SANTA CRUZ BIOTECHNOLOGY, INC.

USP14 (A-1): sc-393872

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.

CHROMOSOMAL LOCATION

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

SOURCE

USP14 (A-1) is a mouse monoclonal antibody raised against amino acids 195-494 mapping at the C-terminus of USP14 of human origin.

PRODUCT

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

STORAGE

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

APPLICATIONS

USP14 (A-1) 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).

USP14 (A-1) is also recommended for detection of USP14 in additional species, including canine.

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.

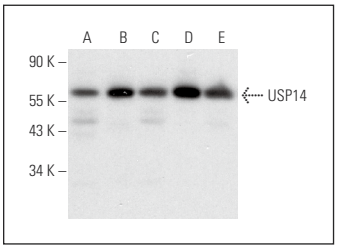
Molecular Weight of USP14: 60 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, HCT-116 whole cell lysate: sc-364175 or SK-OV-3 whole cell lysate: sc-364229.

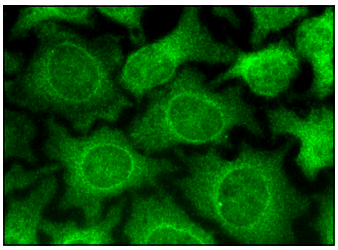
RECOMMENDED SUPPORT REAGENTS

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 (A-1): sc-393872. Western blot analysis of USP14 expression in HeLa (**A**), MOLT-4 (**B**), U-251-MG (**C**), SK-OV-3 (**D**) and HCT-116 (**E**) whole cell lysates.



USP14 (A-1): sc-393872. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic and nuclear localization.

SELECT PRODUCT CITATIONS

1. Xu, D., et al. 2015. Phosphorylation and activation of ubiquitin-specific protease-14 by Akt regulates the ubiquitin-proteasome system. Elife 4: e10510.
2. Xu, D., et al. 2016. USP14 regulates autophagy by suppressing K63 ubiquitination of Beclin 1. Genes Dev. 30: 1718-1730.
3. Wei, J., et al. 2017. Regulation of the ubiquitylation and deubiquitylation of CREB-binding protein modulates histone acetylation and lung inflammation. Sci. Signal. 10: eaak9660.
4. Xu, J., et al. 2020. SPAG5-AS1 inhibited autophagy and aggravated apoptosis of podocytes via SPAG5/Akt/mTOR pathway. Cell Prolif. 53: e12738.
5. Gao, L., et al. 2021. KIF15-mediated stabilization of AR and AR-V7 contributes to enzalutamide resistance in prostate cancer. Cancer Res. 81: 1026-1039.
6. Yan, G., et al. 2021. Deubiquitylation and stabilization of Acf7 by ubiquitin carboxylterminal hydrolase 14 (USP14) is critical for NSCLC migration. J. Biosci. 46: 19.

RESEARCH USE

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

PROTOCOLS

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