Leukaemia Section
Mini Review

\( t(11;19)(q23;p13.1) \)

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Identity

Note: Two different translocations (and two clinical entities), both involving 11q23 with a common breakpoint in MLL, and 19p13 with different breakpoints are now identified: the above mentioned, and the \( t(11;19)(q23;p13.3) \).

\[ \begin{align*}
\text{t}(11;19)(q23;p13.1); \text{ G-banding (left) and R banding (right)(top: - Editor; below: -Courtesy Christiane Charrin).}
\end{align*} \]

Clinics and pathology

**Disease**

ANLL.

**Phenotype / cell stem origin**

M4/M5 most often; M1/M2 at times; therapy related AL; however, clonal rearrangements of IgH gene have been found, demonstrating a biphenotypic nature.

**Epidemiology**

Children and, most often, adults (7 days to 83 yrs); congenital cases are rare, in contrast with the \( t(11;19)(q23;p13.3) \) leukaemia; balanced sex ratio.

**Clinics**

Organomegaly in half cases; CNS involvement in some cases.

**Treatment**

BMT is indicated.

**Prognosis**

Very poor (median: 6 mths!).

Cytogenetics

**Cytogenetics, morphological**

Can be seen with R-banding: chromosome 11 appears enlarged, chromosome 19 shortened (11q+ and 19p-); will be missed with G-banding.

**Cytogenetics, molecular**

Therefore, FISH may be needed.

**Additional anomalies**

None at diagnosis in 2/3 cases; +8.

Genes involved and Proteins

**MLL**

**Location:** 11q23

**DNA / RNA**

21 exons, spanning over 100 kb; 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.
To be noted

Shortly, both t(11;19): have a breakpoint in MLL in 11q23, a very poor prognosis, and may, in some cases be treatment related leukaemias; but, while the above described has a breakpoint in 19p13.1, is found only in ANLL, involves ELL, is diagnosed with R-banding (11q+ and 19p-) and missed with G-banding, the translocation with a breakpoint in 19p13.3 can be seen with G-banding (11q- and 19p+) and missed with R-banding, involves ENL, and can be found in ALL, biphenotypic leukaemias, and ANLL.

References


This article should be referenced as such: