AF10 (ALL1 fused gene from chromosome 10)
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Identity
Location: 10p12

AF10 (10p12) - Courtesy Mariano Rocchi, Resources for Molecular Cytogenetics. Laboratories willing to validate the probes are welcome: contact rocchi@biologia.uniba.it.

DNA/RNA
Transcription
5’ telomeric → 3’ centromeric direction; 5.5 kb mRNA; coding sequence: 3.1 kb.

Protein
Description
1027 amino acids; 109 kDa; N-term -- 3 Zn fingers -- Glu/Lys rich domain -- Leucine zipper -- Poly Ser -- C-term.
Expression
Mainly in the testis.

Localisation
Nuclear.

Function
Transcription factor.

Homology
Homology with AF17 and BR140.

Implicated in
t(10;11)(p12;q23)/ANLL → MLL/AF10

Disease
Mainly M4/M5 ANLL.

Cytogenetics
High diversity of reported breakpoints (from 10p11 to 10p15), and frequent additional inv(11): complexity of the translocation.

Hybrid/Mutated Gene
5’ MLL - 3’ AF10; breakpoints are at variable places along AF10.

Abnormal Protein
N-term AT hook and DNA methyltransferase from MLL fused to the leucine zipper C-term of AF10.

inv ins (10;11)(p12;q23q12)/ANLL → MLL-AF10

Disease
Poorly known M4/M5 ANLL.

Hybrid/Mutated Gene
5’ MLL - 3’ AF10 and 5’ AF10 - 3’ HEAB, a gene sitting in 11q12.

Abnormal Protein
Only MLL-AF10 is expressed.
t(10;11)(p13;q14-21) → CALM/AF10 and/or AF10-CALM

Disease
Yet to be well delineated; T-cell ALL.

Prognosis
Uncertain (median survival 2 yrs?).

Cytogenetics
May well be confused with the above t(10;11)(p12;q23).

Hybrid/Mutated Gene
5’ CALM - 3’ AF10 and 5’ AF10 - 3’ CALM.

Abnormal Protein
Both CALM-AF10 and the reciprocal AF10-CALM are expressed.

Breakpoints

Note: the breakpoint in the t(10;11)(p13;q14-21) is more in 5’ of AF10.

References


Kobayashi H, Hosoda F, Maseki N, Sakurai M, Imashuku S, Ohki M, Kaneko Y. Hematologic malignancies with the t(10;11)(p13;q21) have the same molecular event and a variety of morphologic or immunologic phenotypes. Genes Chromosomes Cancer 1997 Nov;20(3):233-239.

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