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STC1 shRNA (m) Lentiviral Particles: sc-44871-V

BACKGROUND

Stanniocalcin 1 (STC1) and stanniocalcin 2 (STC2) are mammalian peptide hormones that were previously considered to be present only in bony fish, where they are involved in calcium homeostasis. STC1 plays a role in calcium and phosphate homeostasis and is phosphorylated *in vitro* by protein kinase C, and STC2 is phosphorylated *in vitro* by casein kinase II (CK2). A human fibrosarcoma cell line, HT1080, expresses both STC1 and STC2 as secreted phosphoproteins *in vivo*, with STC2 being phosphorylated by an ecto-CK2-like enzyme. STC1 and STC2 have opposite effects on calcium and phosphate homeostasis, namely anti-hypercalcemic and anti-hypocalcemic actions, respectively. STC1 and STC2 are detected in human adrenal tumors, such as pheochromocytoma, differentiated neuroblastoma aldosterone-producing adenoma, and in cultured adrenal tumor cells (rat pheochromocytoma PC-12 cells and human neuroblastoma NB-1 cells).

REFERENCES

1. Chang, A.C., et al. 1998. Identification of a second stanniocalcin cDNA in mouse and human: stanniocalcin 2. *Mol. Cell. Endocrinol.* 141: 95-99.
2. Honda, S., et al. 1999. Regulation by 1 α ,25-dihydroxyvitamin D3 of expression of stanniocalcin messages in the rat kidney and ovary. *FEBS Lett.* 459: 119-122.
3. Jellinek, D.A., et al. 2000. Stanniocalcin 1 and 2 are secreted as phosphoproteins from human fibrosarcoma cells. *Biochem. J.* 350: 453-461.
4. Miura, W., et al. 2000. Expression of stanniocalcin in zona glomerulosa and medulla of normal human adrenal glands, and some adrenal tumors and cell lines. *APMIS* 108: 367-372.
5. Stasko, S.E., et al. 2001. Stanniocalcin gene expression during mouse urogenital development: a possible role in mesenchymal-epithelial signalling. *Dev. Dyn.* 220: 49-59.

CHROMOSOMAL LOCATION

Genetic locus: *Stc1* (mouse) mapping to 14 D2.

PRODUCT

STC1 shRNA (m) Lentiviral Particles is a pool of concentrated, transduction-ready viral particles containing 3 target-specific constructs that encode 19-25 nt (plus hairpin) shRNA designed to knock down gene expression. Each vial contains 200 μ l frozen stock containing 1.0×10^6 infectious units of virus (IFU) in Dulbecco's Modified Eagle's Medium with 25 mM HEPES pH 7.3. Suitable for 10-20 transductions. Also see STC1 siRNA (m): sc-44871 and STC1 shRNA Plasmid (m): sc-44871-SH as alternate gene silencing products.

STORAGE

Store lentiviral particles at -80° C. Stable for at least one year from the date of shipment. Once thawed, particles can be stored at 4° C for up to one week. Avoid repeated freeze thaw cycles.

PROTOCOLS

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

APPLICATIONS

STC1 shRNA (m) Lentiviral Particles is recommended for the inhibition of STC1 expression in mouse cells.

SUPPORT REAGENTS

Control shRNA Lentiviral Particles: sc-108080. Available as 200 μ l frozen viral stock containing 1.0×10^6 infectious units of virus (IFU); contains an shRNA construct encoding a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA.

GENE EXPRESSION MONITORING

STC1 (N-15): sc-14346 is recommended as a control antibody for monitoring of STC1 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).

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor STC1 gene expression knockdown using RT-PCR Primer: STC1 (m)-PR: sc-44871-PR (20 μ l). Annealing temperature for the primers should be $55-60^\circ$ C and the extension temperature should be $68-72^\circ$ C.

BIOSAFETY

Lentiviral particles can be employed in standard Biosafety Level 2 tissue culture facilities (and should be treated with the same level of caution as with any other potentially infectious reagent). Lentiviral particles are replication-incompetent and are designed to self-inactivate after transduction and integration of shRNA constructs into genomic DNA of target cells.

RESEARCH USE

The purchase of this product conveys to the buyer the nontransferable right to use the purchased amount of the product and all replicates and derivatives for research purposes conducted by the buyer in his laboratory only (whether the buyer is an academic or for-profit entity). The buyer cannot sell or otherwise transfer (a) this product (b) its components or (c) materials made using this product or its components to a third party, or otherwise use this product or its components or materials made using this product or its components for Commercial Purposes.