SANTA CRUZ BIOTECHNOLOGY, INC.

PSMC1 siRNA (h): sc-92427

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. PSMC1 (proteasome (prosome, macropain) 26S subunit, ATPase, 1), also known as S4, p56 or P26S4, is a 440 amino acid protein that belongs to the AAA ATPase family. Localized to both the nucleus and the cytoplasm, PSMC1 interacts with PNGase and is involved in controlling proteasome activity, as well as viral replication. Human PSMC1 shares 99% amino acid identity with its mouse counterpart, suggesting a conserved role between species.

REFERENCES

1. Dubiel, W., et al. 1992. Subunit 4 of the 26 S protease is a member of a novel eukaryotic ATPase family. J. Biol. Chem. 267: 22699-22702.
2. Hoyle, J. and Fisher, E.M. 1996. Genomic organization and mapping of the mouse P26s4 ATPase gene: a member of the remarkably conserved AAA gene family. Genomics 31: 115-118.
3. Tanahashi, N., et al. 1998. Chromosomal localization and immunological analysis of a family of human 26S proteasomal ATPases. Biochem. Biophys. Res. Commun. 243: 229-232.
4. Zhang, Z., et al. 2000. Structural and functional characterization of interaction between hepatitis B virus X protein and the proteasome complex. J. Biol. Chem. 275: 15157-15165.
5. Salm, S.N., et al. 2000. Transforming growth factor-β is an autocrine mitogen for a novel androgen-responsive murine prostatic smooth muscle cell line, PSMC1. J. Cell. Physiol. 185: 416-424.
6. Matilla, A., et al. 2001. Association of ataxin-7 with the proteasome subunit S4 of the 19S regulatory complex. Hum. Mol. Genet. 10: 2821-2831.

CHROMOSOMAL LOCATION

Genetic locus: PSMC1 (human) mapping to 14q32.11.

PRODUCT

PSMC1 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 PSMC1 shRNA Plasmid (h): sc-92427-SH and PSMC1 shRNA (h) Lentiviral Particles: sc-92427-V as alternate gene silencing products.

For independent verification of PSMC1 (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-92427A, sc-92427B and sc-92427C.

RESEARCH USE

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

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

PSMC1 siRNA (h) is recommended for the inhibition of PSMC1 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 PSMC1 gene expression knockdown using RT-PCR Primer: PSMC1 (h)-PR: sc-92427-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Oliveri, F., et al. 2023. The ubiquitin-like modifier FAT10 is degraded by the 20S Proteasome *in vitro* but not in cellulo. Life Sci. Alliance 6: e202201760.

PROTOCOLS

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