

# PSMB11 siRNA (h): sc-92455

## 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 multi-subunit 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. The 20S Proteasome chamber contains  $\alpha$  subunits (which are structural) and  $\beta$  subunits (which are predominantly catalytic). The outer two rings in the proteasome consist of seven  $\alpha$  subunits each, and the inner two rings each consist of seven  $\beta$  subunits. PSMB11 (Proteasome subunit  $\beta$  type-11), also known as BETA5T (Proteasome subunit  $\beta$ -5t) is a 300 amino acid protein that plays an important role in CD8-positive T-cells and reduces chymotrypsin-like activity in proteasomes.

## REFERENCES

1. Orlowski, M., et al. 1997. Reactions of [14C]-3,4-dichloroisocoumarin with subunits of pituitary and spleen multicatalytic proteinase complexes (proteasomes). *Biochemistry* 36: 13946-13953.
2. Nandi, D., et al. 1997. Intermediates in the formation of mouse 20S proteasomes: implications for the assembly of precursor  $\beta$  subunits. *EMBO J.* 16: 5363-5375.
3. McCusker, D., et al. 1997. Genetic relationships of the genes encoding the human proteasome  $\beta$  subunits and the proteasome PA28 complex. *Genomics* 45: 362-367.
4. Razeghi, P., et al. 2006. Atrophy, hypertrophy, and hypoxemia induce transcriptional regulators of the ubiquitin proteasome system in the rat heart. *Biochem. Biophys. Res. Commun.* 342: 361-364.
5. Kwak, M.K., et al. 2007. Tissue specific increase of the catalytic subunits of the 26S Proteasome by indirect antioxidant dithiolethione in mice: enhanced activity for degradation of abnormal protein. *Life Sci.* 80: 2411-2420.
6. Murata, S., et al. 2007. Regulation of CD8<sup>+</sup> T cell development by thymus-specific proteasomes. *Science* 316: 1349-1353.

## CHROMOSOMAL LOCATION

Genetic locus: PSMB11 (human) mapping to 14q11.2.

## PRODUCT

PSMB11 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see PSMB11 shRNA Plasmid (h): sc-92455-SH and PSMB11 shRNA (h) Lentiviral Particles: sc-92455-V as alternate gene silencing products.

For independent verification of PSMB11 (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-92455A, sc-92455B and sc-92455C.

## 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  $\mu$ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330  $\mu$ l of RNase-free water makes a 10  $\mu$ M solution in a 10  $\mu$ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

## APPLICATIONS

PSMB11 siRNA (h) is recommended for the inhibition of PSMB11 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  $\mu$ M in 66  $\mu$ 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.

## GENE EXPRESSION MONITORING

PSMB11 (H-1): sc-515132 is recommended as a control antibody for monitoring of PSMB11 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-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  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-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  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 PSMB11 gene expression knockdown using RT-PCR Primer: PSMB11 (h)-PR: sc-92455-PR (20  $\mu$ l). 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](http://www.scbt.com) for detailed protocols and support products.