t(1;22)(p36;q11) IGL/PRDM16

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Abstract

Review on t(1;22)(p36;q11) IGL/PRDM16 translocations, with data on clinics, and the genes involved.

Keywords
chromosome 1; chromosome 22; t(1;22)(p36;q11); IGL; PRDM16

Clinics and pathology

Disease
Splenic marginal zone B-cell lymphoma.

Clinics
Only one case to date: a 68-years old male patient, who died 38 months after diagnosis (Duhoux et al., 2012).

Cytogenetics

Cytogenetics morphological
Accompanying abnormalities were: +12, +18 and t(1;14)(p12;q32).

Genes involved and proteins

PRDM16 (PR domain containing 16)
Location
1p36.32
DNA/RNA
11 splice variants

Protein
1276 amino acids and smaller proteins. Contains a N-term PR domain; 7 Zinc fingers, a proline-rich domain, and 3 Zinc fingers in the C-term. Binds DNA. Transcription activator; PRDM16 has an intrinsic histone methyltransferase activity. PRDM16 forms a transcriptional complex with CEBPB. PRDM16 plays a downstream regulatory role in mediating TGFβ signaling (Bjork et al., 2010). PRDM16 induces brown fat determination and differentiation. PRDM16 is expressed selectively in the earliest stem and progenitor hematopoietic cells, and is required for the maintenance of the hematopoietic stem cell pool during development. PRDM16 is also required for survival, cell-cycle regulation and self-renewal in neural stem cells (Chuikov et al., 2010; Kajimura et al., 2010; Aguilo et al., 2011; Chi and Cohen, 2016).

IGL (Immunoglobulin Lambda)
Location
22q11.22

Result of the chromosomal anomaly

Fusion protein
Oncogenesis
IGL may act as an enhancer of PRDM16.

References


This article should be referenced as such: