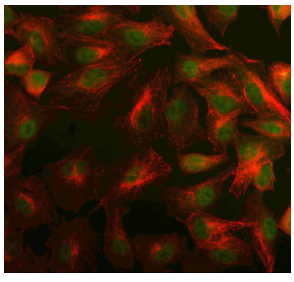
PSME4 Antibody / Proteasome activator complex subunit 4 (FY12637)

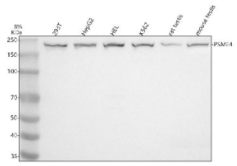
Catalog No.	Formulation	Size
FY12637	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

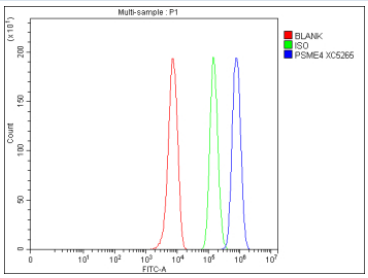
Availability	1-2 days
Species Reactivity	Human, Mouse, Rat
Format	Lyophilized
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Immunogen affinity purified
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4.
UniProt	Q14997
Localization	Nuclear
Applications	Western Blot : 0.25-0.5ug/ml Immunocytochemistry/Immunofluorescence : 5ug/ml Flow Cytometry : 1-3ug/million cells ELISA : 0.1-0.5ug/ml
Limitations	This PSME4 antibody is available for research use only.



Immunofluorescent staining of PSME4 using anti-PSME4 antibody (green) and anti-Beta Tubulin antibody (red). PSME4 was detected in an immunocytochemical section of cells. Enzyme antigen retrieval was performed using IHC enzyme antigen retrieval reagent for 15 mins. The cells were blocked with 10% goat serum. And then incubated with 5 ug/ml rabbit anti-PSME4 antibody and mouse anti-Beta Tubulin antibody overnight at 4oC. DyLight 488 Conjugated Goat Anti-Rabbit IgG and Cy3 Conjugated Goat Anti-Mouse IgG were used as secondary antibody at 1:500 dilution and incubated for 30 minutes at 37oC. Visualize using a fluorescence microscope and filter sets appropriate for the label used.



Western blot analysis of PSME4 using anti-PSME4 antibody. Electrophoresis was performed on a 8% SDS-PAGE gel at 80V (Stacking gel) / 120V (Resolving gel) for 2 hours. Lane 1: human 293T whole cell lysates, Lane 2: human HepG2 whole cell lysates, Lane 3: human HEL whole cell lysates, Lane 4: human K562 whole cell lysates, Lane 5: rat testis tissue lysates, Lane 6: mouse testis tissue lysates. After electrophoresis, proteins were transferred to a nitrocellulose membrane at 150 mA for 50-90 minutes. Blocked the membrane with 5% non-fat milk/TBS for 1.5 hour at RT. The membrane was incubated with rabbit anti-PSME4 antibody at 0.5 ug/ml overnight at 4oC, then washed with TBS-0.1%Tween 3 times with 5 minutes each and probed with a goat anti-rabbit IgG-HRP secondary antibody at a dilution of 1:5000 for 1.5 hour at RT. The signal was developed using an ECL Plus Western Blotting Substrate. A specific band was detected for PSME4 at approximately 211 kDa. The expected molecular weight of PSME4 is ~211 kDa.



Flow Cytometry analysis of HepG2 cells using anti-PSME4 antibody. Overlay histogram showing HepG2 cells stained with (Blue line). To facilitate intracellular staining, cells were fixed with 4% paraformaldehyde and permeabilized with permeabilization buffer. The cells were blocked with 10% normal goat serum. And then incubated with rabbit anti-PSME4 antibody (1 ug/million cells) for 30 min at 20oC. DyLight 488 conjugated goat anti-rabbit IgG (5-10 ug/million cells) was used as secondary antibody for 30 minutes at 20oC. Isotype control antibody (Green line) was rabbit IgG (1 ug/million cells) used under the same conditions. Unlabelled sample without incubation with primary antibody and secondary antibody (Red line) was used as a blank control.

Description

PSME4 antibody detects Proteasome activator complex subunit 4, also known as PA200, a nuclear protein that regulates proteasome function during DNA repair and spermatogenesis. PSME4 binds to the 20S proteasome core to enhance peptide cleavage and modulate substrate selectivity in a ubiquitin-independent manner. The PSME4 antibody is widely used in proteostasis, cell cycle, and DNA repair research to study proteasome regulation and nuclear protein degradation.

PSME4 is encoded by the PSME4 gene located on human chromosome 2q37.1. The protein is approximately 1,840 amino acids long and forms a ring-like structure that caps one end of the 20S proteasome. PSME4-mediated activation alters proteasome activity toward oxidized and acetylated substrates, enhancing degradation of histones and DNA repair factors following genotoxic stress.

The PSME4 antibody detects a 220 kilodalton protein by western blot and shows strong nuclear localization under immunofluorescence microscopy. PSME4 plays a crucial role in DNA double-strand break repair by facilitating turnover of repair-associated chromatin proteins, including histones and Ku70/80. In male germ cells, PSME4 regulates histone replacement during spermatogenesis, ensuring chromatin condensation and sperm maturation.

Deficiency of PSME4 leads to impaired proteasome activation and accumulation of damaged proteins, resulting in genomic instability and infertility. PSME4 also influences transcriptional regulation and aging by modulating histone acetylation and chromatin dynamics. In cancer, aberrant PSME4 expression alters proteasome activity, contributing to resistance against apoptosis and therapeutic stress.

As a specialized proteasome activator, PSME4 provides insight into the noncanonical regulation of proteolysis and DNA repair. NSJ Bioreagents provides a validated PSME4 antibody optimized for its applications, supporting research into nuclear proteasome regulation, DNA damage response, and reproductive biology.

Application Notes

Optimal dilution of the PSME4 antibody should be determined by the researcher.

Immunogen

E.coli-derived human PSME4 recombinant protein (Position: Q391-L657) was used as the immunogen for the PSME4 antibody.

Storage

After reconstitution, the PSME4 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.