SANTA CRUZ BIOTECHNOLOGY, INC.

20S Proteasome α1/α2/α3/α5/α6/α7 (MCP231): sc-58412

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

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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.
9. Rydzewski, R.M., et al. 2006. Optimization of subsite binding to the β5 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.

SOURCE

20S Proteasome α1/α2/α3/α5/α6/α7 (MCP231) is a mouse monoclonal antibody raised against dinitrophenylated proteasomes of human origin.

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.

PRODUCT

Each vial contains IgG_1 in 100 µl of PBS with < 0.1% sodium azide.

APPLICATIONS

20S Proteasome α1/α2/α3/α5/α6/α7 (MCP231) is recommended for detection of 20S Proteasome α1, 20S Proteasome α2, 20S Proteasome α3, 20S Proteasome α5, 20S Proteasome α6 and 20S Proteasome α7 of mouse, rat and human origin by Western Blotting (starting dilution: to be determined by researcher, dilution range 1:100-1:5000) and immunoprecipitation [1-2 µl per 100-500 µg of total protein (1 ml of cell lysate)].

Molecular Weight of 20S Proteasome α1/α2/α3/α5/α6/α7: 23-32 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200.

SELECT PRODUCT CITATIONS

1. Gao, Z., et al. 2010. Processing of autophagic protein LC3 by the 20S Proteasome. Autophagy 6: 126-137.
2. Hsu, C.Y., et al. 2014. Changes in cellular degradation activity in young and old worker honeybees *(Apis mellifera)*. Exp. Gerontol. 50: 128-136.
3. Lu, C.Y. and Hsu, C.Y. 2015. Ambient temperature reduction extends lifespan via activating cellular degradation activity in an annual fish *(Nothobranchius rachovii)*. Age 37: 33.
4. Hsu, C.Y., et al. 2016. Cellular degradation activity is maintained during aging in long-living queen bees. Biogerontology 17: 829-840.

RESEARCH USE

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

PROTOCOLS

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