SANTA CRUZ BIOTECHNOLOGY, INC.

XBP-1 siRNA (h): sc-38627

BACKGROUND

The X-box binding protein-1 (XBP-1 or hXBP-1), also designated tax-responsive element-binding protein 5 (TREB5) in mouse and human, or hepatocarcinogenesis-related transcription factor (HTF) in rat, belongs to the basic region/leucine zipper (bZIP) family of transcription factors. XBP-1 was first characterized as a protein that binds to the HLA-DRα promoter in B cells. XBP-1 recognizes the cAMP responsive element (CRE) in enhancers of human T cell leukemia virus and major histocompatibility complex class II genes and activates transcription of these genes. It is expressed at high levels in developing bone and its levels are modulated during osteoblast development, suggesting a role in regulation of expression of osteoblast-specific genes. In addition to binding to CRE sequences, XBP-1 has been shown to bind to TPA response elements (TREs).

CHROMOSOMAL LOCATION

Genetic locus: XBP1 (human) mapping to 22q12.1.

PRODUCT

XBP-1 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 XBP-1 shRNA Plasmid (h): sc-38627-SH and XBP-1 shRNA (h) Lentiviral Particles: sc-38627-V as alternate gene silencing products.

For independent verification of XBP-1 (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-38627A, sc-38627B and sc-38627C.

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

XBP-1 siRNA (h) is recommended for the inhibition of XBP-1 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.

GENE EXPRESSION MONITORING

XBP-1 (F-4): sc-8015 is recommended as a control antibody for monitoring of XBP-1 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 XBP-1 gene expression knockdown using RT-PCR Primer: XBP-1 (h)-PR: sc-38627-PR (20 µl, 473 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

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3. Hu, J., et al. 2012. Activation of ATF4 mediates unwanted Mcl-1 accumulation by proteasome inhibition. Blood 119: 826-837.
4. Déry, M.A., et al. 2013. Endoplasmic reticulum stress induces PRNP prion protein gene expression in breast cancer. Breast Cancer Res. 15: R22.
5. Huang, Y.L., et al. 2014. Extrinsic sphingosine 1-phosphate activates S1P5 and induces autophagy through generating endoplasmic reticulum stress in human prostate cancer PC-3 cells. Cell. Signal. 26: 611-618.
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7. Kim, H.S. and Jung, G. 2014. Reactive oxygen species increase HEPN1 expression via activation of the XBP1 transcription factor. FEBS Lett. 588: 4413-4421.
8. Sheng, X., et al. 2015. Divergent androgen regulation of unfolded protein response pathways drives prostate cancer. EMBO Mol. Med. 7: 788-801.
9. Jiang, H., et al. 2015. Unfolded protein response inducers tunicamycin and dithiothreitol promote myeloma cell differentiation mediated by XBP-1. Clin. Exp. Med. 15: 85-96.
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11. Heindryckx, F., et al. 2016. Endoplasmic reticulum stress enhances fibrosis through IRE1α-mediated degradation of miR-150 and XBP-1 splicing. EMBO Mol. Med. 8: 729-744.

RESEARCH USE

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