SANTA CRUZ BIOTECHNOLOGY, INC.

PSMD2 siRNA (h): sc-62900

BACKGROUND

In eukaryotic cells, selective breakdown of cellular proteins is ensured by their ubiquitination and subsequent degradation by the 26S Proteasome. The 26S Proteasome is a protease complex that selectively breaks down proteins that have been modified by polyubiquitin chains. It is made up of two multisubunit complexes: the 20S Proteasome chamber, which serves as the proteolytic core of the complex, and two 19S regulatory particles which recognize and unfold ubiquitinated proteins. PSMD2 (proteasome (prosome, macropain) 26S subunit, non-ATPase 2), also known as S2, TRAP2 (tumor necrosis factor type 1 receptor-associated protein 2) or p97, is a regulatory component of the 26S Proteasome. It is expressed in skeletal muscle, brain, liver, placenta, kidney, pancreas, lung and heart. PSMD2 is one of the non-ATPase regulatory subunits of the 19S regulator lid and is implicated in substrate recognition and binding.

REFERENCES

1. Tsurumi, C., et al. 1996. cDNA cloning and functional analysis of the p97 subunit of the 26S Proteasome, a polypeptide identical to the type 1 tumor-necrosis-factor-receptor-associated protein-2/55.11. Eur. J. Biochem. 239: 912-921.
2. Hampton, R.Y., et al. 1996. Role of 26S Proteasome and HRD genes in the degradation of 3-hydroxy-3-methylglutaryl-CoA reductase, an integral endoplasmic reticulum membrane protein. Mol. Biol. Cell 7: 2029-2044.
3. Wilkinson, C.R., et al. 1997. Mts4, a non-ATPase subunit of the 26S Protease in fission yeast is essential for mitosis and interacts directly with the ATPase subunit Mts2. J. Biol. Chem. 272: 25768-25777.
4. Dunbar, J.D., et al. 1997. Two-hybrid cloning of a gene encoding TNF receptor-associated protein 2, a protein that interacts with the intracellular domain of the type 1 TNF receptor: identity with subunit 2 of the 26S Protease. J. Immunol. 158: 4252-4259.
5. Tan, Y., et al. 2006. Effects of tumor necrosis factor-alpha on the 26S Proteasome and 19S regulator in skeletal muscle of severely scalded mice. J. Burn Care Res. 27: 226-233.
6. Oberdorf, J., et al. 2006. Uncoupling proteasome peptidase and ATPase activities results in cytosolic release of an ER polytopic protein. J. Cell Sci. 119: 303-313.

CHROMOSOMAL LOCATION

Genetic locus: PSMD2 (human) mapping to 3q27.1.

PRODUCT

PSMD2 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 PSMD2 shRNA Plasmid (h): sc-62900-SH and PSMD2 shRNA (h) Lentiviral Particles: sc-62900-V as alternate gene silencing products.

For independent verification of PSMD2 (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-62900A, sc-62900B and sc-62900C.

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

PSMD2 siRNA (h) is recommended for the inhibition of PSMD2 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

PSMD2 (A-11): sc-271775 is recommended as a control antibody for monitoring of PSMD2 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 PSMD2 gene expression knockdown using RT-PCR Primer: PSMD2 (h)-PR: sc-62900-PR (20 µl, 597 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Njomen, E. and Tepe, J.J. 2019. Regulation of autophagic flux by the 20S Proteasome. Cell Chem. Biol. 26: 1283-1294.

RESEARCH USE

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