SANTA CRUZ BIOTECHNOLOGY, INC.

CHAC1 siRNA (m): sc-142310

BACKGROUND

CHAC1 (ChaC, cation transport regulator homolog 1 *(E. coli)*) is a 264 amino acid cytoplasmic protein that belongs to the ChaC family. Induced by chemical activators of the unfolded protein response (UPR) pathway, including DTT, tunicamycin and thapsigargin, CHAC1 is a pro-apoptotic member of this pathway and may mediate the pro-apoptotic effects of the ATF4-ATF3-DDIT3/CHOP cascade. Overexpression of CHAC1 may lead to an increase in apoptosis, while suppression of CHAC1 results in subdued apoptosis. Existing as two alternatively spliced isoforms, the gene encoding CHAC1 maps to human chromosome 15q15.1. Encoding more than 700 genes, chromosome 15 is made up of approximately 106 million base pairs and comprises about 3% of the human genome. Angelman, Prader-Willi and Marfan syndromes are associated with loss of function or deletion of genes that are encoded by chromosome 15.

REFERENCES

1. Midla, G.S. 2008. Diagnosis and management of patients with Marfan syndrome. JAAPA 21: 21-25.
2. Mungrue, I.N., et al. 2009. CHAC1/MGC4504 is a novel proapoptotic component of the unfolded protein response, downstream of the ATF4-ATF3-CHOP cascade. J. Immunol. 182: 466-476.
3. Ferrer-Bolufer, I., et al. 2009. Tyrosinemia type 1 and Angelman syndrome due to paternal uniparental isodisomy 15. J. Inherit. Metab. Dis. 32: S349-S353.
4. Wawrzik, M., et al. 2010. The C15orf2 gene in the Prader-Willi syndrome region is subject to genomic imprinting and positive selection. Neurogenetics 11: 153-161.
5. Bower, N.I. et al. 2010. Discovery and characterization of nutritionally regulated genes associated with muscle growth in Atlantic salmon. Physiol. Genomics 42A: 114-130.
6. Magne, L., et al. 2011. ATF4 and the integrated stress response are induced by ethanol and cytochrome P450 2E1 in human hepatocytes. J. Hepatol. 54: 729-737.

CHROMOSOMAL LOCATION

Genetic locus: Chac1 (mouse) mapping to 2 E5.

PRODUCT

CHAC1 siRNA (m) 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 CHAC1 shRNA Plasmid (m): sc-142310-SH and CHAC1 shRNA (m) Lentiviral Particles: sc-142310-V as alternate gene silencing products.

For independent verification of CHAC1 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-142310A, sc-142310B and sc-142310C.

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

CHAC1 siRNA (m) is recommended for the inhibition of CHAC1 expression in mouse 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor CHAC1 gene expression knockdown using RT-PCR Primer: CHAC1 (m)-PR: sc-142310-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.