Leukaemia Section
Mini Review

\( t(11;20)(q23;q11) \)

Jen-Fen Fu, Lee-Yung Shih

Division of Hematology-Oncology, Department of Internal Medicine, Chang Gung Memorial Hospital, 199 Tung-Hwa North Road, Taipei 105, Taiwan

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Clinics and pathology

**Disease**
pro-B acute lymphoblastic leukemia (L2).

**Epidemiology**
One case described (42 years); male.

**Clinics**
The patient presented with fever and chills for 10 days. He had multiple 0.5 to 1.0 cm lymph nodes on bilateral necks, axillary and inguinal areas. He had no hepatosplenomegaly. His initial blood counts were HB 10.3 gm/dL, WBC 579.0 x 10^9 L with 97% blasts, and platelet 37.0 x 10^9 L.

**Cytology**
Bone marrow smear showed 99% blasts (FAB L2), which were negative for myeloperoxidase and exhibited diffuse fine granular patterns for PAS and acid phosphatase stains. Immunophenotypic analysis showed that the blasts were positive for CD19, CD33, CD34, HLA-DR and cyCD79; and negative for CD10, CD7, CD2, CD13, and cyMPO.

**Treatment**
The patient refused chemotherapy.

Genes involved and Proteins

**MLL**

**Location:** 11q23

**Protein**
431 kDa; contains two DNA binding motifs (a AT hook, and Zinc fingers), a DNA methyltransferase motif, and a SET [Su(var)3-9, enhancer of Zeste, and trithorax] doamin.

**MAPRE1**

**Location:** 20q11.2

**Protein**
MAPRE1 encoding EB1 which contains a microtubule-binding domain, a dynactin-binding domain (DBD), and an APC-binding domain that is overlapped to DBD; localized at cytoplasmic microtubule tips, centrosomes, and spindle microtubules, and interacts with APC or dynein/dynactin complex to regulate microtubule dynamics, cell polarity, and chromosomal stability.

Results of the chromosomal anomaly

**Hybrid gene**

**Description**
5’ MLL - 3’ MAPRE1, with fusion of MLL exon 6 to MAPRE1 exon 5; the reciprocal in-frame MAPRE1-MLL is also transcribed.
Detection protocol

cDNA panhandle PCR.

**Fusion protein**

**Description**

NH2-AT hook and DNA methyltransferase motif from MLL fused to APC-binding domain of EB1.

**References**


*This article should be referenced as such:* Fu JF, Shih LY. t(11;20)(q23;q11). Atlas Genet Cytogenet Oncol Haematol. 2006; 10(3):199-200.