

CREB-1 (X-12): sc-240

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 TGACGTC. 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 E1a- 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.

CHROMOSOMAL LOCATION

Genetic locus: CREB1 (human) mapping to 2q33.3; Creb1 (mouse) mapping to 1 C2.

SOURCE

CREB-1 (X-12) is a mouse monoclonal antibody raised against amino acids 254-327 mapping within the DNA binding and dimerization domain of human CREB-1 p43.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin. Also available as TransCruz reagent for Gel Supershift and ChIP applications, sc-240 X, 200 µg/0.1 ml.

CREB-1 (X-12) is available conjugated to agarose (sc-240 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-240 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-240 PE), fluorescein (sc-240 FITC), Alexa Fluor® 488 (sc-240 AF488), Alexa Fluor® 546 (sc-240 AF546), Alexa Fluor® 594 (sc-240 AF594) or Alexa Fluor® 647 (sc-240 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-240 AF680) or Alexa Fluor® 790 (sc-240 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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RESEARCH USE

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

APPLICATIONS

CREB-1 (X-12) is recommended for detection of CREB-1A and CREB-1B of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

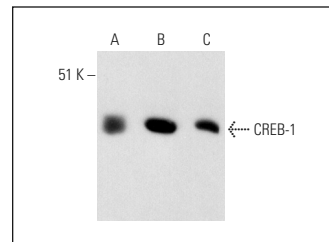
Suitable for use as control antibody for CREB-1 siRNA (h): sc-29281, CREB-1 siRNA (m): sc-35111, CREB-1 siRNA (r): sc-72030, CREB-1 shRNA Plasmid (h): sc-29281-SH, CREB-1 shRNA Plasmid (m): sc-35111-SH, CREB-1 shRNA Plasmid (r): sc-72030-SH, CREB-1 shRNA (h) Lentiviral Particles: sc-29281-V, CREB-1 shRNA (m) Lentiviral Particles: sc-35111-V and CREB-1 shRNA (r) Lentiviral Particles: sc-72030-V.

CREB-1 (X-12) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

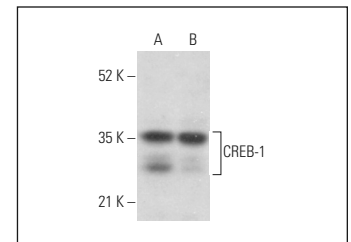
Molecular Weight of CREB-1: 43 kDa.

Positive Controls: Jurkat nuclear extract: sc-2132, A-431 nuclear extract: sc-2122 or A-673 nuclear extract: sc-2128.

DATA



CREB-1 (X-12): sc-240. Western blot analysis of CREB-1 expression in A-431 (A), A-673 (B) and Jurkat (C) nuclear extracts.



CREB-1 (X-12): sc-240. Western blot analysis of CREB-1 expression in Jurkat (A) and MOLT-4 (B) nuclear extracts.

SELECT PRODUCT CITATIONS

1. Sato-Bigbee, C., et al. 1994. Oligodendroglial cyclic AMP response element-binding protein: a member of the CREB family of transcription factors. *J. Neurosci. Res.* 38: 621-628.
2. Liu, L., et al. 2016. RACK1 promotes maintenance of morphine-associated memory via activation of an ERK-CREB dependent pathway in hippocampus. *Sci. Rep.* 6: 20183.
3. Hashimoto, K. and Tsuji, Y. 2017. Arsenic-induced activation of the homeodomain-interacting protein kinase 2 (HIPK2) to cAMP-response element binding protein (CREB) axis. *J. Mol. Biol.* 429: 64-78.
4. Takeda, Y., et al. 2018. Epigenetic regulation of aldosterone synthase gene by sodium and Angiotensin II. *J. Am. Heart Assoc.* 7: e008281.
5. Khole, S., et al. 2019. Andrographolide enhances redox status of liver cells by regulating microRNA expression. *Free Radic. Biol. Med.* 130: 397-407.

STORAGE

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