SANTA CRUZ BIOTECHNOLOGY, INC.

LATS1 siRNA (h): sc-35797

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The Power to Question

BACKGROUND

The *Drosophila* tumor suppressor protein lats (for large tumor suppressor) is a putative protein kinase that shares homology with three proteins in *Neurospora* and budding yeast that are involved in cell cycle and growth regulation: *S. cerevisiae* Dbf2 and Dbf20, and *Neurospora* cot-1. Mosaic screens in *Drosophila* have identified the lats gene as a tumor suppressor in this species. The human homolog, designated LATS1, was shown to inhibit tumor growth in lats-deficient *Drosophila*. Human LATS1 binds to Cdc2 in early mitosis and appears to negatively regulate the kinase activity of Cdc2. LATS1-deficient mice are highly sensitive to carcinogenic treatments and develop soft-tissue sarcomas and ovarian stromal cell tumors, indicating a role for mammalian LATS1 in tumorigenesis.

CHROMOSOMAL LOCATION

Genetic locus: LATS1 (human) mapping to 6q25.1.

PRODUCT

LATS1 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 LATS1 shRNA Plasmid (h): sc-35797-SH and LATS1 shRNA (h) Lentiviral Particles: sc-35797-V as alternate gene silencing products.

For independent verification of LATS1 (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-35797A, sc-35797B and sc-35797C.

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

LATS1 siRNA (h) is recommended for the inhibition of LATS1 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

LATS1 (G-12): sc-398560 is recommended as a control antibody for monitoring of LATS1 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 LATS1 gene expression knockdown using RT-PCR Primer: LATS1 (h)-PR: sc-35797-PR (20 µl, 526 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Lin, X.Y., et al. 2014. Expression of LATS1 contributes to good prognosis and can negatively regulate YAP oncoprotein in non-small-cell lung cancer. Tumour Biol. 35: 6435-6443.
2. Soyama, H., et al. 2017. Ovarian serous carcinomas acquire cisplatin resistance and increased invasion through downregulation of the high-temperature-required protein A2 (HtrA2), following repeated treatment with cisplatin. Med. Oncol. 34: 201.
3. Lachowski, D., et al. 2018. FAK controls the mechanical activation of YAP, a transcriptional regulator required for durotaxis. FASEB J. 32: 1099-1107.
4. Han, Q., et al. 2018. WWC3 inhibits epithelial-mesenchymal transition of lung cancer by activating Hippo-YAP signaling. Onco Targets Ther. 11: 2581-2591.
5. Yang, C., et al. 2019. SCC-S2 facilitates tumor proliferation and invasion via activating Wnt signaling and depressing Hippo signaling in colorectal cancer cells and predicts poor prognosis of patients. J. Histochem. Cytochem. 67: 65-75.
6. Rong, X., et al. 2019. Molecular mechanisms of tyrosine kinase inhibitor resistance induced by membranous/cytoplasmic/nuclear translocation of epidermal growth factor receptor. J. Thorac. Oncol. 14: 1766-1783.
7. Han, X., et al. 2020. Programmable synthetic protein circuits for the identification and suppression of hepatocellular carcinoma. Mol. Ther. Oncolytics 17: 70-82.
8. Kasturirangan, S., et al. 2021. LATS1 regulates mixed-lineage kinase 3 (MLK3) subcellular localization and MLK3-mediated invasion in ovarian epithelial cells. Mol. Cell. Biol. 41: e0007821.
9. Yang, J. and Ding, S. 2021. Chimeric RNA-binding protein-based killing switch targeting hepatocellular carcinoma cells. Mol. Ther. Nucleic Acids. 25: 683-695.
10. Mao, J., et al. 2021. LncRNA HCG11 mediated by METTL14 inhibits the growth of lung adenocarcinoma via IGF2BP2/LATS1. Biochem. Biophys. Res. Commun. 580: 74-80.

RESEARCH USE

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