SANTA CRUZ BIOTECHNOLOGY, INC.

Sprouty 2 siRNA (h): sc-41037

BACKGROUND

Members of the Sprouty family (Sprouty 1-4) are inducible negative regulators of growth factors that act through tyrosine kinase receptors. Mammalian Sprouty homologs share a well-conserved cysteine-rich C-terminal domain with their *Drosophila* counterparts. Both Sprouty 1 and 2 are anchored to membranes by palmitoylation, associate with caveolin-1 in perinuclear and vesicular structures and are phosphorylated on Serine residues. Upon stimulation, a subset is recruited to the leading edge of the plasma membrane. Sprouty 2 can associate with c-Cbl, a down regulator of RTK signaling, and inhibits the activities of several growth factors. Sprouty 2 also functions as a negative regulator of embryonic lung morphogenesis and growth. The well-conserved C-terminus of Sprouty contains two domains which are necessary for Sprouty 2 co-localization with microtubules and translocation to membrane ruffles. In addition, the C-terminus is required for the inhibition of cell migration and proliferation. In conclusion, members of Sprouty inhibit FGF and VEGF-mediated cell proliferation, suggesting that they may regulate angiogenesis in normal and disease processes.

REFERENCES

1. Lim, J., et al. 2000. Sprouty proteins are targeted to membrane ruffles upon growth factor receptor tyrosine kinase activation. Identification of a novel translocation domain. J. Biol. Chem. 275: 32837-32845.
2. Ozaki, K., et al. 2001. ERK pathway positively regulates the expression of Sprouty genes. Biochem. Biophys. Res. Commun. 285: 1084-1088.

CHROMOSOMAL LOCATION

Genetic locus: SPRY2 (human) mapping to 13q31.1.

PRODUCT

Sprouty 2 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 Sprouty 2 shRNA Plasmid (h): sc-41037-SH and Sprouty 2 shRNA (h) Lentiviral Particles: sc-41037-V as alternate gene silencing products.

For independent verification of Sprouty 2 (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-41037A, sc-41037B and sc-41037C.

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.

RESEARCH USE

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

APPLICATIONS

Sprouty 2 siRNA (h) is recommended for the inhibition of Sprouty 2 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

Sprouty 2 (SQ-5): sc-100862 is recommended as a control antibody for monitoring of Sprouty 2 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 Sprouty 2 gene expression knockdown using RT-PCR Primer: Sprouty 2 (h)-PR: sc-41037-PR (20 µl, 476 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Holgren, C., et al. 2010. Sprouty 2 controls c-Met expression and metastatic potential of colon cancer cells: sprouty/c-Met upregulation in human colonic adenocarcinomas. Oncogene 29: 5241-5253.
2. Sharma, B., et al. 2012. Sprouty proteins are negative regulators of interferon (IFN) signaling and IFN-inducible biological responses. J. Biol. Chem. 287: 42352-42360.
3. Ramsdale, R., et al. 2015. The transcription cofactor c-Jun mediates phenotype switching and BRAF inhibitor resistance in melanoma. Sci. Signal. 8: ra82.
4. Tan, X., et al. 2016. Sprouty 2 suppresses epithelial-mesenchymal transition of human lens epithelial cells through blockade of Smad2 and ERK1/2 pathways. PLoS ONE 11: e0159275.
5. Zhang, Q., et al. 2016. Atypical role of sprouty in p21 dependent inhibition of cell proliferation in colorectal cancer. Mol. Carcinog. 55: 1355-1368.
6. Liu, K., et al. 2021. Exosomal miR-27 negatively regulates ROS production and promotes granulosa cells apoptosis by targeting SPRY2 in OHSS. J. Cell. Mol. Med. 25: 3976-3990.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.