SANTA CRUZ BIOTECHNOLOGY, INC.

ATF-6α siRNA (h): sc-37699

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 transclocation of active ATF-6 to the nucleus. Soluble ATF-6 can exist as either an ATF-6β homodimer or an ATF-6α/β heterodimer. Binding of the ATF-6β homodimer or ATF-6α/β heterodimer to the nuclear transcription factor Y C (NF-YC) induces ER chaperone transcription.

CHROMOSOMAL LOCATION

Genetic locus: ATF6 (human) mapping to 1q23.3.

PRODUCT

ATF-6α siRNA (h) 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see ATF-6α shRNA Plasmid (h): sc-37699-SH and ATF-6α shRNA (h) Lentiviral Particles: sc-37699-V as alternate gene silencing products.

For independent verification of ATF-6α (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-37699A, sc-37699B and sc-37699C.

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 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

ATF-6α siRNA (h) is recommended for the inhibition of ATF-6α 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 µM in 66 µl. 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.

PROTOCOLS

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

GENE EXPRESSION MONITORING

ATF-6α (F-7): sc-166659 is recommended as a control antibody for monitoring of ATF-6α 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-6α gene expression knockdown using RT-PCR Primer: ATF-6α (h)-PR: sc-37699-PR (20 µl, 471 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Kerbiriou, M., et al. 2007. Coupling cystic fibrosis to endoplasmic reticulum stress: differential role of Grp78 and ATF6. Biochim. Biophys. Acta 1772: 1236-1249.
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4. Zhang, R., et al. 2012. Endoplasmic reticulum stress signaling is involved in silver nanoparticles-induced apoptosis. Int. J. Biochem. Cell Biol. 44: 224-232.
5. Déry, M.A., et al. 2013. Endoplasmic reticulum stress induces PRNP prion protein gene expression in breast cancer. Breast Cancer Res. 15: R22.
6. Zhou, Y., et al. 2014. Ampelopsin induces cell growth inhibition and apoptosis in breast cancer cells through Ros generation and endoplasmic reticulum stress pathway. PLoS ONE 9: e89021.
7. Kang, K.A., et al. 2016. Fisetin induces apoptosis and endoplasmic reticulum stress in human non-small cell lung cancer through inhibition of the MAPK signaling pathway. Tumour Biol. 37: 9615-9624.
8. Jegal, K.H., et al. 2017. Activating transcription factor 6-dependent sestrin 2 induction ameliorates ER stress-mediated liver injury. Biochim. Biophys. Acta Mol. Cell Res. 1864: 1295-1307.
9. Yarapureddy, S., et al. 2019. ATF6α activation enhances survival against chemotherapy and serves as a prognostic indicator in osteosarcoma. Neoplasia 21: 516-532.
10. Sheshadri, N., et al. 2021. PERK signaling through C/EBPδ contributes to ER stress-induced expression of immunomodulatory and tumor promoting chemokines by cancer cells. Cell Death Dis. 12: 1038.
11. Wang, Y. and Chen, S. 2022. TXNIP links anticipatory unfolded protein response to estrogen reprogramming glucose metabolism in breast cancer cells. Endocrinology 163: bqab212.

RESEARCH USE

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