

ATF-2 siRNA (h): sc-29205

BACKGROUND

Eukaryotic gene transcription is regulated by sequence-specific transcription factors which bind modular *cis*-acting promoter and enhancer elements. The ATF/CREB transcription factor family binds the palindromic cAMP response element (CRE) octanucleotide TGACGTC A. 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*.

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.

CHROMOSOMAL LOCATION

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

PRODUCT

ATF-2 siRNA (h) is a pool of 4 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see ATF-2 shRNA Plasmid (h): sc-29205-SH and ATF-2 shRNA (h) Lentiviral Particles: sc-29205-V as alternate gene silencing products.

For independent verification of ATF-2 (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-29205A, sc-29205B, sc-29205C and sc-29205D.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

ATF-2 siRNA (h) is recommended for the inhibition of ATF-2 expression in human cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 μ M in 66 μ l. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

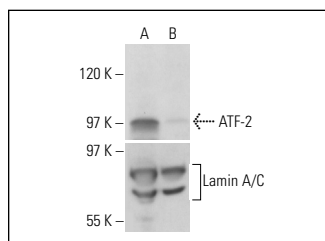
GENE EXPRESSION MONITORING

ATF-2 (F2BR-1): sc-242 is recommended as a control antibody for monitoring of ATF-2 gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor ATF-2 gene expression knockdown using RT-PCR Primer: ATF-2 (h)-PR: sc-29205-PR (20 μ l, 449 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

DATA



ATF-2 siRNA (h): sc-29205. Western blot analysis of ATF-2 expression in non-transfected control (A) and ATF-2 siRNA transfected (B) HeLa cells. Blot probed with ATF-2 (N-96): sc-6233. Lamin A/C (H-110): sc-20681 used as specificity and loading control.

SELECT PRODUCT CITATIONS

1. Li, L.B., et al. 2007. ATF-2 impairs glucocorticoid receptor-mediated transactivation in human CD8⁺ T cells. *Blood* 110: 1570-1577.
2. Chen, Y.J. and Chang, L.S. 2014. Simvastatin induces NF κ B/p65 down-regulation and JNK1/c-Jun/ATF-2 activation, leading to matrix metalloproteinase-9 (MMP-9) but not MMP-2 down-regulation in human leukemia cells. *Biochem. Pharmacol.* 92: 530-543.
3. Huang, C.H., et al. 2016. The association between p38 MAPK-mediated TNF- α /TNFR2 up-regulation and 2-(4-aminophenyl)-7-methoxybenzothiazole-induced apoptosis in human leukemia U937 cells. *J. Cell. Physiol.* 231: 130-141.

RESEARCH USE

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