SANTA CRUZ BIOTECHNOLOGY, INC.

USF-1 siRNA (h): sc-36783

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The Power to Question

BACKGROUND

The ubiquitously expressed cellular upstream stimulatory factor (USF) consists of USF-1 and USF-2 polypeptides which independently exhibit site-specific DNA binding and are members of the c-Myc-related family of regulatory factors containing helix-loop-helix domains. USF also contains a leucine repeat that is required for efficient DNA binding. USF was originally identified as an upstream stimulatory factor that binds the core sequence CACGTG in the adenovirus late promoter. These findings, together with the demonstration of cooperative interaction between USF and the initiator-binding protein, TFII-I, raises the possibility of a more general involvement of USF in transcriptional regulation. While expression of both USF-1 and USF-2 species is ubiquitous, different ratios of USF homo- and heterodimers are found in different cell types.

CHROMOSOMAL LOCATION

Genetic locus: USF1 (human) mapping to 1q23.3.

PRODUCT

USF-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 USF-1 shRNA Plasmid (h): sc-36783-SH and USF-1 shRNA (h) Lentiviral Particles: sc-36783-V as alternate gene silencing products.

For independent verification of USF-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-36783A, sc-36783B and sc-36783C.

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

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

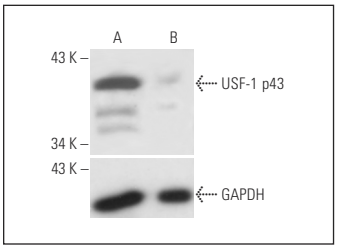
GENE EXPRESSION MONITORING

USF-1 (G-2): sc-390027 is recommended as a control antibody for monitoring of USF-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).

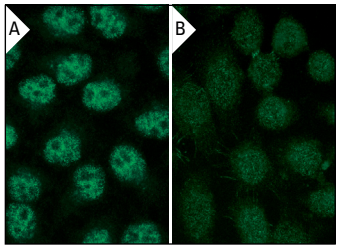
RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor USF-1 gene expression knockdown using RT-PCR Primer: USF-1 (h)-PR: sc-36783-PR (20 µl, 437 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

DATA



USF-1 siRNA (h): sc-36783. Western blot analysis of USF-1 expression in non-transfected control (**A**) and USF-1 siRNA transfected (**B**) HeLa cells. Blot probed with USF-1 (H-86): sc-8983. GAPDH (FL-335): sc-25778 used as specificity and loading control.



USF-1 siRNA (h): sc-36783. Immunofluorescence staining of methanol-fixed, control HeLa (**A**) and USF-1 siRNA silenced HeLa (**B**) cells showing diminished nuclear staining in the siRNA silenced cells. Cells probed with USF-1 (H-86): sc-8983.

SELECT PRODUCT CITATIONS

1. Krones, A., et al. 2001. Cross-talk between the signals hypoxia and glucose at the glucose response element of the L-type pyruvate kinase gene. Endocrinology 142: 2707-2718.
2. Rada-Iglesias, A., et al. 2008. Whole-genome maps of USF1 and USF2 binding and Histone H3 acetylation reveal new aspects of promoter structure and candidate genes for common human disorders. Genome Res. 18: 380-392.
3. Yang, H., et al. 2011. Insulin-like growth factor 1 activates methionine adenosyltransferase 2A transcription by multiple pathways in human colon cancer cells. Biochem. J. 436: 507-516.
4. Viscarra, J.A., et al. 2017. Transcriptional activation of lipogenesis by Insulin requires phosphorylation of MED17 by CK2. Sci. Signal. 10: eaai8596.
5. Kim, K.C., et al. 2018. Suppression of metastasis through inhibition of chitinase 3-like 1 expression by miR-125a-3p-mediated up-regulation of USF1. Theranostics 8: 4409-4428.

RESEARCH USE

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

PROTOCOLS

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