

Gene Section

Mini Review

BCL8 (B-cell CLL/lymphoma 8)

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Identity

Hugo: BCL8
Other names: BCL8A
Location: 15q11

DNA/RNA

Description

Gene of 86686 bp with 3 exons (1bp-222bp/84886bp-85041bp/86517bp-86686bp). The 5' part of exon 1 and the 3' part of exon 3 are non coding.

Transcription

Two alternative transcripts: a major transcript of 2.6 kb and a less expressed transcript of 4.5 kb, due to differential polyadenylation.

Coding sequence: CDS 208-510.

The direction of transcription is from telomere to centromere.

Pseudogene

Identified a family of evolutionarily conserved human genes with extensive homology to BCL8; these genes are BCL8B (chr.13), BCL8C (chr.22), BCL8D (chr.2), and BCL8E (chr.10). BCL8B is the most complete gene, whereas the other genes are truncated, can yield only sterile transcripts, and thus are probably pseudogenes.

Protein

Description

100 amino acids, predicted molecular weight of 19 kDa; predicted: similar to protein neurobeachin (Lysosomal trafficking regulator 2).

Expression

mRNA predominantly expressed in testis and prostate, with no transcripts normally found in hematopoietic tissues. Its expression in lymphoid tissues can be activated by chromosomal translocation or by other mechanisms in diffuse large B-cell lymphoma (DLBCL) patients. BCL8 expression was detected in all patients with 15q11-13 abnormalities and in a significant proportion of DLBCL patients.

Function

Probably produced truncated polypeptides with uncertain function.

Homology

Interspecies: homolog to N-terminal of *Caenorhabditis elegans* F10.f2.1 (59% homology) and to N-terminal of *Drosophila melanogaster* protein kinase A (PKA) anchoring protein RG (67% homology).



Implicated in

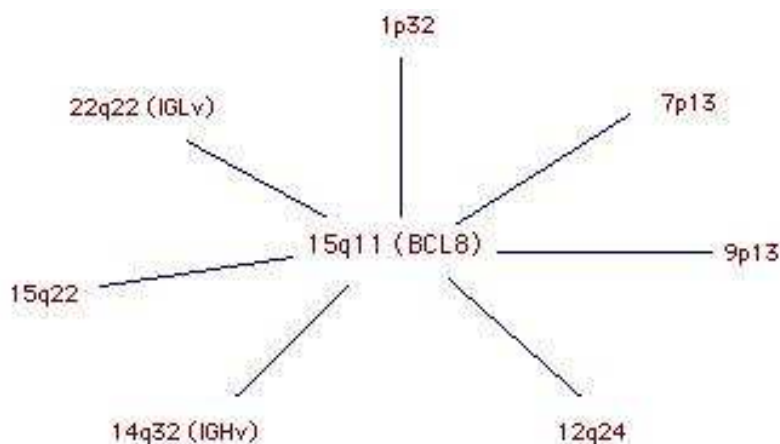
$t(14;15)(q32;q11) \rightarrow IghV - BCL8$

Note: Possibly other translocations of BCL8 involve other sites such as 22q11, 9p13, 1p32, 7p13, 12q24, and 15q22.

Disease

Translocations affecting BCL8 gene and various partners occur in about 4% of diffuse large B-cell lymphoma (DLBCL). Translocations involving the chromosomal region 15q11-13 have also been identified in non lymphoid tumors.

Breakpoints



BCL8 and 7 partners- recurrent translocations. S Rasi and G Gaidano 02/2008

References

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Dyomin VG, Chaganti SR, Dyomina K, Palanisamy N, Murty VV, Dalla-Favera R, Chaganti RS. BCL8 is a novel, evolutionarily conserved human gene family encoding proteins with presumptive protein kinase A anchoring function. Genomics 2002 ;80 (2):158-165.

Prognosis

The effect of BCL8 expression on the prognosis of patients has yet to be investigated.

Hybrid/Mutated Gene

The chromosomal translocation does not lead to the formation of a hybrid gene.

Oncogenesis

Chromosomal translocation in DLBCL causes activation of the BCL8 proto-oncogene by deregulated expression of BCL8.

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