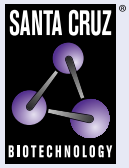
SANTA CRUZ BIOTECHNOLOGY, INC.

LMP7 (D-2): sc-374089



The Power to Question

BACKGROUND

The eukaryotic multi-catalytic proteinase complex, otherwise known as the proteasome, is present in both the nucleus and cytoplasm of cells and contains at least 15 nonidentical subunits, which form a highly ordered ring-shaped structure. The proteasome is involved in an ATP/Ubiquitin-dependent proteolytic pathway and expresses at least five distinct proteolytic activities, including the cleavage of peptides after branched-chain amino acids or bulky hydrophobic amino acids. Two components of the proteasome are the low molecular mass proteins LMP2 and LMP7, which are thought to connect the proteasome to the MHC class-I antigen-processing pathway. Upon stimulation with IFN-γ, LMP2 and LMP7 displace housekeeping subunits in the proteasome and activate cytotoxic T cells (CTLs). LMP2 and LMP7 are produced as precursor proteins, which are processed to subunits that have the ability to complex with the proteasome. LMP2 is expressed as two alternatively spliced forms, LMP2.l and LMP2.s, in lymphoblastoid cell lines and in fibroblasts after IFN-γ stimulation. LMP7 is also expressed as two forms, LMP7A and LMP7B, also designated LMP7-E1 and E2, in several tissues.

REFERENCES

1. Fruh, K., et al. 1992. Alternative exon usage and processing of the major histocompatibility complex-encoded proteasome subunits. J. Biol. Chem. 267: 22131-22140.
2. Glynne, R., et al. 1993. The major histocompatibility complex-encoded proteasome component LMP7: alternative first exons and post-translational processing. Eur. J. Immunol. 23: 860-866.
3. Cardozo, C. 1993. Catalytic components of the bovine pituitary multicatalytic proteinase complex (proteasome). Enzyme Protein 47: 296-305.

CHROMOSOMAL LOCATION

Genetic locus: PSMB8 (human) mapping to 6p21.32; Psmb8 (mouse) mapping to 17 B1.

SOURCE

LMP7 (D-2) is a mouse monoclonal antibody raised against amino acids 229-268 mapping near the C-terminus of LMP7 of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

LMP7 (D-2) is available conjugated to agarose (sc-374089 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-374089 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-374089 PE), fluorescein (sc-374089 FITC), Alexa Fluor® 488 (sc-374089 AF488), Alexa Fluor® 546 (sc-374089 AF546), Alexa Fluor® 594 (sc-374089 AF594) or Alexa Fluor® 647 (sc-374089 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-374089 AF680) or Alexa Fluor® 790 (sc-374089 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

RESEARCH USE

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

APPLICATIONS

LMP7 (D-2) is recommended for detection of LMP7A and LMP7B of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

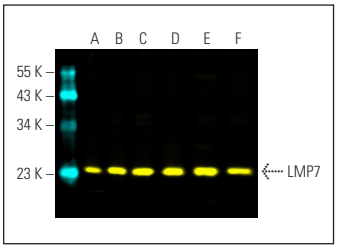
Suitable for use as control antibody for LMP7 siRNA (h): sc-35822, LMP7 siRNA (m): sc-35823, LMP7 shRNA Plasmid (h): sc-35822-SH, LMP7 shRNA Plasmid (m): sc-35823-SH, LMP7 shRNA (h) Lentiviral Particles: sc-35822-V and LMP7 shRNA (m) Lentiviral Particles: sc-35823-V.

Molecular Weight of mature LMP7: 23 kDa.

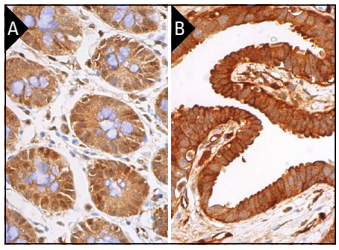
Molecular Weight of LMP7 precursor: 30 kDa.

Positive Controls: RAW 264.7 whole cell lysate: sc-2211, Daudi cell lysate: sc-2415 or MOLT-4 cell lysate: sc-2233.

DATA



LMP7 (D-2) Alexa Fluor® 488: sc-374089 AF488. Direct fluorescent western blot analysis of LMP7 expression in RAW 264.7 (**A**), Daudi (**B**), MOLT-4 (**C**), U-937 (**D**), THP-1 (**E**) and CCRF-CEM (**F**) whole cell lysates. Blocked with UltraCruz® Blocking Reagent: sc-516214. Cruz Marker™ Molecular Weight Standards detected with Cruz Marker™ MW Tag-Alexa Fluor® 647: sc-516791.



LMP7 (D-2): sc-374089. Immunoperoxidase staining of formalin fixed, paraffin-embedded human rectum (**A**) and human fallopian tube (**B**) tissue showing cytoplasmic and nuclear staining of glandular cells.

SELECT PRODUCT CITATIONS

1. Liong, S., et al. 2018. The immunoproteasome inhibitor ONX-0914 regulates inflammation and expression of contraction associated proteins in myometrium. Eur. J. Immunol. 48: 1350-1363.
2. Chen, X., et al. 2022. Bortezomib inhibits NLRP3 inflammasome activation and NFκB pathway to reduce psoriatic inflammation. Biochem. Pharmacol. 206: 115326.
3. Miyauchi, S., et al. 2023. Human papillomavirus E5 suppresses immunity via inhibition of the immunoproteasome and STING pathway. Cell Rep. 42: 112508.

STORAGE

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

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