

# 20S Proteasome $\alpha$ 4 (H-4): sc-271297

## 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

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.

## CHROMOSOMAL LOCATION

Genetic locus: PSMA4 (human) mapping to 15q25.1; Psm4 (mouse) mapping to 9 B.

## SOURCE

20S Proteasome  $\alpha$ 4 (H-4) is a mouse monoclonal antibody raised against amino acids 1-128 mapping at the N-terminus of 20S Proteasome  $\alpha$ 4 of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

20S Proteasome  $\alpha$ 4 (H-4) is available conjugated to agarose (sc-271297 AC), 500  $\mu$ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-271297 HRP), 200  $\mu$ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-271297 PE), fluorescein (sc-271297 FITC), Alexa Fluor<sup>®</sup> 488 (sc-271297 AF488), Alexa Fluor<sup>®</sup> 546 (sc-271297 AF546), Alexa Fluor<sup>®</sup> 594 (sc-271297 AF594) or Alexa Fluor<sup>®</sup> 647 (sc-271297 AF647), 200  $\mu$ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor<sup>®</sup> 680 (sc-271297 AF680) or Alexa Fluor<sup>®</sup> 790 (sc-271297 AF790), 200  $\mu$ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

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## STORAGE

Store at 4°C, **\*\*DO NOT FREEZE\*\***. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## APPLICATIONS

20S Proteasome  $\alpha$ 4 (H-4) is recommended for detection of 20S Proteasome  $\alpha$ 4 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

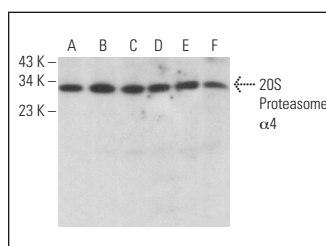
20S Proteasome  $\alpha$ 4 (H-4) is also recommended for detection of 20S Proteasome  $\alpha$ 4 in additional species, including canine, bovine and avian.

Suitable for use as control antibody for 20S Proteasome  $\alpha$ 4 siRNA (h): sc-62880, 20S Proteasome  $\alpha$ 4 siRNA (m): sc-62881, 20S Proteasome  $\alpha$ 4 shRNA Plasmid (h): sc-62880-SH, 20S Proteasome  $\alpha$ 4 shRNA Plasmid (m): sc-62881-SH, 20S Proteasome  $\alpha$ 4 shRNA (h) Lentiviral Particles: sc-62880-V and 20S Proteasome  $\alpha$ 4 shRNA (m) Lentiviral Particles: sc-62881-V.

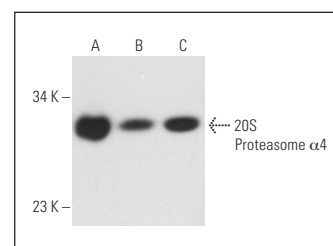
Molecular Weight of 20S Proteasome  $\alpha$ 4: 29 kDa.

Positive Controls: JAR cell lysate: sc-2276, HeLa whole cell lysate: sc-2200 or Jurkat whole cell lysate: sc-2204.

## DATA



20S Proteasome  $\alpha$ 4 (H-4): sc-271297. Western blot analysis of 20S Proteasome  $\alpha$ 4 expression in Jurkat (A), CCRF-CEM (B), TK-1 (C), MM-142 (D), NIH/3T3 (E) and 3611-RF (F) whole cell lysates.



20S Proteasome  $\alpha$ 4 (H-4): sc-271297. Western blot analysis of 20S Proteasome  $\alpha$ 4 expression in JAR (A), HeLa (B) and Jurkat (C) whole cell lysates.

## SELECT PRODUCT CITATIONS

1. Chatterjee Bhowmick, D. and Jeremic, A. 2018. Functional proteasome complex is required for turnover of islet amyloid polypeptide in pancreatic  $\beta$ -cells. *J. Biol. Chem.* 293: 14210-14223.
2. Shin, G.C., et al. 2019. PRKCSH contributes to tumorigenesis by selective boosting of IRE1 signaling pathway. *Nat. Commun.* 10: 3185.
3. Eisenberg-Lerner, A., et al. 2020. Golgi organization is regulated by proteasomal degradation. *Nat. Commun.* 11: 409.
4. Michalik, S., et al. 2022. Comparative analysis of ChAdOx1 nCoV-19 and Ad26.COV2.S SARS-CoV-2 vector vaccines. *Haematologica* 107: 947-957.
5. Hinze, L., et al. 2022. Supramolecular assembly of GSK3 $\alpha$  as a cellular response to amino acid starvation. *Mol. Cell* 82: 2858-2870.e8.

## RESEARCH USE

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