

SPPL3 (T-13): sc-161229

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, PRQ4332 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

1. Grigorenko, A.P., Moliaka, Y.K., Korovaitseva, G.I. and Rogae, E.I. 2002. Novel class of polytopic proteins with domains associated with putative protease activity. *Biochemistry Mosc.* 67: 826-835.
2. Weihofen, A., Binns, K., Lemberg, M.K., Ashman, K. and Martoglio, B. 2002. Identification of signal peptide peptidase, a presenilin-type aspartic protease. *Science* 296: 2215-2218.
3. Friedmann, E., Lemberg, M.K., Weihofen, A., Dev, K.K., Dengler, U., Rovelli, G. and Martoglio, B. 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., Haffner, C., Fluhrer, R., Steiner, H., Schmid, B. and Haass, C. 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., Ladd, T.B., Jansen, K., Kukar, T. and Golde, T.E. 2006. Intramembrane proteolytic cleavage by human signal peptide peptidase like 3 and malaria signal peptide peptidase. *FASEB J.* 20: 1671-1679.
6. Friedmann, E., Hauben, E., Maylandt, K., Schleege, S., Vreugde, S., Lichtenthaler, S.F., Kuhn, P.H., Stauffer, D., Rovelli, G. and Martoglio, B. 2006. SPPL2a and SPPL2b promote intramembrane proteolysis of TNF α in activated dendritic cells to trigger IL-12 production. *Nat. Cell Biol.* 8: 843-848.
7. Fluhrer, R., Grammer, G., Israel, L., Condrón, M.M., Haffner, C., Friedmann, E., Böhländ, C., Imhof, A., Martoglio, B., Teplow, D.B. and Haass, C. 2006. A γ -secretase-like intramembrane cleavage of TNF α by the GxGD aspartyl protease SPPL2b. *Nat. Cell Biol.* 8: 894-896.
8. Fluhrer, R. and Haass, C. 2007. Signal peptide peptidases and γ -secretase: cousins of the same protease family? *Neurodegener. Dis.* 4: 112-116.
9. Martin, L., Fluhrer, R., Reiss, K., Kremmer, E., Saftig, P. and Haass, C. 2008. Regulated intramembrane proteolysis of Bri2 (Itm2b) by ADAM10 and SPPL2a/SPPL2b. *J. Biol. Chem.* 283: 1644-1652.

CHROMOSOMAL LOCATION

Genetic locus: UNQ1887 (human) mapping to 12q24.31; Sppl3 (mouse) mapping to 5 F.

SOURCE

SPPL3 (T-13) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of SPPL3 of human origin.

PRODUCT

Each vial contains 200 μ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-161229 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

SPPL3 (T-13) is recommended for detection of SPPL3 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000); non cross-reactive with SPPL2a or SPPL2b.

SPPL3 (T-13) is also recommended for detection of SPPL3 in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for SPPL3 siRNA (h): sc-96234, SPPL3 siRNA (m): sc-153781, SPPL3 shRNA Plasmid (h): sc-96234-SH, SPPL3 shRNA Plasmid (m): sc-153781-SH, SPPL3 shRNA (h) Lentiviral Particles: sc-96234-V and SPPL3 shRNA (m) Lentiviral Particles: sc-153781-V.

Molecular Weight of SPPL3: 43 kDa.

RECOMMENDED SECONDARY REAGENTS

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.

STORAGE

Store at 4° C, ****DO NOT FREEZE****. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

RESEARCH USE

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

PROTOCOLS

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