

26S Proteasome p54 (439): sc-65746

BACKGROUND

The 26S Proteasome is a large complex involved in the intracellular degradation of proteins in eukaryotes. Ubiquitination by E3 ubiquitin ligases targets proteins for degradation by this complex. The 26S Proteasome plays an important role in the regulation of many biological processes. It is composed of over 30 different subunits and contains at least two copies of each subunit. Assembly of this large complex is ATP-dependent. Due to its size, it is fairly unstable and often disassociates into subcomplexes (including a 20S core and two 19S regulatory complexes). The 26S Proteasome p54 (also known as Rpn10 in yeast and S5a in human) is one of the four non-ATPase base subunits of the 19S regulatory complex. The 26S Proteasome p54 is a multiubiquitin binding subunit responsible for the peptidase activity of the 26S Proteasome. In the presence of zinc this subunit dissociates from the 19S complex causing peptidase activity to be lost. Once dissociated, the 26S Proteasome p54 interacts with non-proteasomal proteins HSP 82, Smt3, and UBC9.

REFERENCES

- Kurucz, E., et al. 2002. Assembly of the *Drosophila* 26S Proteasome is accompanied by extensive subunit rearrangements. *Biochem. J.* 365: 527-536.
- Lam, Y.A., et al. 2002. A proteasomal ATPase subunit recognizes the polyubiquitin degradation signal. *Nature* 416: 763-767.
- Ueda, M., et al. 2004. The HALTED ROOT gene encoding the 26S Proteasome subunit RPT2a is essential for the maintenance of *Arabidopsis meristems*. *Development* 131: 2101-2111.
- Adám, G., et al. 2004. Tissue- and developmental stage-specific changes in the subcellular localization of the 26S Proteasome in the ovary of *Drosophila melanogaster*. *Gene Expr. Patterns* 4: 329-333.
- Babbitt, S.E., et al. 2005. ATP hydrolysis-dependent disassembly of the 26S Proteasome is part of the catalytic cycle. *Cell* 121: 553-565.
- Lee, D., et al. 2005. The proteasome regulatory particle alters the SAGA coactivator to enhance its interactions with transcriptional activators. *Cell* 123: 423-436.
- Szutorisz, H., et al. 2006. The proteasome restricts permissive transcription at tissue-specific gene loci in embryonic stem cells. *Cell* 127: 1375-1388.
- Seong, K.M., et al. 2007. Rpn13p and Rpn14p are involved in the recognition of ubiquitinated Gcn4p by the 26S Proteasome. *FEBS Lett.* 581: 2567-2573.
- Vernace, V.A., et al. 2007. Aging perturbs 26S Proteasome assembly in *Drosophila melanogaster*. *FASEB J.* 21: 2672-2682.

SOURCE

26S Proteasome p54 (439) is a mouse monoclonal antibody raised against 26S Proteasome purified from embryos of *Drosophila melanogaster* origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

26S Proteasome p54 (439) is recommended for detection of p54 subunit of the 19S regulatory base complex of the 26S Proteasome of *Drosophila melanogaster* origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

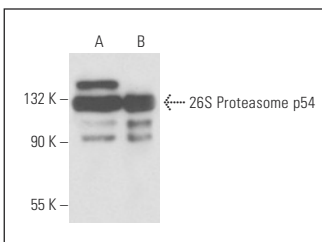
Molecular Weight of 26S Proteasome p54: 54 kDa.

Positive Controls: *Drosophila* embryo tissue extract.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ 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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



26S Proteasome p54 (439): sc-65746. Western blot analysis of 26S Proteasome p54 expression in *Drosophila* embryonic protein tissue extract (A) and purified 26S Proteasome (B).

SELECT PRODUCT CITATIONS

- Gumeni, S., et al. 2021. Nrf2 activation induces mitophagy and reverses Parkin/Pink1 knock down-mediated neuronal and muscle degeneration phenotypes. *Cell Death Dis.* 12: 671.
- Papanagnou, E.D., et al. 2022. Autophagy activation can partially rescue proteasome dysfunction-mediated cardiac toxicity. *Aging Cell.* E-published.

STORAGE

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

RESEARCH USE

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