SANTA CRUZ BIOTECHNOLOGY, INC.

C/EBP α siRNA (h): sc-37047

BACKGROUND

The transcription factor C/EBP α (CCAAT-enhancer binding protein) is a heat-stable, sequence-specific DNA-binding protein that binds avidly to several different *cis*-regulatory DNA sequences commonly associated with viral and cellular genes transcribed by RNA polymerase II. C/EBP α regulates gene expression in a variety of tissues including liver, adipose, lung and intestine. C/EBP α is a basic region/leucine zipper transcription factor selectively expressed during the differentiation of liver, adipose tissue, blood cells and the endocrine pancreas. C/EBP α uses a bipartite structural motif to bind DNA and appears to function exclusively in terminally differentiated, growth-arrested cells. In the liver, C/EBP α is a transactivator of several genes, which are regulated by growth hormone. Growth hormone enhances not only the levels of C/EBP α mRNA and protein, but also the DNA binding activity of C/EBP α. C/EBP α functions as an important transcription factor that regulates different genes, including prolactin gene expression.

REFERENCES

1. Johnson, P.F., et al. 1987. Identification of a rat liver nuclear protein that binds to the enhancer core element of three animal viruses. Genes Dev. 1: 133-146.
2. Landschulz, W.H., et al. 1988. Isolation of a recombinant copy of the gene encoding C/EBP. Genes Dev. 2: 786-800.

CHROMOSOMAL LOCATION

Genetic locus: CEBPA (human) mapping to 19q13.11.

PRODUCT

C/EBP α 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 C/EBP α shRNA Plasmid (h): sc-37047-SH and C/EBP α shRNA (h) Lentiviral Particles: sc-37047-V as alternate gene silencing products.

For independent verification of C/EBP α (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-37047A, sc-37047B and sc-37047C.

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

C/EBP α siRNA (h) is recommended for the inhibition of C/EBP α 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

C/EBP α (D-5): sc-365318 is recommended as a control antibody for monitoring of C/EBP 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).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor C/EBP α gene expression knockdown using RT-PCR Primer: C/EBP α (h)-PR: sc-37047-PR (20 µl, 410 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Hatzis, P., et al. 2006. Mitogen-activated protein kinase-mediated disruption of enhancer-promoter communication inhibits hepatocyte nuclear factor 4α expression. Mol. Cell. Biol. 26: 7017-7029.
2 Miglino, N., et al. 2012. Cigarette smoke inhibits lung fibroblast proliferation by translational mechanisms. Eur. Respir. J. 39: 705-711.
3. Manea, S.A., et al. 2013. High glucose-induced increased expression of endothelin-1 in human endothelial cells is mediated by activated CCAAT/enhancer-binding proteins. PLoS ONE 8: e84170.
4. Manea, S.A., et al. 2014. C/EBP transcription factors regulate NADPH oxidase in human aortic smooth muscle cells. J. Cell. Mol. Med. 18: 1467-1477.
5. Shen, X.B., et al. 2015. Transcriptional regulation of the apolipoprotein F (ApoF) gene by ETS and C/EBPα in hepatoma cells. Biochimie 112: 1-9.
6. Dasgupta, N., et al. 2017. Polo-like kinase 1 expression is suppressed by CCAAT/enhancer-binding protein α to mediate colon carcinoma cell differentiation and apoptosis. Biochim. Biophys. Acta Gen. Subj. 1861: 1777-1787.
7. Wang, Z.H., et al. 2018. C/EBP β regulates δ-secretase expression and mediates pathogenesis in mouse models of Alzheimer's disease. Nat. Commun. 9: 1784.

RESEARCH USE

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