Gene Section
Short Communication

ATF1 (activating transcription factor 1)
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Published in Atlas Database: November 1999
Online updated version : http://AtlasGeneticsOncology.org/Genes/ATF1ID81.html
DOI: 10.4267/2042/37553
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Identity

Other names: TREP36
HGNC (Hugo): ATF1
Location: 12q13

Probe(s) - Courtesy Mariano Rocchi, Resources for Molecular Cytogenetics.

DNA/RNA

Transcription
816 bp mRNA.

Protein

Description
271 amino acids; possess a basic motif and a leucine-zipper; dimerisation with other ATF family members (e.g. ATF-1 homodimers and ATF-1/CREB heterodimers).

Localisation
Nuclear.

Function
DNA binding protein, binds the consensus sequence: 5’GTGACGT(A/C)(A/G)-3’; cAMP-inducible transcription factor (cAMP-responsive enhancer-binding protein, CRE), like CREB.

Homology
Members of the CREB protein family.

Implicated in

Malignant melanoma of soft parts
Disease
Very rare neuroectodermal tumour.
Prognosis
Very poor.

Cytogenetics
Characterised by the translocation t(12;22)(q13;q12).

Hybrid/Mutated gene
5’ EWSR1- 3’ ATF1.

Abnormal protein
The chimaeric protein is composed of the N-terminal domain of EWS linked to the bZIP domain of ATF-1.

Oncogenesis
Binds to ATF sites present in cAMP-responsive promoters via the ATF1 bZIP domain and activates transcription constitutively, dependent on the activation domain (EAD) present in EWSR1.

References

Yoshimura T, Fujisawa J, Yoshida M. Multiple cDNA clones encoding nuclear proteins that bind to the tax-dependent enhancer of HTLV-1: all contain a leucine zipper structure and basic amino acid domain. EMBO J. 1990 Aug;9(8):2537-42
Zucman J, Delattre O, Desmaze C, Epstein AL, Stenman G, Speleman F, Fletchers CD, Aurias A, Thomas G. EWS and


Pan S, Ming KY, Dunn TA, Li KK, Lee KA. The EWS/ATF1 fusion protein contains a dispersed activation domain that functions directly. Oncogene. 1998 Mar 26;16(12):1625-31

This article should be referenced as such: