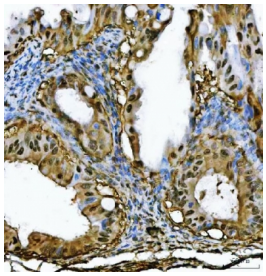
PSMB4 Antibody / Proteasome Subunit Beta 4 Antibody (RQ7242)

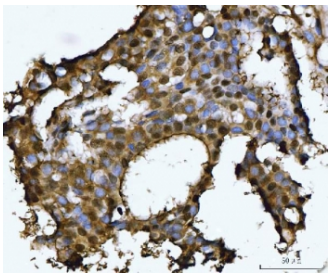
Catalog No.	Formulation	Size
RQ7242	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

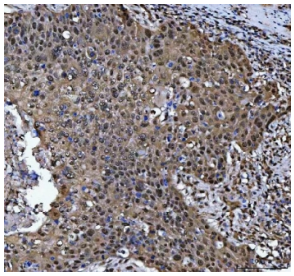
Availability	1-3 business days
Species Reactivity	Human, Mouse, Rat
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Antigen affinity purified
Buffer	Lyophilized from 1X PBS with 2% Trehalose
UniProt	P28070
Localization	Cytoplasmic, nuclear
Applications	Western blot: 0.5-1ug/ml Immunohistochemistry (FFPE): 2-5ug/ml Flow cytometry: 1-3ug/million cells Direct ELISA: 0.1-0.5ug/ml Immunofluorescence: 5ug/ml
Limitations	This PSMB4 Antibody / Proteasome Subunit Beta 4 Antibody is available for research use only.



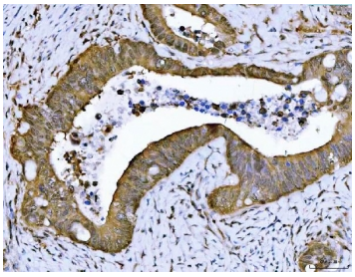
PSMB4 Antibody by IHC in Human Ovarian Cancer Tissue. Immunohistochemistry staining of formalin-fixed, paraffin-embedded human ovarian carcinoma tissue using rabbit polyclonal PSMB4 antibody. Heat-induced epitope retrieval was performed by boiling sections in EDTA buffer at pH 8.0 for 20 minutes, followed by cooling before antibody incubation. Brown DAB staining is visible in the cytoplasm of tumor cells, with variation in staining intensity between cells. The results demonstrate expression of Proteasome Subunit Beta 4 in ovarian carcinoma tissue.



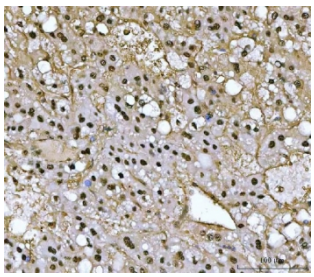
PSMB4 Antibody by IHC in Human Breast Cancer Tissue. Immunohistochemistry staining of formalin-fixed, paraffin-embedded human breast carcinoma tissue using rabbit polyclonal PSMB4 antibody. Antigen retrieval was performed by boiling sections in EDTA buffer at pH 8.0 for 20 minutes, followed by cooling before testing. Prominent brown staining is observed throughout the carcinoma cells, with predominantly cytoplasmic distribution. This pattern is consistent with the intracellular localization of Proteasome Subunit Beta 4, a structural component of the 20S proteasome.



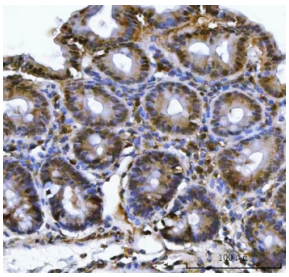
PSMB4 Antibody by IHC in Human Esophageal Squamous Carcinoma. Immunohistochemistry staining of formalin-fixed, paraffin-embedded human esophageal squamous cell carcinoma tissue using rabbit polyclonal PSMB4 antibody. Heat-induced epitope retrieval was performed by boiling tissue sections in EDTA buffer at pH 8.0 for 20 minutes, followed by cooling. Brown DAB staining is distributed throughout the malignant squamous epithelial cells, demonstrating Proteasome Subunit Beta 4 expression in the tumor tissue.



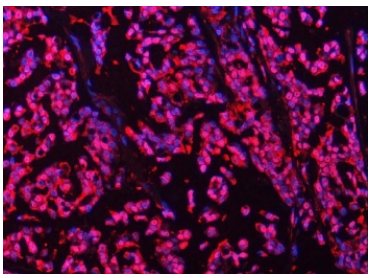
PSMB4 Antibody by IHC in Human Colorectal Adenocarcinoma. Immunohistochemistry staining of formalin-fixed, paraffin-embedded human colorectal adenocarcinoma tissue using rabbit polyclonal PSMB4 antibody. Antigen retrieval was performed by boiling sections in EDTA buffer at pH 8.0 for 20 minutes, followed by cooling. Strong brown DAB staining is evident in the cytoplasm of malignant glandular epithelial cells, with surrounding stromal tissue showing comparatively weaker staining. This demonstrates Proteasome Subunit Beta 4 expression within the tumor glands.



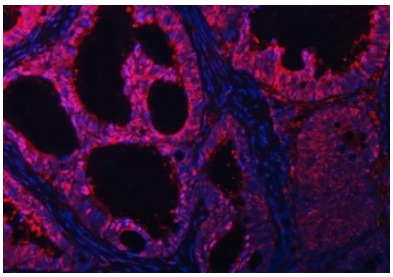
PSMB4 Antibody by IHC in Human Liver Cancer Tissue. Immunohistochemistry staining of formalin-fixed, paraffin-embedded human liver carcinoma tissue using rabbit polyclonal PSMB4 antibody. Heat-induced epitope retrieval was performed by boiling sections in EDTA buffer at pH 8.0 for 20 minutes, followed by cooling. Brown DAB staining is present in the cytoplasm of tumor cells, with heterogeneous staining intensity across the tissue section. The results demonstrate expression of Proteasome Subunit Beta 4 in human liver carcinoma.



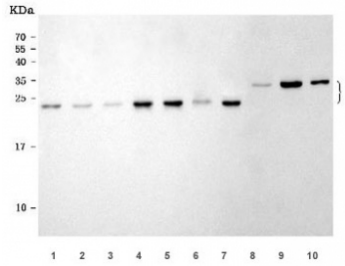
PSMB4 Antibody by IHC in Rat Stomach Tissue. Immunohistochemistry staining of formalin-fixed, paraffin-embedded rat stomach tissue using rabbit polyclonal PSMB4 antibody. Heat-induced epitope retrieval was performed by boiling sections in EDTA buffer at pH 8.0 for 20 minutes, followed by cooling. Strong brown DAB staining is visible in the gastric glandular epithelium, with prominent cytoplasmic labeling of epithelial cells. This demonstrates detection of Proteasome Subunit Beta 4 in rat gastric tissue.



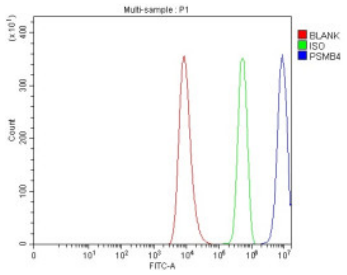
PSMB4 Antibody by IF in Human Breast Cancer Tissue. Immunofluorescence staining of formalin-fixed, paraffin-embedded human breast carcinoma tissue using rabbit polyclonal PSMB4 antibody. Heat-induced epitope retrieval was performed by steaming sections in EDTA buffer at pH 8.0 for 20 minutes. Proteasome Subunit Beta 4 immunoreactivity is shown in red, while nuclei are counterstained with DAPI in blue. The merged image demonstrates widespread PSMB4 staining within the tumor tissue, with red fluorescence distributed around the nuclei.



