

ATBF1 (AT-binding transcription factor 1)

Identity

Other names **AT motif-binding factor 1**
Alpha-fetoprotein enhancer binding protein

Hugo **ATBF1**

Location 16q22.3-q23.1

DNA/RNA

Description 10 exons, DNA size: 261.32 kb.

Transcription two isoforms ATBF1-A and ATBF1-B, due to alternative promotor usage combined with alternative splicing, mRNA-size: 11893 bp.

Protein

Description 3703 amino acids; 404 kDa; four homeodomains and 23 zinc fingers including 1 pseudo zinc finger motif, one DEAD and one DEAH box, a RNA and an ATP binding site, two large RS domains and multiple phosphorylation sites.

Expression Embryonic and neonatal brain.

Localisation nuclear

Function Transcription factor that binds to the AT-rich core sequence of the enhancer element of the AFP gene and downregulates AFP gene expression, possibly involved in neuronal differentiation (ATBF1-A).

Homology mouse atbf1, drosophila zfh2 and C. Elegans ZC 123.3

Mutations

Somatic Amplification, in one early neural crest derived cell line SJNB-12 under the form of extrachromosomally double minutes, non-syntenic co-amplification with [MYC](#).
Absence of ATBF1 expression in alpha-fetoprotein expressing gastric cancer cell lines, lack of ATBF1 expression not due to mutation, deletion or translocation but to strong repression at the transcriptional level.

Implicated in

Disease **Early neural crest derived cell line (SJNB-12).**

Prognosis unknown

Cytogenetics Several structural and numerical chromosomal aberrations and presence of extrachromosomally double minutes and homogenously staining regions, presence of a reciprocal unbalanced t(8;16)(q24.3;q22.3).

Oncogenesis Amplification in one neural crest derived cell line (SJNB-12), non-syntenic co-amplification with MYC.

Disease **Alpha-fetoprotein producing gastric cancer cell lines (GCIY and Ist-I).**

Prognosis poor (very malignant and highly metastatic cancer)

Oncogenesis Alpha-fetoprotein producing cancer cell lines show absence of ATBF1 expression, lack of ATBF1 expression not due to deletion mutation or translocation but to strong repression at the transcriptional level.

External links

Nomenclature	
Hugo	ATBF1
GDB	ATBF1
Entrez Gene	ATBF1 463 AT-binding transcription factor 1
Cards	
Atlas	ATBF1ID357
GeneCards	ATBF1
Ensembl	ATBF1
Genatlas	ATBF1
GeneLynx	ATBF1
eGenome	ATBF1
euGene	463
Genomic and cartography	
GoldenPath	ATBF1 - chr16:71378456-71639775 - 16q22.2 (hg17-May_2004)
Ensembl	ATBF1 - 16q22.2 [CytoView]
NCBI	Genes Cyto Gene Seq [Map View - NCBI]
OMIM	Disease map [OMIM]
HomoloGene	ATBF1
Gene and transcription	
Genbank	AC002044 [SRS] AC002044 [ENTREZ]
Genbank	AC004943 [SRS] AC004943 [ENTREZ]
Genbank	AY424268 [SRS] AY424268 [ENTREZ]
Genbank	BC029653 [SRS] BC029653 [ENTREZ]
Genbank	D10250 [SRS] D10250 [ENTREZ]
RefSeq	NM_006885 [SRS] NM_006885 [ENTREZ]
RefSeq	NT_086854 [SRS] NT_086854 [ENTREZ]
AceView	ATBF1 AceView - NCBI
TRASER	ATBF1 Traser - Stanford
Unigene	Hs.461285 [SRS] Hs.461285 [NCBI] HS461285 [spliceNest]
Protein : pattern, domain, 3D structure	
SwissProt	Q15911 [SRS] Q15911 [EXPASY] Q15911 [INTERPRO]
Prosite	PS00027 HOMEBOX_1 [SRS] PS00027 HOMEBOX_1 [Expasy]
Prosite	PS50071 HOMEBOX_2 [SRS] PS50071 HOMEBOX_2 [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	IPR001356 Homeobox [SRS] IPR001356 Homeobox [EBI]
Interpro	IPR009057 Homeodomain like [SRS] IPR009057 Homeodomain like [EBI]
Interpro	IPR007087 Znf_C2H2 [SRS] IPR007087 Znf_C2H2 [EBI]
Interpro	IPR003604 Znf_U1 [SRS] IPR003604 Znf_U1 [EBI]
CluSTR	Q15911
Pfam	PF00046 Homeobox [SRS] PF00046 Homeobox [Sanger] pfam00046 [NCBI-CDD]
Pfam	PF00096 zf-C2H2 [SRS] PF00096 zf-C2H2 [Sanger] pfam00096 [NCBI-CDD]
Smart	SM00389 HOX [EMBL]

[Smart](#) [SM00355 ZnF_C2H2](#) [EMBL]
[Smart](#) [SM00451 ZnF_U1](#) [EMBL]
[Prodom](#) [PD000010 Homeobox](#)[INRA-Toulouse]
[Prodom](#) [Q15911 ATBF_HUMAN](#) [Domain structure] [Q15911 ATBF_HUMAN](#) [sequences sharing at least 1 domain]
[Blocks](#) [Q15911](#)

Polymorphism : SNP, mutations, diseases

[OMIM](#) [104155](#) [[map](#)]
[GENECLINICS](#) [104155](#)
[SNP](#) [ATBF1](#) [dbSNP-NCBI]
[SNP](#) [NM_006885](#) [SNP-NCI]
[SNP](#) [ATBF1](#) [GeneSNPs - Utah] [ATBF1](#) [SNP - CSHL] [ATBF1](#) [HGBASE - SRS]

General knowledge

[Family Browser](#) [ATBF1](#) [UCSC Family Browser]
[SOURCE](#) [NM_006885](#)
[SMD](#) [Hs.461285](#)
[SAGE](#) [Hs.461285](#)
[Amigo](#) [function|RNA polymerase II transcription factor activity, enhancer binding](#)
[Amigo](#) [component|nucleus](#)
[Amigo](#) [process|regulation of transcription, DNA-dependent](#)
[Amigo](#) [function|zinc ion binding](#)
[PubGene](#) [ATBF1](#)

Other databases

Probes

[Probe](#) [ATBF1 Related clones \(RZPD - Berlin\)](#)

PubMed

[PubMed](#) [6 Pubmed reference\(s\) in LocusLink](#)

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Medline [22806781](#)

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Contributor(s)

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