SANTA CRUZ BIOTECHNOLOGY, INC.

p-ATF-2 (103C411): sc-52941

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The Power to Question

BACKGROUND

Eukaryotic gene transcription is regulated by sequence-specific transcription factors which bind modular *cis*-acting promotor and enhancer elements. The ATF/CREB transcription factor family binds the palindromic cAMP response element (CRE) octanucleotide TGACGTCA. The ATF/CREB family includes CREB-1, CREB-2 (also designated ATF-4), ATF-1, ATF-2 and ATF-3. This family of proteins contain highly divergent N-terminal domains, but share a C-terminal leucine zipper for dimerization and DNA binding. ATF-2 forms homodimers and heterodimers with c-Jun to initiate CRE-dependent transcription. Phosphorylation of ATF-2 at Thr 69 and Thr 71 by stress-activated kinases is necessary for transcriptional activation. Myc also induces phosphorylation of ATF-2 at Thr 69 and Thr 71 to prolong the half-life of ATF-2. ATF-2 also functions as a histone acetyltransferase (HAT) by specifically acetylating histones H2B and H4 *in vitro*. The gene encoding human ATF-2 maps to chromosome 2q31.1.

REFERENCES

1. Montminy, M.R., et al. 1986. Identification of a cyclic-AMP-responsive element within the rat somatostatin gene. Proc. Natl. Acad. Sci. USA 83: 6682-6686.
2. Lin, Y.S. and Green, M.R. 1988. Interaction of a common cellular transcription factor, ATF, with regulatory elements in both Ela- and cyclic AMP-inducible promoters. Proc. Natl. Acad. Sci. USA 85: 3396-3400.
3. Hai, T., et al. 1989. Transcription factor ATF cDNA clones: an extensive family of leucine zipper proteins able to selectively form DNA-binding heterodimers. Genes Dev. 8: 2083-2090.
4. Diep, A., et al. 1991. Assignment of the gene for cyclic AMP-response element binding protein 2 (CREB2) to human chromosome 2q24.1-q32. Genomics 11: 1161-1163.
5. van Dam, H., et al. 1993. Heterodimer formation of c-Jun and ATF-2 is responsible for induction of c-Jun by the 243 amino acid adenovirus E1A protein. EMBO J. 12: 479-487.
6. Livingstone, C., et al. 1995. ATF-2 contains a phosphorylation-dependent transcriptional activation domain. EMBO J. 14: 1785-1797.
7. van Dam, H., et al. 1995. ATF-2 is preferentially activated by stress-activated protein kinases to mediate c-Jun induction in response to genotoxic agents. EMBO J. 14: 1798-1811.
8. Duyndam, M.C., et al. 1996. The CR1 and CR3 domains of the adenovirus type 5 E1A proteins can independently mediate activation of ATF-2. J. Virol. 70: 5852-5859.
9. Kawasaki, H., et al. 2000. ATF-2 has intrinsic histone acetyltransferase activity which is modulated by phosphorylation. Nature 405: 195-200.

CHROMOSOMAL LOCATION

Genetic locus: ATF2 (human) mapping to 2q31.1.

SOURCE

p-ATF-2 (103C411) is a mouse monoclonal antibody raised against a peptide containing Thr 71 phosphorylated ATF-2 of human origin.

PRODUCT

Each vial contains 100 µg IgG_1 in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

p-ATF-2 (103C411) is recommended for detection of Thr 71 phosphorylated ATF2 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000).

Suitable for use as control antibody for ATF-2 siRNA (h): sc-29205, ATF-2 shRNA Plasmid (h): sc-29205-SH and ATF-2 shRNA (h) Lentiviral Particles: sc-29205-V.

Molecular Weight of p-ATF-2: 70 kDa.

SELECT PRODUCT CITATIONS

1. Ferguson, B.W. and Datta, S. 2011. Role of heparan sulfate 2-o-sulfotransferase in prostate cancer cell proliferation, invasion, and growth factor signaling. Prostate Cancer 2011: 893208.
2. Kang, H., et al. 2017. Activation of the ATF2/CREB-PGC-1α pathway by metformin leads to dopaminergic neuroprotection. Oncotarget 8: 48603-48618.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

CONJUGATES

See **p-ATF-2 (F-1): sc-8398** for p-ATF-2 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.