SANTA CRUZ BIOTECHNOLOGY, INC.

20S Proteasome α7 (MCP72): sc-58417

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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: α subunits, which are structural, serve as docking domains for the regulatory particles and exterior gates blocking unregulated access to the interior cavity; or β subunits, which are predominantly catalytic. The outer two rings in the proteasome consist of seven α subunits each, and the inner two rings each consist of seven β subunits.

REFERENCES

1. Kristensen, P., et al. 1994. Human proteasome subunits from two-dimensional gels identified by partial sequencing. Biochem. Biophys. Res. Commun. 205: 1785-1789.
2. Morimoto, Y., et al. 1995. Ordered structure of the crystallized bovine 20S Proteasome. J. Biochem. 117: 471-474.
3. Wenzel, T. and Baumeister, W. 1995. Conformational constraints in protein degradation by the 20S Proteasome. Nat. Struct. Biol. 2: 199-204.
4. Schmidt, M., et al. 1997. Structure and structure formation of the 20S Proteasome. Mol. Biol. Rep. 24: 103-112.
5. Sassa, H., et al. 2000. Primary structural features of the 20S Proteasome subunits of rice *(Oryza sativa)*. Gene 250: 61-66.
6. Ferrington, D.A. and Kapphahn, R.J. 2004. Catalytic site-specific inhibition of the 20S Proteasome by 4-hydroxynonenal. FEBS Lett. 578: 217-223.
7. Huang, L. and Burlingame, A.L. 2006. Comprehensive mass spectrometric analysis of the 20S Proteasome complex. Methods Enzymol. 405: 187-236.
8. Madding, L.S., et al. 2006. Role of the β1 subunit in the function and stability of the 20S Proteasome in the hyperthermophilic archaeon *Pyrococcus* furiosus. J. Bacteriol. 189: 583-590.

CHROMOSOMAL LOCATION

Genetic locus: PSMA7 (human) mapping to 20q13.33; Psma7 (mouse) mapping to 2 H4.

SOURCE

20S Proteasome α7 (MCP72) is a mouse monoclonal antibody raised against proteasomes derived from dinitrophenylated human placenta.

PRODUCT

Each vial contains 100 µl partially purified ascites containing IgG_1 with < 0.1% sodium azide.

APPLICATIONS

20S Proteasome α7 (MCP72) is recommended for detection of 20S Proteasome α7 of mouse, rat, human and yeast origin by Western Blotting (starting dilution to be determined by researcher, dilution range to be determined by researcher), immunoprecipitation [1-2 µl per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution to be determined by researcher, dilution range to be determined by researcher) and solid phase ELISA (starting dilution to be determined by researcher, dilution range to be determined by researcher).

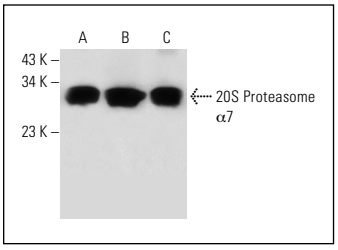
20S Proteasome α7 (MCP72) is also recommended for detection of 20S Proteasome α7 in additional species, including rabbit.

Suitable for use as control antibody for 20S Proteasome α7 siRNA (h): sc-62886, 20S Proteasome α7 siRNA (m): sc-62887, 20S Proteasome α7 shRNA Plasmid (h): sc-62886-SH, 20S Proteasome α7 shRNA Plasmid (m): sc-62887-SH, 20S Proteasome α7 shRNA (h) Lentiviral Particles: sc-62886-V and 20S Proteasome α7 shRNA (m) Lentiviral Particles: sc-62887-V.

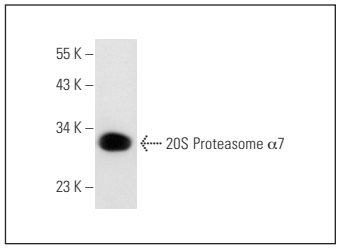
Molecular Weight of 20S Proteasome α7: 27 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, MCF7 whole cell lysate: sc-2206 or HeLa nuclear extract: sc-2120.

DATA



20S Proteasome α7 (MCP72): sc-58417. Western blot analysis of 20S Proteasome α7 expression in HeLa (**A**) and Hep G2 (**B**) whole cell lysates and HeLa nuclear extract (**C**).



20S Proteasome α7 (MCP72): sc-58417. Western blot analysis of 20S Proteasome α7 expression in MCF7 whole cell lysate.

SELECT PRODUCT CITATIONS

1. Akpinar, H.A., et al. 2019. Ochratoxin A sequentially activates autophagy and the ubiquitin-proteasome system. Toxins 11: 615.
2. Chen, C.N., et al. 2019. Age-dependent effects of caloric restriction on mTOR and ubiquitin-proteasome pathways in skeletal muscles. Geroscience 41: 871-880.

STORAGE

For immediate and continuous use, store at 4° C for up to one month. For sporadic use, freeze in working aliquots in order to avoid repeated freeze/thaw cycles. If turbidity is evident upon prolonged storage, clarify solution by centrifugation.

RESEARCH USE

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