SANTA CRUZ BIOTECHNOLOGY, INC.

USP14 (F-4): sc-398009

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.
3. Borodovsky, A., et al. 2001. A novel active site-directed probe specific for deubiquitylating enzymes reveals proteasome association of USP14. EMBO J. 20: 5187-5196.

CHROMOSOMAL LOCATION

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

SOURCE

USP14 (F-4) 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_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

USP14 (F-4) is available conjugated to agarose (sc-398009 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-398009 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-398009 PE), fluorescein (sc-398009 FITC), Alexa Fluor® 488 (sc-398009 AF488), Alexa Fluor® 546 (sc-398009 AF546), Alexa Fluor® 594 (sc-398009 AF594) or Alexa Fluor® 647 (sc-398009 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-398009 AF680) or Alexa Fluor® 790 (sc-398009 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

STORAGE

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

APPLICATIONS

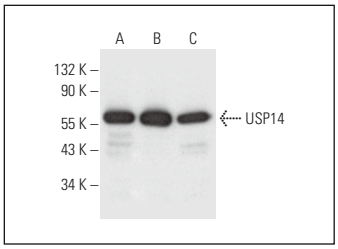
USP14 (F-4) is recommended for detection of USP14 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), 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).

USP14 (F-4) is also recommended for detection of USP14 in additional species, including canine.

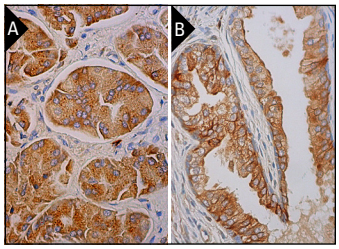
Molecular Weight of USP14: 60 kDa.

Positive Controls: U-251-MG whole cell lysate: sc-364176, HCT-116 whole cell lysate: sc-364175 or SK-OV-3 whole cell lysate: sc-364229.

DATA



USP14 (F-4): sc-398009. Western blot analysis of USP14 expression in U-251-MG (**A**), SK-OV-3 (**B**) and HCT-116 (**C**) whole cell lysates.



USP14 (F-4): sc-398009. Immunoperoxidase staining of formalin fixed, paraffin-embedded human upper stomach tissue showing cytoplasmic staining of glandular cells (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human prostate tissue showing cytoplasmic and membrane staining of glandular cells (**B**).

SELECT PRODUCT CITATIONS

1. Long, C., et al. 2018. LPS promotes HBO1 stability via USP25 to modulate inflammatory gene transcription in THP-1 cells. Biochim. Biophys. Acta Gene Regul. Mech. 1861: 773-782.
2. Xu, H., et al. 2020. Preclinical study using ABT263 to increase enzalutamide sensitivity to suppress prostate cancer progression via targeting BCL2/ROS/USP26 axis through altering ARv7 protein degradation. Cancers 12: 831.
3. Lv, C., et al. 2021. USP14 maintains HIF1-α stabilization via its deubiquitination activity in hepatocellular carcinoma. Cell Death Dis. 12: 803.
4. You, L., et al. 2023. SDC2 stabilization by USP14 promotes gastric cancer progression through co-option of PDK1. Int. J. Biol. Sci. 19: 3483-3498.
5. Zhang, X., et al. 2024. Ubiquitin-specific protease 14 targets PFKL-mediated glycolysis to promote the proliferation and migration of oral squamous cell carcinoma. J. Transl. Med. 22: 193.

RESEARCH USE

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