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SPP siRNA (h): sc-45549

BACKGROUND

The endoplasmic reticulum exerts a quality control over newly synthesized proteins and a variety of components have been implicated in the specific recognition of aberrant or misfolded polypeptides. Signal peptide peptidase (SPP) catalyzes intramembrane proteolysis of some signal peptides after they have been cleaved from a preprotein, resulting in the release of the fragment from the ER membrane into the cytoplasm. SPP is required to generate lymphocyte cell surface (HLA-E) epitopes derived from MHC class I signal peptides, and may play a role in graft rejection. It also may be necessary for the removal of the signal peptide that remains attached to the hepatitis C virus core protein after the initial proteolytic processing of the polyprotein.

REFERENCES

1. Crawshaw, S.G., et al. 2004. A misassembled transmembrane domain of a polytopic protein associates with signal peptide peptidase. *Biochem. J.* 384: 9-17.
2. Nyborg, A.C., et al. 2004. A signal peptide peptidase (SPP) reporter activity assay based on the cleavage of type II membrane protein substrates provides further evidence for an inverted orientation of the SPP active site relative to presenilin. *J. Biol. Chem.* 279: 43148-43156.
3. Friedmann, E., et al. 2004. Consensus analysis of signal peptide peptidase and homologous human aspartic proteases reveals opposite topology of catalytic domains compared with presenilins. *J. Biol. Chem.* 279: 50790-50798.
4. Okamoto, K., et al. 2004. Intramembrane proteolysis and endoplasmic reticulum retention of hepatitis C virus core protein. *J. Virol.* 78: 6370-6380.
5. Casso, D.J., et al. 2005. *Drosophila* signal peptide peptidase is an essential protease for larval development. *Genetics* 170: 139-148.
6. Majeau, N., et al. 2005. Signal peptide peptidase promotes the formation of hepatitis C virus non-enveloped particles and is captured on the viral membrane during assembly. *J. Gen. Virol.* 86: 3055-3064.

CHROMOSOMAL LOCATION

Genetic locus: HM13 (human) mapping to 20q11.21.

PRODUCT

SPP 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 SPP shRNA Plasmid (h): sc-45549-SH and SPP shRNA (h) Lentiviral Particles: sc-45549-V as alternate gene silencing products.

For independent verification of SPP (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-45549A, sc-45549B and sc-45549C.

PROTOCOLS

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

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

SPP siRNA (h) is recommended for the inhibition of SPP 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor SPP gene expression knockdown using RT-PCR Primer: SPP (h)-PR: sc-45549-PR (20 μ l, 581 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Hsu, F.F., et al. 2019. Signal peptide peptidase promotes tumor progression via facilitating FKBP8 degradation. *Oncogene* 38: 1688-1701.

RESEARCH USE

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