SANTA CRUZ BIOTECHNOLOGY, INC.

USP14 (C-5): sc-515812

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The ubiquitin (Ub) pathway involves three sequential enzymatic steps that facilitate the conjugation of Ub and Ub-like molecules to specific protein substrates. Through the use of a wide range of enzymes that can add or remove ubiquitin, the Ub pathway controls many intracellular processes such as signal transduction, transcriptional activation and cell cycle progression. USP14 (ubiquitin specific peptidase 14), also known as TGT (tRNA-guanine transglycosylase), is a cytoplasmic protein that belongs to the ubiquitin-specific processing family of deubiquitinating enzymes. Existing as a homodimer within the cell, USP14 functions to cleave ubiquitin residues from both ubiquitinylated proteins and ubiquitin-fused precursors, thereby saving these proteins from proteasomal degradation. In mice, defects or mutations in the gene encoding USP14 cause retarded growth or fetal death, indicating that USP14 plays a key role in early developmental processes. Multiple isoforms of USP14 are expressed due to alternative splicing events.

REFERENCES

1. Deshpande, K.L., et al. 1996. Cloning and characterization of cDNA encoding the rabbit tRNA-guanine transglycosylase 60-kilodalton subunit. Arch. Biochem. Biophys. 326: 1-7.
2. D'Andrea, A. and Pellman, D. 1998. Deubiquitinating enzymes: a new class of biological regulators. Crit. Rev. Biochem. Mol. Biol. 33: 337-352.

CHROMOSOMAL LOCATION

Genetic locus: USP14 (human) mapping to 18p11.32; Usp14 (mouse) mapping to 18 A1.

SOURCE

USP14 (C-5) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 87-108 within an internal region of USP14 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.

APPLICATIONS

USP14 (C-5) is recommended for detection of USP14 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for USP14 siRNA (h): sc-76817, USP14 siRNA (m): sc-76818, USP14 shRNA Plasmid (h): sc-76817-SH, USP14 shRNA Plasmid (m): sc-76818-SH, USP14 shRNA (h) Lentiviral Particles: sc-76817-V and USP14 shRNA (m) Lentiviral Particles: sc-76818-V.

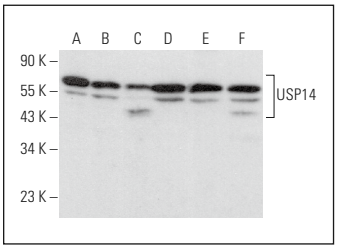
Molecular Weight of USP14: 60 kDa.

Positive Controls: A-673 cell lysate: sc-2414, Jurkat whole cell lysate: sc-2204 or A-375 cell lysate: sc-3811.

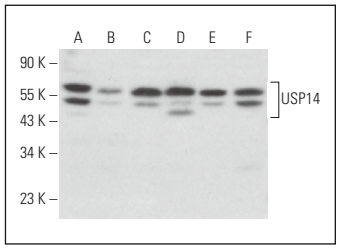
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



USP14 (C-5): sc-515812. Western blot analysis of USP14 expression in Jurkat (**A**), A-375 (**B**), NCI-H292 (**C**), Neuro-2A (**D**), C6 (**E**) and PANC-1 (**F**) whole cell lysates.



USP14 (C-5): sc-515812. Western blot analysis of USP14 expression in Jurkat (**A**), A-673 (**B**), HUV-EC-C (**C**), c4 (**D**), EOC 20 (**E**) and HL-60 (**F**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Lan, X., et al. 2017. Platinum pyrithione induces apoptosis in chronic myeloid leukemia cells resistant to imatinib via DUB inhibition-dependent caspase activation and Bcr-Abl downregulation. Cell Death Dis. 8: e2913.
2. Jiang, L., et al. 2019. Proteasomal cysteine deubiquitinase inhibitor b-AP15 suppresses migration and induces apoptosis in diffuse large B cell lymphoma. J. Exp. Clin. Cancer Res. 38: 453.
3. Lan, X., et al. 2022. Piperlongumine overcomes imatinib resistance by inducing proteasome inhibition in chronic myelogenous leukemia cells. J. Ethnopharmacol. 301: 115815.
4. Nowak, L., et al. 2023. Ubiquitin-specific proteases as potential therapeutic targets in bladder cancer-*in vitro* evaluation of degrasyn and PR-619 activity using human and canine models. Biomedicines 11: 759.
5. Xu, Y., et al. 2023. Ceramide synthase 1 inhibits brain metastasis of non-small cell lung cancer by interacting with USP14 and downregulating the PI3K/AKT/mTOR signaling pathway. Cancers 15: 1994.

STORAGE

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

RESEARCH USE

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