

PRDM16 (PR domain containing 16)

Identity

Other names **MEL1 (MDS1/EVI1-like gene)**
PR-domain zinc finger protein 16

Hugo **PRDM16**
 Location 1p36.3; orientation plus strand

DNA/RNA

Description spans 369 kb; 17exons; 3827 bp coding sequence.
 Transcription alternative transcripts MEL1 and MEL1S (MEL1 short)

Protein

Description 170 kDa (MEL1) and 150 Da (MEL1S); like [MDS1/EVI1](#), The MEL1 contains a PR domain (homologous to the SET domain present in [MLL](#)) in the N term, two DNA binding domains (made of 7 and 3 zing fingers) separated by a repression domain, and an acidic domain at the C-term.
 MEL1S lacks the PR domain, like EVI1 alone.
 MEL1 and MEL1S, in a "yin-yang fashion", are hypothesized to display antagonistic properties; the PR domain may act as an inhibitor of tumorigenesis.

Expression wide, contrarily to what was previously found
 Localisation nuclear
 Homology 63% homology with MDS1/EVI1; both are members of the PR domain family

Implicated in

Entity [t\(1;3\)\(p36;q21\)](#) myeloid leukemias --> involving RPN1 and MEL1
 Disease myelodysplastic syndromes (MDS), acute non lymphoblastic leukemias (ANLL), therapy-related leukemias and myeloproliferative syndromes; with features similar to those of the 3q21q26 syndrome, including megakaryocytic dysplasia (see also [3q rearrangements in myeloid malignancies](#)).

Prognosis very poor
 Hybrid/Mutated Gene juxtaposition of the enhancer of the constitutively expressed housekeeping gene RPN1, normally sitting in 3q21, in 5' of MEL1 on der(1); both genes are orientated telomere to centromere; the same situation occurs between RPN1 in 5' of EVI1 in the [t\(3;3\)\(q21;q26\)](#))
 Oncogenesis the translocation results in either an ectopic expression of MEL1 driven by RPN1 or by disruption of its PR domain; this probable heterogeneity may be associated with different clinical features. The short form, MEL1S, is mainly expressed

External links

Nomenclature

[Hugo](#) [PRDM16](#)
[GDB](#) [PRDM16](#)

[Entrez Gene](#) [PRDM16 63976](#) PR domain containing 16

Cards

[Atlas](#) [PRDM16MEL1ID408](#)

[GeneCards](#) [PRDM16](#)

[Ensembl](#) [PRDM16](#)

[CancerGene](#) [PRDM16](#)

[GenAtlas](#) [PRDM16](#)

[GeneLynx](#) [PRDM16](#)

[eGenome](#) [PRDM16](#)

[euGene](#) [63976](#)

Genomic and cartography

[GoldenPath](#) [PRDM16 - 1p36.3; orientation plus strand chr1:3008901-3378340 + 1p36.32 \(hg17-May_2004\)](#)

[Ensembl](#) [PRDM16 - 1p36.32 \[CytoView\]](#)

[NCBI](#) [Genes Cyto](#) [Gene Seq](#) [Map View - NCBI]

[OMIM](#) [Disease map \[OMIM\]](#)

[HomoloGene](#) [PRDM16](#)

Gene and transcription

[Genbank](#) [AL008733](#) [SRS] [AL008733](#) [ENTREZ]

[Genbank](#) [AL354743](#) [SRS] [AL354743](#) [ENTREZ]

[Genbank](#) [AL512383](#) [SRS] [AL512383](#) [ENTREZ]

[Genbank](#) [AL590438](#) [SRS] [AL590438](#) [ENTREZ]

[Genbank](#) [AB051462](#) [SRS] [AB051462](#) [ENTREZ]

[RefSeq](#) [NM_022114](#) [SRS] [NM_022114](#) [ENTREZ]

[RefSeq](#) [NM_199454](#) [SRS] [NM_199454](#) [ENTREZ]

[RefSeq](#) [NT_086572](#) [SRS] [NT_086572](#) [ENTREZ]

[AceView](#) [PRDM16](#) AceView - NCBI

[TRASER](#) [PRDM16](#) Traser - Stanford

[Unigene](#) [Hs.99500](#) [SRS] [Hs.99500](#) [NCBI] [HS99500](#) [spliceNest]

