SANTA CRUZ BIOTECHNOLOGY, INC.

Oma1 (H-11): sc-515788

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Oma1 (Oma1 homolog, zinc metallopeptidase *(S. cerevisiae)),* also known as MPRP-1 or ZMPOMA1, is a 521 amino acid mitochondrial protease that belongs to the peptidase M48 family. Oma1 is an integral part of the inner membrane, and it functions to mediate the proteolytic breakdown of a misfolded derivative of the polytopic inner membrane protein OXA1. Oma1 is a novel component of the quality control system in the inner membrane of mitochondria. The gene encoding Oma1 maps to human chromosome 1, which spans 260 million base pairs, contains over 3,000 genes and comprises nearly 8% of the human genome. Chromosome 1 houses a large number of disease-associated genes, including those that are involved in familial adenomatous polyposis, Stickler syndrome, Parkinson's disease, Gaucher disease, schizophrenia and Usher syndrome. Aberrations in chromosome 1 are found in a variety of cancers, including head and neck cancer, malignant melanoma and multiple myeloma.

CHROMOSOMAL LOCATION

Genetic locus: OMA1 (human) mapping to 1p32.2; Oma1 (mouse) mapping to 4 C6.

SOURCE

Oma1 (H-11) is a mouse monoclonal antibody raised against amino acids 230-399 mapping within an internal region of Oma1 of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Oma1 (H-11) is available conjugated to agarose (sc-515788 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-515788 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-515788 PE), fluorescein (sc-515788 FITC), Alexa Fluor® 488 (sc-515788 AF488), Alexa Fluor® 546 (sc-515788 AF546), Alexa Fluor® 594 (sc-515788 AF594) or Alexa Fluor® 647 (sc-515788 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-515788 AF680) or Alexa Fluor® 790 (sc-515788 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

Oma1 (H-11) is recommended for detection of Oma1 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 Oma1 siRNA (h): sc-78998, Oma1 siRNA (m): sc-151297, Oma1 shRNA Plasmid (h): sc-78998-SH, Oma1 shRNA Plasmid (m): sc-151297-SH, Oma1 shRNA (h) Lentiviral Particles: sc-78998-V and Oma1 shRNA (m) Lentiviral Particles: sc-151297-V.

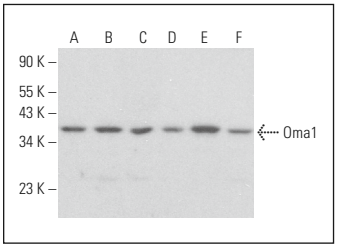
Molecular Weight of Oma1 precursor: 60 kDa.

Molecular Weight of cleaved Oma1: 40 kDa.

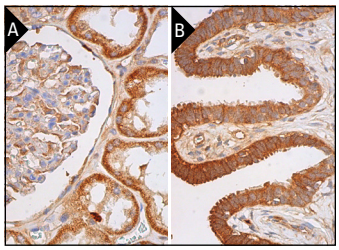
STORAGE

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

DATA



Oma1 (H-11): sc-515788. Western blot analysis of Oma1 expression in Daudi (**A**), HL-60 (**B**), K-562 (**C**), MEG-01 (**D**), U-937 (**E**) and U-698-M (**F**) whole cell lysates.



Oma1 (H-11): sc-515788. Immunoperoxidase staining of formalin fixed, paraffin-embedded human kidney tissue showing cytoplasmic staining of cells in glomeruli and cells in tubules (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human fallopian tube tissue showing cytoplasmic staining of glandular cells (**B**).

SELECT PRODUCT CITATIONS

1. Ausman, J., et al. 2018. Ceramide-induced BOK promotes mitochondrial fission in preeclampsia. Cell Death Dis. 9: 298.
2. Lee, Y.J., et al. 2019. Down-regulation of the mitochondrial i-AAA protease Yme1L induces muscle atrophy via FoxO3a and myostatin activation. J. Cell. Mol. Med. 24: 899-909.
3. Sugawara, S., et al. 2020. The mitochondrial protein PGAM5 suppresses energy consumption in brown adipocytes by repressing expression of uncoupling protein 1. J. Biol. Chem. 295: 5588-5601.
4. Douida, A., et al. 2021. Cells lacking PA200 adapt to mitochondrial dysfunction by enhancing glycolysis via distinct Opa1 processing. Int. J. Mol. Sci. 22: 1629.
5. Ruan, Y., et al. 2022. CHCHD2 and CHCHD10 regulate mitochondrial dynamics and integrated stress response. Cell Death Dis. 13: 156.
6. Sekine, Y., et al. 2023. A mitochondrial iron-responsive pathway regulated by DELE1. Mol. Cell 83: 2059-2076.e6.
7. Chen, L., et al. 2024. Inhibition of mitochondrial OMA1 ameliorates osteosarcoma tumorigenesis. Cell Death Dis. 15: 786.
8. Aishwarya, R., et al. 2024. Diastolic dysfunction in Alzheimer's disease model mice is associated with Aβ-amyloid aggregate formation and mitochondrial dysfunction. Sci. Rep. 14: 16715.
9. Murata, D., et al. 2024. Slc25a3-dependent copper transport controls flickering-induced Opa1 processing for mitochondrial safeguard. Dev. Cell 59: 2578-2592.e7.

RESEARCH USE

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