

# 20S Proteasome $\alpha 5$ (m): 293T Lysate: sc-117885

## BACKGROUND

The proteasome represents a large protein complex that exists inside all eukaryotes and archaea, and in some bacteria. The main function of proteasomes is to degrade unnecessary or damaged proteins by proteolysis. The most common form of the proteasome, known as the 26S Proteasome, contains one 20S Proteasome core particle structure and two 19S regulatory caps. The 20S Proteasome core is hollow and forms an enclosed cavity, where proteins are degraded, as well as openings at the two ends to allow the target protein to enter. The 20S Proteasome core particle contains many subunits, depending on the organism. All of the subunits fall into one of two types:  $\alpha$  subunits, which are structural, serve as docking domains for the regulatory particles and exterior gates blocking unregulated access to the interior cavity; or  $\beta$  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.

## REFERENCES

- Kristensen, P., Johnsen, A.H., Uerkvitz, W., Tanaka, K. and Hendil, K.B. 1995. Human proteasome subunits from two-dimensional gels identified by partial sequencing. *Biochem. Biophys. Res. Commun.* 205: 1785-1789.
- Morimoto, Y., Mizushima, T., Yagi, A., Tanahashi, N., Tanaka, K., Ichihara, A. and Tsukihara, T. 1995. Ordered structure of the crystallized bovine 20S Proteasome. *J. Biochem.* 117: 471-474.
- Wenzel, T. and Baumeister, W. 1995. Conformational constraints in protein degradation by the 20S Proteasome. *Nat. Struct. Biol.* 2: 199-204.
- Schmidt, M., Schmidtke, G. and Kloetzel, P.M. 1997. Structure and structure formation of the 20S Proteasome. *Mol. Biol. Rep.* 24: 103-112.
- Sassa, H., Oguchi, S., Inoue, T. and Hirano, H. 2000. Primary structural features of the 20S Proteasome subunits of rice (*Oryza sativa*). *Gene* 250: 61-66.
- Ferrington, D.A. and Kappahn, R.J. 2004. Catalytic site-specific inhibition of the 20S Proteasome by 4-hydroxynonenal. *FEBS Lett.* 578: 217-223.
- Huang, L. and Burlingame, A.L. 2006. Comprehensive mass spectrometric analysis of the 20S Proteasome complex. *Methods Enzymol.* 405: 187-236.
- Madding, L.S., Michel, J.K., Shockley, K.R., Conners, S.B., Epting, K.L., Johnson, M.R. and Kelly, R.M. 2006. Role of the  $\beta 1$  subunit in the function and stability of the 20S Proteasome in the hyperthermophilic archaeon *Pyrococcus furiosus*. *J. Bacteriol.* 189: 583-590.
- Ryzewski, R.M., Burrill, L., Mendonca, R., Palmer, J.T., Rice, M., Tahiramani, R., Bass, K.E., Leung, L., Gjerstad, E., Janc, J.W. and Pan, L. 2006. Optimization of subsite binding to the  $\beta 5$  subunit of the human 20S Proteasome using vinyl sulfones and 2-keto-1,3,4-oxadiazoles: syntheses and cellular properties of potent, selective proteasome inhibitors. *J. Med. Chem.* 49: 2953-2968.

## STORAGE

Store at  $-20^{\circ}\text{C}$ . Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

## CHROMOSOMAL LOCATION

Genetic locus: Psm $\alpha 5$  (mouse) mapping to 3 F3.

## PRODUCT

20S Proteasome  $\alpha 5$  (m): 293T Lysate represents a lysate of mouse 20S Proteasome  $\alpha 5$  transfected 293T cells and is provided as 100  $\mu\text{g}$  protein in 200  $\mu\text{l}$  SDS-PAGE buffer.

## APPLICATIONS

20S Proteasome  $\alpha 5$  (m): 293T Lysate is suitable as a Western Blotting positive control for mouse reactive 20S Proteasome  $\alpha 5$  antibodies. Recommended use: 10-20  $\mu\text{l}$  per lane.

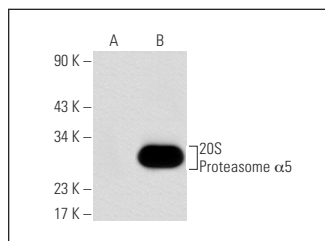
Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

20S Proteasome  $\alpha 5$  (B-9): sc-137240 is recommended as a positive control antibody for Western Blot analysis of enhanced mouse 20S Proteasome  $\alpha 5$  expression in 20S Proteasome  $\alpha 5$  transfected 293T cells (starting dilution 1:100, dilution range 1:100-1:1,000).

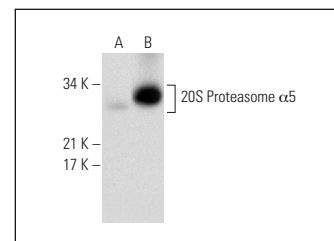
## RECOMMENDED SUPPORT REAGENTS

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<sup>TM</sup> Molecular Weight Standards: sc-2035, UltraCruz<sup>®</sup> Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048.

## DATA



20S Proteasome  $\alpha 5$  (B-9): sc-137240. Western blot analysis of 20S Proteasome  $\alpha 5$  expression in non-transfected: sc-117752 (A) and mouse 20S Proteasome  $\alpha 5$  transfected: sc-117885 (B) 293T whole cell lysates.



20S Proteasome  $\alpha 5$  (D-9): sc-271378. Western blot analysis of 20S Proteasome  $\alpha 5$  expression in non-transfected: sc-117752 (A) and mouse 20S Proteasome  $\alpha 5$  transfected: sc-117885 (B) 293T whole cell lysates.

## 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.