

STCH siRNA (m): sc-153884

BACKGROUND

The heat shock proteins (HSPs) comprise a group of highly conserved, abundantly expressed proteins with diverse functions, which include the assembly and sequestering of multiprotein complexes, transportation of nascent polypeptide chains across cellular membranes and regulation of protein folding. Heat shock proteins (also known as molecular chaperones) fall into six general families: HSP 90, HSP 70, HSP 60, the low molecular weight HSPs, the immunophilins and the HSP 105 family. STCH, also known as HSPA13 (heat shock 70 kDa protein, member 13) or microsomal stress 70 protein ATPase core, is a 471 amino acid protein belonging to the HSP 70 protein family. Localized to the Endoplasmic Reticulum, STCH has peptide-independent ATPase activity. Fundamentally expressed in all tissues, STCH has been found to interact with PLIC-1 and PLIC-2, proteins involved in the signaling connection between the membrane receptors for Thrombospondin and the cytoskeleton.

REFERENCES

- Georgopoulos, C. and Welch, W.J. 1993. Role of the major heat shock proteins as molecular chaperones. *Annu. Rev. Cell Biol.* 9: 601-634.
- Otterson, G.A., Flynn, G.C., Kratzke, R.A., Coxon, A., Johnston, P.G. and Kaye, F.J. 1994. Stch encodes the "ATPase core" of a microsomal stress 70 protein. *EMBO J.* 13: 1216-1225.
- Todd, M.J., Viitanen, P.V. and Lorimer, G.H. 1994. Dynamics of the chaperonin ATPase cycle: implications for facilitated protein folding. *Science* 265: 659-666.
- Brodsky, G., Otterson, G.A., Parry, B.B., Hart, I., Patterson, D. and Kaye, F.J. 1995. Localization of STCH to human chromosome 21q11.1. *Genomics* 30: 627-628.
- Online Mendelian Inheritance in Man, OMIM[™]. 1999. Johns Hopkins University, Baltimore, MD. MIM Number: 601100. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
- Kaye, F.J., Modi, S., Ivanovska, I., Koonin, E.V., Thress, K., Kubo, A., Kornbluth, S. and Rose, M.D. 2000. A family of ubiquitin-like proteins binds the ATPase domain of Hsp70-like Stch. *FEBS Lett.* 467: 348-355.
- Chouchane, L., Danguir, J., Beji, C., Bouassida, K., Camoin, L., Sfar, H., Gabbouj, S. and Strosberg, A.D. 2001. Genetic variation in the stress protein HSP 70-2 gene is highly associated with obesity. *Int. J. Obes. Relat. Metab. Disord.* 25: 462-466.
- Aoki, M., Yamamoto, K., Ohyama, S., Yamamura, Y., Takenoshita, S., Sugano, K., Minamoto, T., Kitajima, M., Sugimura, H., Shimada, S., Noshiro, H., Hiratsuka, M., Sairenji, M., Ninomiya, I., Yano, M., et al. 2005. A genetic variant in the gene encoding the stress70 protein chaperone family member STCH is associated with gastric cancer in the Japanese population. *Biochem. Biophys. Res. Commun.* 335: 566-574.
- Yamagata, N., Furuno, K., Sonoda, M., Sugimura, H. and Yamamoto, K. 2008. Stomach cancer-derived del223V-226L mutation of the STCH gene causes loss of sensitization to TRAIL-mediated apoptosis. *Biochem. Biophys. Res. Commun.* 376: 499-503.

CHROMOSOMAL LOCATION

Genetic locus: Hspa13 (mouse) mapping to 16 C3.1.

PRODUCT

STCH 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see STCH shRNA Plasmid (m): sc-153884-SH and STCH shRNA (m) Lentiviral Particles: sc-153884-V as alternate gene silencing products.

For independent verification of STCH (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-153884A, sc-153884B and sc-153884C.

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

STCH siRNA (m) is recommended for the inhibition of STCH 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 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor STCH gene expression knockdown using RT-PCR Primer: STCH (m)-PR: sc-153884-PR (20 μ l). 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.