Protein : pattern, domain, 3D structure

[SwissProt](#) [Q9HAZ2](#) [SRS] [Q9HAZ2](#) [EXPASY] [Q9HAZ2](#) [INTERPRO]

[Prosite](#) [PS50280 SET](#) [SRS] [PS50280 SET](#) [Expasy]

[Prosite](#) [PS00028 ZINC FINGER C2H2 1](#) [SRS] [PS00028](#)

[ZINC FINGER C2H2 1](#) [Expasy]

[Prosite](#) [PS50157 ZINC FINGER C2H2 2](#) [SRS] [PS50157](#)

[ZINC FINGER C2H2 2](#) [Expasy]

[Interpro](#) [IPR001214 SET](#) [SRS] [IPR001214 SET](#) [EBI]

[Interpro](#) [IPR007087 Znf_C2H2](#) [SRS] [IPR007087 Znf_C2H2](#) [EBI]

[CluSTr](#) [Q9HAZ2](#)

[Pfam](#) [PF00096 zf-C2H2](#) [SRS] [PF00096 zf-C2H2](#) [Sanger] [pfam00096](#) [NCBI-CDD]

[Smart](#) [SM00317 SET](#) [EMBL]

[Smart](#) [SM00355 ZnF_C2H2](#) [EMBL]

[Prodom](#) [PD000003 Znf_C2H2](#) [INRA-Toulouse]

[Prodom](#) [Q9HAZ2 PRDG HUMAN](#) [Domain structure] [Q9HAZ2 PRDG HUMAN](#) [sequences sharing at least 1 domain]

[Blocks](#) [Q9HAZ2](#)

Polymorphism : SNP, mutations, diseases

[OMIM](#) [605557](#) [map]

[GENECLINICS](#) [605557](#)

[SNP](#) [PRDM16](#) [dbSNP-NCBI]

[SNP](#) [NM_022114](#) [SNP-NCI]
[SNP](#) [NM_199454](#) [SNP-NCI]
[SNP](#) [PRDM16](#) [GeneSNPs - Utah] [PRDM16](#) [SNP - CSHL] [PRDM16](#) [HGBASE - SRS]

General knowledge

[Family Browser](#) [PRDM16](#) [UCSC Family Browser]
[SOURCE](#) [NM_022114](#)
[SOURCE](#) [NM_199454](#)
[SMD](#) [Hs.99500](#)
[SAGE](#) [Hs.99500](#)
[Amigo](#) [function|DNA binding](#)
[Amigo](#) [component|nucleus](#)
[Amigo](#) [component|nucleus](#)
[Amigo](#) [process|regulation of transcription, DNA-dependent](#)
[Amigo](#) [process|regulation of transcription, DNA-dependent](#)
[Amigo](#) [function|transcription factor activity](#)
[Amigo](#) [function|zinc ion binding](#)
[PubGene](#) [PRDM16](#)

Other databases

Probes

[Probe](#) [PRDM16 Related clones \(RZPD - Berlin\)](#)

PubMed

[PubMed](#) [8 Pubmed reference\(s\) in LocusLink](#)

Bibliography

A novel gene MEL1, mapped to 1p36.3 is highly homologous to the MDS1/EVI1 gene and is transcriptionally activated in t(1;3)(p36;q21)-positive leukemia cells.

Mochizuki N, Shimizu S, Nagasawa T, Tanaka H, Taniwaki M, Yokota J, Morishita K. Blood 2000; 96: 3209-3214.

Medline [11050005](#)

A novel EVI1 gene family, MEL1, lacking a PR domain (MEL1S) is expressed mainly in t(1;3)(p36;q21)-positive AML and blocks G-CSF-induced myeloid differentiation.

Nishikata I, Sasaki H, Iga M, Tateno Y, Imayoshi S, Asou N, Nakamura T, Morishita K.

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Medline [12816872](#)

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Medline [12557231](#)

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Pelicci PG, Calasanz MJ, Odero MD.
Oncogene. 2004; 23: 311-316.
Medline [14712237](#)

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URL :

<http://www.infobiogen.fr/services/chromcancer/Genes/PRDM16MEL1ID408.html>

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