

GLI-1 siRNA (h): sc-37911

BACKGROUND

Zinc-finger proteins contain DNA-binding domains and have a wide variety of functions, most of which encompass some form of transcriptional activation or repression. The majority of zinc-finger proteins contain a Krüppel-type DNA binding domain and a KRAB domain, which is thought to interact with KAP1, thereby recruiting histone modifying proteins. GLI-1 (GLI family zinc finger 1), also known as glioma-associated oncogene or oncogene GLI, is a 1,106 amino acid protein that localizes to both the cytoplasm and nucleus, and belongs to the GLI C₂H₂-type zinc-finger protein family. GLI-1 acts as a transcriptional activator and is thought to play a role in craniofacial development. GLI-1 exists as two alternatively spliced isoforms and is encoded by a gene that maps to human chromosome 12q13.3.

CHROMOSOMAL LOCATION

Genetic locus: GLI1 (human) mapping to 12q13.3.

PRODUCT

GLI-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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see GLI-1 shRNA Plasmid (h): sc-37911-SH and GLI-1 shRNA (h) Lentiviral Particles: sc-37911-V as alternate gene silencing products.

For independent verification of GLI-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-37911A, sc-37911B and sc-37911C.

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

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

GENE EXPRESSION MONITORING

GLI-1 (C-1): sc-515751 is recommended as a control antibody for monitoring of GLI-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 GLI-1 gene expression knockdown using RT-PCR Primer: GLI-1 (h)-PR: sc-37911-PR (20 μ l, 467 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

- Zhou, H., et al. 2012. B4GALT1 gene knockdown inhibits the hedgehog pathway and reverses multidrug resistance in the human leukemia K562/adriamycin-resistant cell line. *IUBMB Life* 64: 889-900.
- Gai, X., et al. 2014. Caveolin-1 is up-regulated by GLI1 and contributes to GLI1-driven EMT in hepatocellular carcinoma. *PLoS ONE* 9: e84551.
- Gai, X., et al. 2015. Histone acetyltransferase PCAF accelerates apoptosis by repressing a GLI1/BCL2/BAX axis in hepatocellular carcinoma. *Cell Death Dis.* 6: e1712.
- Wang, Y., et al. 2016. Hedgehog signaling non-canonically activated by pro-inflammatory cytokines in pancreatic ductal adenocarcinoma. *J. Cancer* 7: 2067-2076.
- Du, J., et al. 2017. Disruption of SHH signaling cascade by SBE attenuates lung cancer progression and sensitizes DDP treatment. *Sci. Rep.* 7: 1899.
- Yan, Y., et al. 2017. Resveratrol inhibits hepatocellular carcinoma progression driven by hepatic stellate cells by targeting GLI-1. *Mol. Cell. Biochem.* 434: 17-24.
- Kim, H., et al. 2019. Repurposing penfluridol in combination with temozolomide for the treatment of glioblastoma. *Cancers* 11: 1310.
- Zhang, Q., et al. 2019. Genistein inhibits nasopharyngeal cancer stem cells through sonic hedgehog signaling. *Phytother. Res.* 33: 2783-2791.
- Park, S.H., et al. 2020. Activating CCT2 triggers GLI-1 activation during hypoxic condition in colorectal cancer. *Oncogene* 39: 136-150.
- Kim, B.R., et al. 2020. RUNX3 suppresses metastasis and stemness by inhibiting Hedgehog signaling in colorectal cancer. *Cell Death Differ.* 27: 676-694.
- Sun, X., et al. 2020. Cigarette smoke supports stemness and epithelial-mesenchymal transition in bladder cancer stem cells through SHH signaling. *Int. J. Clin. Exp. Pathol.* 13: 1333-1348.
- Zhang, F., et al. 2021. Reregulation of hepatic stellate cell contraction and cirrhotic portal hypertension by Wnt/ β -catenin signaling via interaction with GLI-1. *Br. J. Pharmacol.* 178: 2246-2265.

RESEARCH USE

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