226I23.

Genes involved and Proteins

**MLL**
**Location:** 11q23
**DNA / RNA**
13-15 kb mRNA.
**Protein**
431 kDa; contains two DNA binding motifs (a AT hook, and Zinc fingers), a DNA methyl transferase motif, a bromodomain; transcriptional regulatory factor; nuclear localisation.

**LAF4**
**Location:** 2q11-q12
**Note:** AF4 and AF5q31, also known as MLL fusion partners, belong to the same gene family.
**DNA / RNA**
22 exons, transcript length: 3855 bp.
**Protein**
LAF4 protein (Lymphoid nuclear protein related to AF4) 1226 amino acids; 133734 Da.

Schematic representation of MLL, LAF4, and the putative MLL-LAF4 fusion protein. MT, methyltransferase domain; TRX, Drosophila trithorax homology; NHD, N-terminal homology domain; TAD, transactivation domain; NLS, nuclear localization sequence; CHD, C-terminal homology domain.
**Results of the chromosomal anomaly**

*Hybrid gene*

Transcript

5’ MLL - 3’ LAF4

*Fusion protein*

Description

The MLL-LAF4 fusion protein includes the transactivation domain of LAF4 that is part of the AF4/LAF4/FMR2 homology domain.

**References**


Ma C, Staudt LM. LAF-4 encodes a lymphoid nuclear protein with transactivation potential that is homologous to AF-4, the gene fused to MLL in t(4;11) leukemias. Blood 1996;87:734-745.

---

This article should be referenced as such: