

# C/EBP $\beta$ siRNA (h): sc-29229

## 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  $\beta$  is a member of the C/EBP transcription factor family. The C/EBP  $\beta$  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  $\beta$  isoforms. C/EBP  $\beta$  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  $\beta$  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  $\beta$  gene that has direct implication for acute phase response in liver cells. The C/EBP  $\beta$  form requires phosphorylation for its DNA binding ability, and increase binding of C/EBP  $\beta$  isoforms during acute-phase reaction occurs through its upregulation and structural modification.

## CHROMOSOMAL LOCATION

Genetic locus: CEBPB (human) mapping to 20q13.13.

## PRODUCT

C/EBP  $\beta$  siRNA (h) is a target-specific 19-25 nt siRNA designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see C/EBP  $\beta$  shRNA Plasmid (h): sc-29229-SH and C/EBP  $\beta$  shRNA (h) Lentiviral Particles: sc-29229-V as alternate gene silencing products.

## 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  $\mu$ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330  $\mu$ l of RNase-free water makes a 10  $\mu$ M solution in a 10  $\mu$ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

## APPLICATIONS

C/EBP  $\beta$  siRNA (h) is recommended for the inhibition of C/EBP  $\beta$  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  $\mu$ M in 66  $\mu$ 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  $\beta$  (H-7): sc-7962 is recommended as a control antibody for monitoring of C/EBP  $\beta$  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  $\beta$  gene expression knockdown using RT-PCR Primer: C/EBP  $\beta$  (h)-PR: sc-29229-PR (20  $\mu$ l, 411 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS

- Lu, Y., et al. 2007. PTHrP-induced MCP-1 production by human bone marrow endothelial cells and osteoblasts promotes osteoclast differentiation and prostate cancer cell proliferation and invasion *in vitro*. *Int. J. Cancer* 121: 724-733.
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- Wang, Z.H., et al. 2018. C/EBP  $\beta$  regulates  $\delta$ -secretase expression and mediates pathogenesis in mouse models of Alzheimer's disease. *Nat. Commun.* 9: 1784.
- Sakamoto, A., et al. 2018. Cross-talk between the transcription factor Sp1 and C/EBP $\beta$  modulates TGF $\beta$ 1 production to negatively regulate the expression of chemokine RANTES. *Heliyon* 4: e00679.
- Yamaguchi, R., et al. 2018. Transcription factor specificity protein 1 modulates TGF $\beta$ 1/Smad signaling to negatively regulate SIGIRR expression by human M1 macrophages stimulated with substance P. *Cytokine* 108: 24-36.
- Sasaki, R., et al. 2019. Repression of microRNA-30e by hepatitis C virus enhances fatty acid synthesis. *Hepatol. Commun.* 3: 943-953.
- Zhang, H., et al. 2019. EZH2 targeting reduces medulloblastoma growth through epigenetic reactivation of the BAI1/p53 tumor suppressor pathway. *Oncogene* 39: 1041-1048.

## RESEARCH USE

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