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ATF-6 α siRNA (m): sc-45950

BACKGROUND

ATF-6 is a member of the basic-leucine zipper family of transcription factors. Endoplasmic reticulum stress causes cleavage of transmembrane ATF-6 and translocation of active ATF-6 to the nucleus. Soluble ATF-6 can exist as either an ATF-6 β homodimer or an ATF-6 α / β heterodimer. Binding of the ATF-6 β homodimer or ATF-6 α / β heterodimer to the nuclear transcription factor YC (NF-YC) induces ER chaperone transcription.

REFERENCES

- Hai, T.W., et al. 1989. Transcription factor ATF cDNA clones: an extensive family of leucine zipper proteins able to selectively form DNA-binding heterodimers. *Genes Dev.* 3: 2083-2090.
- Zhu, C., et al. 1997. Interaction of ATF6 and serum response factor. *Mol. Cell. Biol.* 17: 4957-4966.
- Wang, Y., et al. 2000. Activation of ATF6 and an ATF6 DNA binding site by the endoplasmic reticulum stress response. *J. Biol. Chem.* 275: 27013-27020.
- Li, M., et al. 2000. ATF6 as a transcription activator of the endoplasmic reticulum stress element: thapsigargin stress-induced changes and synergistic interactions with NF-Y and YY1. *Mol. Cell. Biol.* 20: 5096-5106.
- Urano, F., et al. 2000. IRE1 and efferent signaling from the endoplasmic reticulum. *J. Cell Sci.* 113: 3697-3702.
- Yoshida, H., et al. 2000. ATF6 activated by proteolysis binds in the presence of NF-Y (CBF) directly to the *cis*-acting element responsible for the mammalian unfolded protein response. *Mol. Cell. Biol.* 20: 6755-6767.

CHROMOSOMAL LOCATION

Genetic locus: *Atf6* (mouse) mapping to 1 H3.

PRODUCT

ATF-6 α siRNA (m) is a pool of 3 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-6 α shRNA Plasmid (m): sc-45950-SH and ATF-6 α shRNA (m) Lentiviral Particles: sc-45950-V as alternate gene silencing products.

For independent verification of ATF-6 α (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-45950A, sc-45950B and sc-45950C.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20 $^{\circ}$ C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20 $^{\circ}$ 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-6 α siRNA (m) is recommended for the inhibition of ATF-6 α expression in mouse 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-6 α (F-7): sc-166659 is recommended as a control antibody for monitoring of ATF-6 α 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).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ 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. 2) Immunofluorescence: use m-IgG κ BP-FITC: sc-516140 or m-IgG κ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz[®] Mounting Medium: sc-24941 or UltraCruz[®] Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor ATF-6 α gene expression knockdown using RT-PCR Primer: ATF-6 α (m)-PR: sc-45950-PR (20 μ l, 580 bp). Annealing temperature for the primers should be 55-60 $^{\circ}$ C and the extension temperature should be 68-72 $^{\circ}$ C.

SELECT PRODUCT CITATIONS

- Kim, K.W., et al. 2010. Endoplasmic reticulum stress mediates radiation-induced autophagy by *perk-eIF2 α* in caspase-3/7-deficient cells. *Oncogene* 29: 3241-3251.
- Li, W., et al. 2017. Phosphorylation of LAMP2A by p38 MAPK couples ER stress to chaperone-mediated autophagy. *Nat. Commun.* 8: 1763.
- Min, S.Y., et al. 2018. Puromycin aminonucleoside triggers apoptosis in podocytes by inducing endoplasmic reticulum stress. *Kidney Res. Clin. Pract.* 37: 210-221.

RESEARCH USE

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