

PA28 α (AT12H3): sc-517419

BACKGROUND

PA28 is an interferon (IFN γ) inducible proteasome activator required for presentation of certain major histocompatibility (MHC) class I antigens. The PA28 complex is composed of two homologous subunits, α and β , which have similar catalytic properties and associate to form a hexameric ring. PA28 α and PA28 β , form a heteropolymer that binds to both ends of the 20S proteasome. In the mouse genome, two different chromosomal loci exist for PA28 β , both of which are transcribed and encode a functional PA28 β subunit. PA28 β , for Proteasome activator 28 β , is also known as PSME2, REG- β and proteasome (prosome, macropain) activator subunit 2. PA28 β is a strong proteasome activator, although its affinity for the proteasome is about 10-fold less than recombinant PA28 α . The PA28 complex is expressed constitutively in antigen-presenting cells. Downregulation of PA28 results in abnormal proteasome activation and has been implicated in the development of intimal hyperplasia (IH) in animal models. The PMSE2 gene maps to chromosome 14q11.2 and encodes the β -subunit of the proteasome activator PA28.

REFERENCES

1. Kohda, K., et al. 1998. Characterization of the mouse PA28 activator complex gene family: complete organizations of the three member genes and a physical map of the approximately 150-kb region containing the α - and β -subunit genes. *J. Immunol.* 160: 4923-4935.
2. Wilk, S., et al. 2000. Properties of the β subunit of the proteasome activator PA28 (11S REG). *Arch. Biochem. Biophys.* 384: 174-180.
3. Faries, P.L., et al. 2001. Relationship of the 20S proteasome and the proteasome activator PA28 to atherosclerosis and intimal hyperplasia in the human vascular system. *Ann. Vasc. Surg.* 15: 628-633.
4. Murata, S., et al. 2001. Immunoproteasome assembly and antigen presentation in mice lacking both PA28 α and PA28 β . *EMBO J.* 20: 5898-5907.
5. Fabunmi, R.P., et al. 2001. Interferon γ regulates accumulation of the proteasome activator PA28 and immunoproteasomes at nuclear PML bodies. *J. Cell Sci.* 114: 29-36.

CHROMOSOMAL LOCATION

Genetic locus: PSME1 (human) mapping to 14q12; Psme1 (mouse) mapping to 14 C3.

SOURCE

PA28 α (AT12H3) is a mouse monoclonal antibody raised against a recombinant protein corresponding to amino acids 1-249 of PA28 α of human origin.

PRODUCT

Each vial contains 100 μ g IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide, 1% glycerol, and 0.1% gelatin.

STORAGE

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

APPLICATIONS

PA28 α (AT12H3) is recommended for detection of PA28 α of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ 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).

Suitable for use as control antibody for PA28 α siRNA (h): sc-106752, PA28 α siRNA (m): sc-151977, PA28 α shRNA Plasmid (h): sc-106752-SH, PA28 α shRNA Plasmid (m): sc-151977-SH, PA28 α shRNA (h) Lentiviral Particles: sc-106752-V and PA28 α shRNA (m) Lentiviral Particles: sc-151977-V.

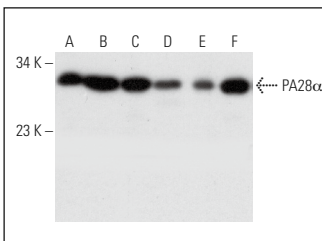
Molecular Weight of PA28 α : 28 kDa.

Positive Controls: A-431 whole cell lysate: sc-2201, HL-60 whole cell lysate: sc-2209 or PA28 α (h): 293T Lysate: sc-174726.

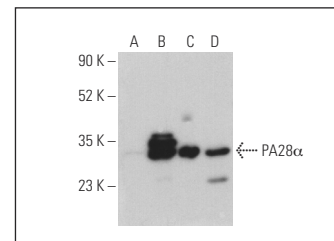
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ 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-IgG κ BP-FITC: sc-516140 or m-IgG κ 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



PA28 α (AT12H3): sc-517419. Western blot analysis of PA28 α expression in A-431 (A), HL-60 (B) and Jurkat (C) whole cell lysates and human PBL (D), mouse PBL (E) and mouse spleen (F) tissue extracts.



PA28 α (AT12H3): sc-517419. Western blot analysis of PA28 α expression in non-transfected 293T: sc-117752 (A), human PA28 α transfected 293T: sc-174726 (B) and A-431 (C) whole cell lysates and mouse liver tissue extract (D). Detection reagent used: m-IgG κ BP-HRP: sc-516102.

SELECT PRODUCT CITATIONS

1. Krzeminski, P., et al. 2020. Zebularine-induced myeloma cell death is accompanied by decreased c-Myc expression. *Cell. Oncol.* 43: 743-750.
2. Pecori, F., et al. 2021. Site-specific O-GlcNAcylation of Psme3 maintains mouse stem cell pluripotency by impairing P-body homeostasis. *Cell Rep.* 36: 109361.

RESEARCH USE

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