SANTA CRUZ BIOTECHNOLOGY, INC.

SUMF2 siRNA (h): sc-89517

BACKGROUND

Sulfatases are enzymes that remove sulfate residues from a variety of substrates via the hydrolysis of sulfate esters. In order to function properly, sulfatases require the presence of Cα-formylglycine (FGly), a unique amino acid, in their active site. This amino acid is synthesized by enzymes that use a cysteine to posttranslationally generate FGly. SUMF2 (sulfatase-modifying factor 2), also known as pFGE or PSEC0171, is a 301 amino acid protein that belongs to the sulfatase-modifying factor family and is expressed in lung, heart, placenta, brain, liver, pancreas, skeletal muscle and kidney. Localized to the lumen of the endoplasmic reticulum (ER), SUMF2 acts as an FGly-generating enzyme that, when functioning alone, has low catalytic activity. When present in a heterodimer with SUMF1 (another FGly-generating protein), SUMF2 exhibits higher rates of catalysis. Four isoforms of SUMF2 are expressed due to alternative splicing events.

REFERENCES

1. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 607940. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
2. Landgrebe, J., et al. 2003. The human SUMF1 gene, required for post-translational sulfatase modification, defines a new gene family which is conserved from pro- to eukaryotes. Gene 316: 47-56.
3. Dierks, T., et al. 2003. Multiple sulfatase deficiency is caused by mutations in the gene encoding the human Cα-formylglycine generating enzyme. Cell 113: 435-444.
4. Cosma, M.P., et al. 2003. The multiple sulfatase deficiency gene encodes an essential and limiting factor for the activity of sulfatases. Cell 113: 445-456.
5. Mariappan, M., et al. 2005. Expression, localization, structural, and functional characterization of pFGE, the paralog of the Cα-formylglycine-generating enzyme. J. Biol. Chem. 280: 15173-15179.
6. Dickmanns, A., et al. 2005. Crystal structure of human pFGE, the paralog of the Cα-formylglycine-generating enzyme. J. Biol. Chem. 280: 15180-15187.

CHROMOSOMAL LOCATION

Genetic locus: SUMF2 (human) mapping to 7p11.2.

PRODUCT

SUMF2 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 SUMF2 shRNA Plasmid (h): sc-89517-SH and SUMF2 shRNA (h) Lentiviral Particles: sc-89517-V as alternate gene silencing products.

For independent verification of SUMF2 (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-89517A, sc-89517B and sc-89517C.

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

SUMF2 siRNA (h) is recommended for the inhibition of SUMF2 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

SUMF2 (D-3): sc-393119 is recommended as a control antibody for monitoring of SUMF2 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 reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor SUMF2 gene expression knockdown using RT-PCR Primer: SUMF2 (h)-PR: sc-89517-PR (20 µl). 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.

PROTOCOLS

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