# SANTA CRUZ BIOTECHNOLOGY, INC.

# USP4 (H-3): sc-376000



#### 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. USP4 (ubiquitin-specific-processing protease 4), also known as ubiquitin carboxyl-terminal hydrolase 4, UNP or UNPH (ubiquitous nuclear protein homolog), is a 963 amino acid nucleocytoplasmic protein that belongs to the peptidase C19 family. USP4 binds to the C-terminus of Adenosine A2A-R, a G<sub>s</sub>-coupled receptor, and enhances cell surface expression of the functionally active receptor. USP4 contains one DUSP domain and exists as two isoforms due to alternative splicing.

## **CHROMOSOMAL LOCATION**

Genetic locus: USP4 (human) mapping to 3p21.31; Usp4 (mouse) mapping to 9 F2.

## SOURCE

USP4 (H-3) is a mouse monoclonal antibody raised against amino acids 708-779 mapping within an internal region of USP4 of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g lgG<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

USP4 (H-3) is available conjugated to agarose (sc-376000 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-376000 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-376000 PE), fluorescein (sc-376000 FITC), Alexa Fluor® 488 (sc-376000 AF488), Alexa Fluor® 546 (sc-376000 AF546), Alexa Fluor® 594 (sc-376000 AF594) or Alexa Fluor® 647 (sc-376000 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-376000 AF680) or Alexa Fluor® 790 (sc-376000 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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## **APPLICATIONS**

USP4 (H-3) is recommended for detection of USP4 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 USP4 siRNA (h): sc-76851, USP4 siRNA (m): sc-76852, USP4 shRNA Plasmid (h): sc-76851-SH, USP4 shRNA Plasmid (m): sc-76852-SH, USP4 shRNA (h) Lentiviral Particles: sc-76851-V and USP4 shRNA (m) Lentiviral Particles: sc-76852-V.

Molecular Weight of USP4: 110 kDa.

Positive Controls: K-562 whole cell lysate: sc-2203, HEL 92.1.7 cell lysate: sc-2270 or THP-1 cell lysate: sc-2238.

## STORAGE

Store at 4° C, \*\*D0 NOT FREEZE\*\*. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## DATA





USP4 (H-3): sc-376000. Western blot analysis of USP4 expression in K-562  $({\bm A}),$  HEL 92.1.7  $({\bm B})$  and THP-1  $({\bm C})$  whole cell lysates.

USP4 (H-3): sc-376000. Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear and cytoplasmic localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human kidney tissue showing nuclear and cytoplasmic staining of cells in glomeruli and tubules. (B).

## **SELECT PRODUCT CITATIONS**

- 1. Li, Z., et al. 2016. USP4 inhibits p53 and NFκB through deubiquitinating and stabilizing HDAC2. Oncogene 35: 2902-2912.
- Li, T., et al. 2018. Ubiquitin-specific protease 4 promotes hepatocellular carcinoma progression via cyclophilin A stabilization and deubiquitination. Cell Death Dis. 9: 148.
- Long, C., et al. 2018. LPS promotes HB01 stability via USP25 to modulate inflammatory gene transcription in THP-1 cells. Biochim. Biophys. Acta Gene Regul. Mech. 1861: 773-782.
- Bai, Y., et al. 2021. Intervention of gastrodin in type 2 diabetes mellitus and its mechanism. Front. Pharmacol. 12: 710722.
- Chen, Y., et al. 2021. Silencing of METTL3 effectively hinders invasion and metastasis of prostate cancer cells. Theranostics 11: 7640-7657.
- Tao, Y., et al. 2022. The deubiquitinating enzyme USP4 functions as an oncoprotein in gastric cancer and mediates NF-κB signaling by regulating PRL-3 expression. Front. Biosci. 27: 286.
- 7. Yun, S.I., et al. 2023. Binding of USP4 to cortactin enhances cell migration in HCT116 human colon cancer cells. FASEB J. 37: e22900.
- Xu, J., et al. 2023. FBXO3 stabilizes USP4 and Twist1 to promote PI3Kmediated breast cancer metastasis. PLoS Biol. 21: e3002446.
- Zhang, X., et al. 2024. Stress granule-localized USP8 potentiates cGASmediated type I interferonopathies through deubiquitination of DDX3X. Cell Rep. 43: 114248.
- 10. Li, F., et al. 2025. A novel USP4 inhibitor that suppresses colorectal cancer stemness by promoting  $\beta$ -catenin and Twist1 degradation. J. Transl. Med. 23: 114.

## **RESEARCH USE**

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