

CREM (FL): sc-4005

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 CREM, 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. The transcription factor cAMP-responsive element modulator (CREM) is known to play a vital role for male fertility as it has been demonstrated that male mice lacking a functional CREM gene are infertile. In testis, CREM transcriptional activity is controlled through interaction with a tissue-specific partner, activator of CREM in the testis (ACT), which confers a powerful, phosphorylation-independent activation capacity. The function of ACT was found to be regulated by the testis-specific kinesin KIF17b also reactive with canine and syrian hamster.

REFERENCES

1. Montminy, M.R., Sevarino, K.A., Wagner, J.A., Mandel, G. and Goodman, R.H. 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.W., Liu, F., Coukos, W.J. and Green, M.R. 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. Monaco, L., Kotaja, N., Fienga, G., Hogeveen, K., Kolthur, U.S., Kimmins, S., Brancorsini, S., Macho, B. and Sassone-Corsi, P. 2004. Specialized rules of gene transcription in male germ cells: the CREM paradigm. *Int. J. Androl.* 27: 322-327.
5. Blocher, S., Fink, L., Bohle, R.M., Bergmann, M. and Steger, K. 2005. CREM activator and repressor isoform expression in human male germ cells. *Int. J. Androl.* 28: 215-223.

CHROMOSOMAL LOCATION

Genetic locus: CREM (human) mapping to 10p11.21; Crem (mouse) mapping to 18 A.

SOURCE

CREM (FL) is expressed in *E. coli* as a 34-36 kDa polyhistidine tagged fusion protein corresponding to full length CREM protein of mouse origin.

PRODUCT

CREM (FL) is purified from bacterial lysates (>98%) by Ni⁺⁺ affinity chromatography; supplied as 50 µg purified protein in PBS containing 5 mM DTT and 50% glycerol.

Also available as Western blotting control; 10 µg in 0.1 ml SDS-PAGE loading buffer, CREM (FL): sc-4005 WB.

APPLICATIONS

CREM (FL) binds DNA constitutively and is recommended as a control for gel shift studies using sc-2504 and sc-2517 oligonucleotide probes with TransCruz gel supershift antibodies sc-186 X, sc-270 X and sc-440 X.

CREM (FL): sc-4005 WB is suitable as a Western blotting control for sc-186, sc-270 and sc-440.

Molecular Weight of CREM: 39 kDa.

SELECT PRODUCT CITATIONS

1. Weinbauer, G.F., Behr, R., Bergmann, M. and Nieschlag, E. 1998. Testicular cAMP responsive element modulator (CREM) protein is expressed in round spermatids but is absent or reduced in men with round spermatid maturation arrest. *Mol. Hum. Reprod.* 4: 9-15.
2. Powell, J.D., Lerner, C.G., Ewoldt, G.R. and Schwartz, R.H. 1999. The -180 site of the IL-2 promoter is the target of CREB/CREM binding in T cell anergy. *J. Immunol.* 163: 6631-6639.
3. Tenbrock, K., Juang, Y.T., Gourley, M.F., Nambiar, M.P. and Tsokos, G.C. 2002. Antisense cyclic adenosine 5'-monophosphate response element modulator up-regulates IL-2 in T cells from patients with systemic lupus erythematosus. *J. Immunol.* 169: 4147-4152.
4. Kim, S. 2004. Characterization of the prothrombin gene expression during nerve differentiation. *Biochim. Biophys. Acta* 1679: 1-9.
5. Hay, C.W., Ferguson, L.A. and Docherty, K. 2007. ATF-2 stimulates the human Insulin promoter through the conserved CRE2 sequence. *Biochim. Biophys. Acta* 1769: 79-91.

STORAGE

Store CREM (FL): sc-4005 and sc-4005 WB at -20° C; stable for one year from the date of shipment.

RESEARCH USE

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

PROTOCOLS

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