SANTA CRUZ BIOTECHNOLOGY, INC.

# LMP7 (A-12): sc-365699

SANTA CRUZ BIOTECHNOLOGY

*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, LMP7-E1 and E2, in several tissues.

## CHROMOSOMAL LOCATION

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

## SOURCE

LMP7 (A-12) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 249-272 at 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 (A-12) is available conjugated to agarose (sc-365699 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-365699 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-365699 PE), fluorescein (sc-365699 FITC), Alexa Fluor® 488 (sc-365699 AF488), Alexa Fluor® 546 (sc-365699 AF546), Alexa Fluor® 594 (sc-365699 AF594) or Alexa Fluor® 647 (sc-365699 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-365699 AF680) or Alexa Fluor® 790 (sc-365699 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-365699 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).



## STORAGE

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

## PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

## APPLICATIONS

LMP7 (A-12) is recommended for detection of LMP7A and LMP7B of 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).

LMP7 (A-12) is also recommended for detection of LMP7A and LMP7B in additional species, including equine and porcine.

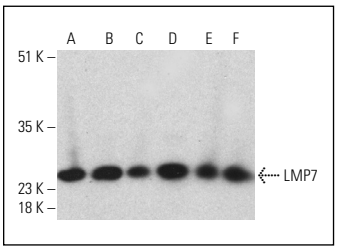
Suitable for use as control antibody for LMP7 siRNA (h): sc-35822, LMP7 shRNA Plasmid (h): sc-35822-SH and LMP7 shRNA (h) Lentiviral Particles: sc-35822-V.

Molecular Weight of mature LMP7: 23 kDa.

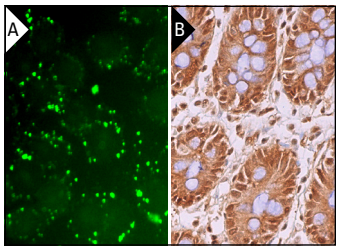
Molecular Weight of LMP7 precursor: 30 kDa.

Positive Controls: CCRF-CEM cell lysate: sc-2225, MOLT-4 cell lysate: sc-2233 or U266 whole cell lysate: sc-364800.

## DATA




LMP7 (A-12) HRP: sc-365699 HRP. Direct western blot analysis of LMP7 expression in CCRF-CEM (**A**), HuT 78 (**B**), MOLT-4 (**C**), HEL 92.1.7 (**D**), U266 (**E**) and U-937 (**F**) whole cell lysates.




LMP7 (A-12): sc-365699. Immunofluorescence staining of methanol-fixed HeLa cells showing punctate cytoplasmic localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human rectum tissue showing cytoplasmic and nuclear staining of glandular cells (**B**).

## SELECT PRODUCT CITATIONS

1. Golnik, R., et al. 2016. Major histocompatibility complex (MHC) class I processing of the NY-ESO-1 antigen is regulated by Rpn10 and Rpn13 proteins and immunoproteasomes following non-lysine ubiquitination. J. Biol. Chem. 291: 8805-8815.
2. Tubío-Santamaría, N., et al. 2023. Immunoproteasome function maintains oncogenic gene expression in KMT2A-complex driven leukemia. Mol. Cancer 22: 196.
3. Heinemann, F.S. and Gershon, P.D. 2024. Differential abundance of DNA damage sensors and innate immune signaling proteins in inositol polyphosphate 4-phosphatase type II-negative triple-negative breast cancer classified by immunotype. Am. J. Pathol. 194: 2212-2232.

## RESEARCH USE

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