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C/EBP β siRNA (h2): sc-44251

BACKGROUND

CCAAT-enhancer binding proteins (C/EBP) are basic region/leucine zipper (bZIP) transcription factors selectively expressed during the differentiation of liver, adipose tissue, blood cells and the endocrine pancreas. C/EBP β is a member of the C/EBP transcription factor family. The C/EBP β gene encodes several isoforms containing truncated transcription activation domains due to the alternative translational initiation at multiple AUG start sites. Initiation of translation at the in-frame AUGs forms four C/EBP β isoforms. C/EBP β is also known as interleukin 6-dependent DNA-binding protein (IL6DBP), liver activator protein (LAP) or liver-enriched transcriptional activator protein transcription factor 5 (TCF5). C/EBP β contributes to the regulation of the acute phase response in hepatocytes. Stat3 has an important function in IL-6-mediated transcription of the C/EBP β gene that has direct implication for acute phase response in liver cells. The C/EBP β form requires phosphorylation for its DNA binding ability, and increase binding of C/EBP β isoforms during acute-phase reaction occurs through its upregulation and structural modification.

REFERENCES

- 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.
- 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: CEBPB (human) mapping to 20q13.13.

PRODUCT

C/EBP β siRNA (h2) 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 C/EBP β shRNA Plasmid (h2): sc-44251-SH and C/EBP β shRNA (h2) Lentiviral Particles: sc-44251-V as alternate gene silencing products.

For independent verification of C/EBP β (h2) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-44251A, sc-44251B and sc-44251C.

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

C/EBP β siRNA (h2) is recommended for the inhibition of C/EBP β 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

C/EBP β (H-7): sc-7962 is recommended as a control antibody for monitoring of C/EBP β 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 β gene expression knockdown using RT-PCR Primer: C/EBP β (h2)-PR: sc-44251-PR (20 μ l, 428 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

- Bristol, J.A., et al. 2009. CCAAT/enhancer binding proteins α and β regulate the tumor necrosis factor receptor 1 gene promoter. *Mol. Immunol.* 46: 2706-2713.
- Viert, V., et al. 2013. Phosphorylated C/EBP β influences a complex network involving YY1 and USF2 in lung epithelial cells. *PLoS ONE* 8: e60211.
- Wang, S., et al. 2015. ATF4 gene network mediates cellular response to the anticancer PAD inhibitor YW3-56 in triple-negative breast cancer cells. *Mol. Cancer Ther.* 14: 877-888.
- Selagea, L., et al. 2016. EGFR and C/EBP β oncogenic signaling is bidirectional in human glioma and varies with the C/EBP β isoform. *FASEB J.* 30: 4098-4108.
- van der Krieken, S.E., et al. 2017. C/EBP β is differentially affected by PPAR α agonists fenofibric acid and GW7647, but does not change apolipoprotein A-I production during ER-stress and inflammation. *J. Cell. Biochem.* 118: 754-763.
- Hu, S., et al. 2018. The long noncoding RNA LOC105374325 causes podocyte injury in individuals with focal segmental glomerulosclerosis. *J. Biol. Chem.* 293: 20227-20239.
- Han, R., et al. 2019. Upregulated long noncoding RNA LOC105375913 induces tubulointerstitial fibrosis in focal segmental glomerulosclerosis. *Sci. Rep.* 9: 716.

RESEARCH USE

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