SANTA CRUZ BIOTECHNOLOGY, INC.

SPPL3 siRNA (h): sc-96234

BACKGROUND

Intramembrane proteolysis is now widely recognized as an important physiological pathway required for reverse signaling and membrane protein degradation. Aspartyl intramembrane cleaving proteases of the GXGD-type play an important regulatory role in health and disease. Signal peptide peptidase (SPP) and SPP-like (SPPL) peptidases belong to the family of GXGD-type aspartyl proteases. SPPL3 (signal peptide peptidase 3), also known as IMP2 (intramembrane protease 2), PSL4, PRO4332 or UNQ1887, is a 385 amino acid multi-pass membrane protein belonging to the peptidase A22B family. Existing as three isoforms, SPPL3 may act as intramembrane protease. SPPL3 is encoded by a gene located on human chromosome 12, which encodes over 1,100 genes and comprises approximately 4.5% of the human genome.

REFERENCES

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2. Weihofen, A., et al. 2002. Identification of signal peptide peptidase, a presenilin-type aspartic protease. Science 296: 2215-2218.
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. Krawitz, P., et al. 2005. Differential localization and identification of a critical aspartate suggest non-redundant proteolytic functions of the presenilin homologues SPPL2b and SPPL3. J. Biol. Chem. 280: 39515-39523.
5. Nyborg, A.C., et al. 2006. Intra-membrane proteolytic cleavage by human signal peptide peptidase like 3 and malaria signal peptide peptidase. FASEB J. 20: 1671-1679.
6. Friedmann, E., et al. 2006. SPPL2a and SPPL2b promote intramembrane proteolysis of TNFα in activated dendritic cells to trigger IL-12 production. Nat. Cell Biol. 8: 843-848.
7. Fluhrer, R., et al. 2006. A gamma-secretase-like intramembrane cleavage of TNFalpha by the GxGD aspartyl protease SPPL2b. Nat. Cell Biol. 8: 894-896.

CHROMOSOMAL LOCATION

Genetic locus: SPPL3 (human) mapping to 12q24.31.

PRODUCT

SPPL3 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 SPPL3 shRNA Plasmid (h): sc-96234-SH and SPPL3 shRNA (h) Lentiviral Particles: sc-96234-V as alternate gene silencing products.

For independent verification of SPPL3 (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-96234A, sc-96234B and sc-96234C.

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

SPPL3 siRNA (h) is recommended for the inhibition of SPPL3 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor SPPL3 gene expression knockdown using RT-PCR Primer: SPPL3 (h)-PR: sc-96234-PR (20 µl, 589 bp). 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.