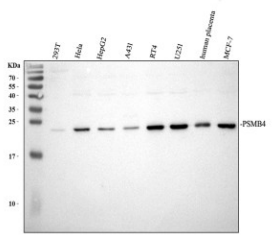
PSMB4 Antibody by IF in Human Intestinal Cancer Tissue. Immunofluorescence staining of formalin-fixed, paraffin-embedded human intestinal carcinoma tissue using rabbit polyclonal PSMB4 antibody. Heat-induced epitope retrieval was performed by steaming sections in EDTA buffer at pH 8.0 for 20 minutes. Proteasome Subunit Beta 4 is visualized in red, with DAPI nuclear counterstaining in blue. Red fluorescence is prominent within the malignant glandular epithelium, demonstrating PSMB4 expression in intestinal carcinoma tissue.



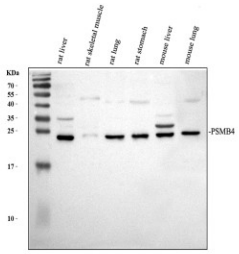
PSMB4 Antibody by WB in Human, Rat, and Mouse Cell and Tissue Lysates. Western blot analysis of human HeLa (lane 1), HepG2 (lane 2), A431 (lane 3), RT4 (lane 4), U-251 (lane 5), placenta (lane 6), and MCF7 (lane 7); rat skeletal muscle (lane 8); and mouse liver (lane 9) and skeletal muscle (lane 10) lysates using rabbit polyclonal PSMB4 antibody. A band is detected at approximately 26-29 kDa in the human samples and rat skeletal muscle, consistent with the predicted molecular weight of approximately 29 kDa for Proteasome Subunit Beta 4. Higher-molecular-weight bands near 35 kDa are visible in the two mouse tissue samples. The different migration patterns may reflect sample-dependent differences, but the identities of the higher bands have not been independently established.



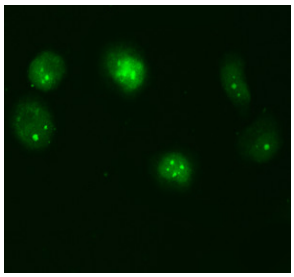
PSMB4 Antibody by FACS in Human HEL Cells. Flow cytometry analysis of human HEL cells using rabbit polyclonal PSMB4 antibody at 1 ug per million cells following blocking with goat serum. The histogram compares cells alone (red), isotype control (green), and PSMB4 antibody staining (blue). The antibody-stained population shows a clear rightward fluorescence shift relative to the controls, demonstrating detection of Proteasome Subunit Beta 4 in HEL cells.



PSMB4 Antibody by WB in Eight Human Cell and Tissue Lysates. Western blot analysis of Proteasome Subunit Beta 4 in human 293T (lane 1), HeLa (lane 2), HepG2 (lane 3), A431 (lane 4), RT4 (lane 5), U251 (lane 6), and MCF-7 (lane 8) whole-cell lysates, and human placenta tissue lysate (lane 7). Samples containing 30 ug of protein per lane were separated by 13% SDS-PAGE under reducing conditions and transferred to a nitrocellulose membrane. The rabbit polyclonal PSMB4 antibody was used at 0.5 ug/ml, followed by HRP-conjugated secondary antibody and chemiluminescent detection. A single predominant band is detected at approximately 22-24 kDa across all eight samples, below the predicted molecular weight of 29 kDa. This lower apparent molecular weight may reflect proteolytic processing of the PSMB4 precursor during proteasome maturation.



