Gene Section

Mini Review

BCL1 (B-cell leukemia/lymphoma 1)

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Identity

Other names: PRAD1 (parathyroid adenomatosis 1)
Location: 11q13

DNA/RNA

Description
5 exons.

Transcription
Major transcript: 4.5 kb; coding sequence: CDS 148...1035.

Protein

Description
The gene encodes the cyclin D1; 295 amino acids; 36 kDa.

Expression
No normal expression in lymphocytes; cell cycle dependant expression: maximal expression in G1, minimal in S.

Localisation
Mainly nuclear.

Function
Cell cycle control: G1 progression and G1/S transition; forms complexes with CDK4 and 6, and further with RB1; phosphorylation of RB1 by cyclin D1/CDK4 removes the cell cycle arrestin G1/S start point; inhibited by P21, P15, and P16.

Homology
With other cyclins.

Implicated in

t(11;14)(q13;q32)/B-cell malignancies
→ BCL1 - IgH

Disease

B-prolymphocytic leukaemia, plasma cell leukaemia, splenic lymphoma with villous lymphocytes; rarely in: chronic lymphocytic leukaemia, multiple myeloma.

Prognosis

According to the disease.

Cytogenetics

Complex karyotypes.

Hybrid/Mutated Gene

5' BCL1 translocated on chromosome 14 near JH (junctions genes of IgH) and C in 3'.

Abnormal Protein

No fusion protein, but promoter exchange; the immunoglobulin gene enhancer stimulates the expression of BCL1.

Oncogenesis

Overexpression of BCL1 accelerates the cell transit through the G1 phase.

Parathyroid adenomatosis

Hybrid/Mutated Gene

With PTH, the parathyroid hormone gene, sitting in 11p15.
References


This article should be referenced as such: