

CREB-1 (h): 293 Lysate: sc-111160

BACKGROUND

Eukaryotic gene transcription is regulated by sequence-specific transcription factors that bind modular *cis*-acting promoter 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 contains highly divergent N-terminal domains, but shares a C-terminal leucine zipper for dimerization and DNA binding. Although CREB can bind to DNA in an unphosphorylated state, it cannot activate transcription. Phosphorylation of CREB on Ser 133 by protein kinase A facilitates its interaction with the CREB-binding protein (CBP) and activates the basal transcription complex. CREB functions in neoglucogenesis through interactions with the nuclear coactivator PGC-1. CREB may play a role in the pathogenesis of type II diabetes and dilated cardiomyopathy.

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. Yamamoto, K.K., et al. 1988. Phosphorylation-induced binding and transcriptional efficacy of nuclear factor CREB. *Nature* 334: 494-498.
4. 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.
5. Taylor, A.K., et al. 1990. Assignment of the human gene for CREB1 to chromosome 2q32.3-q34. *Genomics* 7: 416-421.
6. Kwok, R.P., et al. 1994. Nuclear protein CBP is a coactivator for the transcription factor CREB. *Nature* 370: 223-226.
7. Arias, J., et al. 1994. Activation of cAMP and mitogen responsive genes relies on a common nuclear factor. *Nature* 370: 226-229.
8. Fentzke, R.C., et al. 1998. Dilated cardiomyopathy in transgenic mice expressing a dominant-negative CREB transcription factor in the heart. *J. Clin. Invest.* 101:2415-2426.
9. Herzig, S., et al. 2001. CREB regulates hepatic gluconeogenesis through the coactivator PGC-1. *Nature* 413: 179-183.

CHROMOSOMAL LOCATION

Genetic locus: CREB1 (human) mapping to 2q33.3.

PRODUCT

CREB-1 (h): 293 Lysate represents a lysate of human CREB-1 transfected 293 cells and is provided as 100 µg protein in 200 µl SDS-PAGE buffer.

RESEARCH USE

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

APPLICATIONS

CREB-1 (h): 293 Lysate is suitable as a Western Blotting positive control for human reactive CREB-1 antibodies. Recommended use: 10-20 µl per lane.

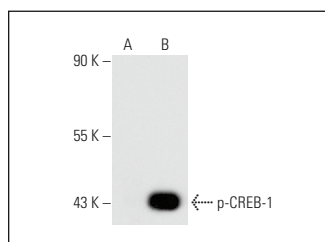
Control 293 Lysate: sc-110760 is available as a Western Blotting negative control lysate derived from non-transfected 293 cells.

p-CREB-1 (10E9): sc-81486 is recommended as a positive control antibody for Western Blot analysis of enhanced human CREB-1 expression in CREB-1 transfected 293 cells (starting dilution 1:100, dilution range 1:100-1:1,000).

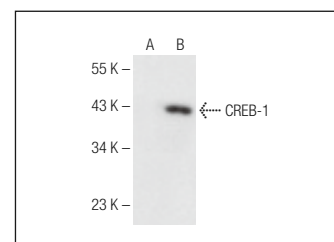
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended:
1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048.

DATA



p-CREB-1 (10E9): sc-81486. Western blot analysis of CREB-1 phosphorylation in non-transfected: sc-110760 (A) and human CREB-1 transfected: sc-111160 (B) 293 whole cell lysates.



CREB-1 (D-4): sc-374227. Western blot analysis of CREB-1 expression in non-transfected: sc-110760 (A) and mouse CREB-1 transfected: sc-111160 (B) 293 whole cell lysates.

STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

PROTOCOLS

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