PSMB4 Antibody by WB in Rat and Mouse Tissue Lysates. Western blot analysis of Proteasome Subunit Beta 4 in rat liver (lane 1), skeletal muscle (lane 2), lung (lane 3), and stomach (lane 4), and mouse liver (lane 5) and lung (lane 6) tissue lysates. Samples containing 30 ug of protein per lane were separated by 13% SDS-PAGE under reducing conditions and transferred to a nitrocellulose membrane. The rabbit polyclonal PSMB4 antibody was used at 0.5 ug/ml, followed by HRP-conjugated secondary antibody and chemiluminescent detection. A predominant band is detected at approximately 22-24 kDa in most samples, below the predicted molecular weight of 29 kDa. Additional bands are visible near 35 kDa in rat liver and mouse liver, with a second prominent band near 29 kDa in mouse liver. The lower apparent molecular weight may reflect proteolytic processing of PSMB4 during proteasome maturation.



PSMB4 Antibody by IF in Human T47D Breast Cancer Cells. Immunofluorescence staining of human T47D cells using rabbit polyclonal PSMB4 antibody at 5 ug/ml. Enzymatic antigen retrieval was performed for 15 minutes, followed by blocking with 10% goat serum and overnight primary antibody incubation at 4oC. Fluoro488-conjugated goat anti-rabbit IgG was used at 1:500 for detection. Proteasome Subunit Beta 4 immunoreactivity is visualized in green, showing diffuse cytoplasmic fluorescence with prominent punctate staining in several cells, including bright perinuclear foci.

Description

PSMB4 Antibody recognizes proteasome subunit beta type 4, a structural component of the 20S proteasome core particle involved in intracellular protein degradation. Encoded by the PSMB4 gene, this protein is also known as proteasome beta 7, reflecting its position within the beta rings of the proteasome. The proteasome is essential for maintaining cellular protein homeostasis by removing damaged, misfolded, and short-lived regulatory proteins.

The 20S proteasome core consists of four stacked heptameric rings arranged in an alpha-beta-beta-alpha configuration. Each outer ring contains seven distinct alpha subunits, while each inner ring contains seven beta subunits. PSMB4 is one of the seven beta subunits incorporated into each inner ring. Unlike the catalytic beta subunits PSMB5, PSMB6, and PSMB7, proteasome subunit beta 4 primarily contributes to the structural organization and assembly of the proteolytic core.

Proteasome assembly is a coordinated process requiring the incorporation of individual alpha and beta subunits into precursor complexes. PSMB4 participates in the formation and stabilization of the beta rings, helping establish the architecture necessary for proteasome maturation. Proper assembly is essential for generating functional proteasomes capable of maintaining protein turnover and supporting cellular responses to changing physiological conditions.

The 20S core can associate with regulatory particles, including the 19S complex, to form the 26S proteasome. This larger assembly recognizes proteins marked with ubiquitin chains, removes ubiquitin modifications, unfolds substrates, and directs them into the proteolytic chamber. Proteasome-mediated degradation regulates numerous biological processes, including cell cycle progression, transcription factor activity, DNA damage responses, and cellular stress adaptation.

Proteasome dysfunction can result in the accumulation of abnormal proteins and disruption of cellular signaling. Altered proteasome activity is associated with cancer, neurodegenerative disorders, and inflammatory conditions. Although PSMB4 is not itself a catalytic subunit, its contribution to proteasome structure makes it relevant to studies of proteasome assembly, protein quality control, and the ubiquitin-proteasome system.

A PSMB4 Antibody from NSJ Bioreagents supports investigations of Proteasome Subunit Beta 4 expression, 20S proteasome organization, ubiquitin-dependent protein degradation, and mechanisms maintaining cellular proteostasis.

For antibodies targeting proteins involved in autophagy and related cellular protein quality control pathways, explore our Autophagy Antibodies collection.

Application Notes

Optimal dilution of the PSMB4 Antibody / Proteasome Subunit Beta 4 Antibody should be determined by the researcher.

Immunogen

Recombinant human protein (amino acids Q20-E264) was used as the immunogen for the PSMB4 Antibody / Proteasome Subunit Beta 4 Antibody.

Storage

After reconstitution, the PSMB4 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.

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