SANTA CRUZ BIOTECHNOLOGY, INC.

CREB3L1 siRNA (h): sc-72995

BACKGROUND

CREB3L1 (cAMP-responsive element-binding protein 3-like protein 1), also designated OASIS (old astrocyte specifically induced substance), is a 519 amino acid transcription factor that activates unfolded protein response target genes during endoplasmic reticulum (ER) stress. CREB3L1 may be specifically involved in the ER-stress response in astrocytes of the central nervous system. CREB3L1 increases inducible NOS1 expression and downregulates ASCT1, a receptor for Syncytin-1, which is highly expressed in glia of individuals affected by multiple scelrosis. CREB3L1 is localized to the ER membrane until the ER undergoes stress, at which point CREB3L1 is cleaved sequentially by proteases SKI-1 and S2P and its N-terminus translocates into the nucleus. There are two isoforms of CREB3L1 that are produced as a result of alternative splicing events.

REFERENCES

1. Honma, Y., et al. 1999. Identification of a novel gene, OASIS, which encodes for a putative CREB/ATF family transcription factor in the long-term cultured astrocytes and gliotic tissue. Brain Res. Mol. Brain Res. 69: 93-103.
2. Omori, Y., et al. 2002. OASIS is a transcriptional activator of CREB/ATF family with a transmembrane domain. Biochem. Biophys. Res. Commun. 293: 470-477.
3. Kondo, S., et al. 2005. OASIS, a CREB/ATF-family member, modulates UPR signalling in astrocytes. Nat. Cell Biol. 7: 186-194.
4. Murakami, T., et al. 2006. Cleavage of the membrane-bound transcription factor OASIS in response to endoplasmic reticulum stress. J. Neurochem. 96: 1090-1100.
5. Saito, A., et al. 2007. A novel ER stress transducer, OASIS, expressed in astrocytes. Antioxid. Redox Signal. 9: 563-571.
6. Panagopoulos, I., et al. 2007. Characterization of the native CREB3L2 transcription factor and the FUS/CREB3L2 chimera. Genes Chromosomes Cancer. 46: 181-191.
7. Antony, J.M., et al. 2007. The human endogenous retrovirus envelope glycoprotein, syncytin-1, regulates neuroinflammation and its receptor expression in multiple sclerosis: a role for endoplasmic reticulum chaperones in astrocytes. J. Immunol. 179: 1210-1224.

CHROMOSOMAL LOCATION

Genetic locus: CREB3L1 (human) mapping to 11p11.2.

PRODUCT

CREB3L1 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 CREB3L1 shRNA Plasmid (h): sc-72995-SH and CREB3L1 shRNA (h) Lentiviral Particles: sc-72995-V as alternate gene silencing products.

For independent verification of CREB3L1 (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-72995A, sc-72995B and sc-72995C.

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

CREB3L1 siRNA (h) is recommended for the inhibition of CREB3L1 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

CREB3L1 (F-8): sc-514635 is recommended as a control antibody for monitoring of CREB3L1 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).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor CREB3L1 gene expression knockdown using RT-PCR Primer: CREB3L1 (h)-PR: sc-72995-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

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.