SANTA CRUZ BIOTECHNOLOGY, INC.

USP15 (2D5): sc-100629

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. USP15 (ubiquitin specific peptidase 15), also known as UNPH4, is a member of the peptidase C19 family of proteins. Expressed in kidney, liver, placenta, ovary, lung, thymus, heart and skeletal muscle, USP15 localizes to the cytoplasm and the nucleus, contains one DUSP domain and functions as a deubiquitinating enzyme that cleaves ubiquitin residues from both ubiquitinylated proteins and ubiquitin-fused precursors, thereby saving these proteins from proteasomal degradation. Via its DUSP domain, USP15 plays a role in the regulation of the COP9 signalosome (CSN) complex. Three isoforms exist for USP15 due to alternative splicing events.

REFERENCES

1. Nagase, T., et al. 1998. Prediction of the coding sequences of unidentified human genes. IX. The complete sequences of 100 new cDNA clones from brain which can code for large proteins *in vitro*. DNA Res. 5: 31-39.
2. Baker, R.T., et al. 1999. Identification, functional characterization, and chromosomal localization of USP15, a novel human ubiquitin-specific protease related to the UNP oncoprotein, and a systematic nomenclature for human ubiquitin-specific proteases. Genomics 59: 264-274.

CHROMOSOMAL LOCATION

Genetic locus: USP15 (human) mapping to 12q14.1; Usp15 (mouse) mapping to 10 D2.

SOURCE

USP15 (2D5) is a mouse monoclonal antibody raised against recombinant USP15 of human origin.

PRODUCT

Each vial contains 100 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

USP15 (2D5) is recommended for detection of USP15 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, 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).

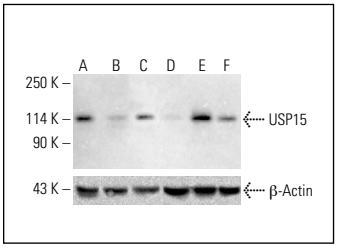
Suitable for use as control antibody for USP15 siRNA (h): sc-76819, USP15 siRNA (m): sc-76820, USP15 shRNA Plasmid (h): sc-76819-SH, USP15 shRNA Plasmid (m): sc-76820-SH, USP15 shRNA (h) Lentiviral Particles: sc-76819-V and USP15 shRNA (m) Lentiviral Particles: sc-76820-V.

Molecular Weight of USP15: 112 kDa.

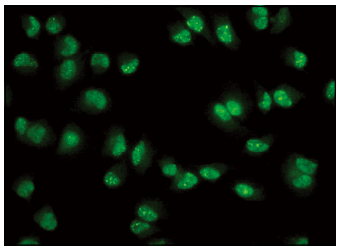
STORAGE

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

DATA



USP15 (2D5): sc-100629. Western blot analysis of USP15 expression in HeLa (**A**), untreated K-562 (**B**), chemically-treated K-562 (**C**), untreated HCT-116 (**D**) and chemically-treated HCT-116 (**E**, **F**) whole cell lysates. β-Actin (C4): sc-47778 used as loading control. Detection reagent used: m-IgG Fc BP-HRP: sc-525409.



USP15 (2D5): sc-100629. Immunofluorescence staining of paraformaldehyde-fixed HeLa cells showing nuclear localization.

SELECT PRODUCT CITATIONS

1. Börner, C., et al. 2013. Inhibition of NFκB by opioids in T cells. J. Immunol. 191: 4640-4647.
2. Zou, Q., et al. 2014. USP15 stabilizes MDM2 to mediate cancer-cell survival and inhibit antitumor T cell responses. Nat. Immunol. 15: 562-570.
3. Pilchova, I., et al. 2015. Possible contribution of proteins of Bcl-2 family in neuronal death following transient global brain ischemia. Cell. Mol. Neurobiol. 35: 23-31.
4. Fukagai, K., et al. 2016. USP15 stabilizes the transcription factor Nrf1 in the nucleus, promoting the proteasome gene expression. Biochem. Biophys. Res. Commun. 478: 363-370.
5. Jin, X., et al. 2018. DUB3 promotes BET inhibitor resistance and cancer progression by deubiquitinating BRD4. Mol. Cell 71: 592-605.e4.
6. Niederkorn, M., et al. 2020. TIFAB regulates USP15-mediated p53 signaling during stressed and malignant hematopoiesis. Cell Rep. 30: 2776-2790.e6.
7. Xu, W., et al. 2020. USP15 deubiquitinates CARD9 to downregulate C-type lectin receptor-mediated signaling. Immunohorizons 4: 670-678.
8. Timani, K.A., et al. 2022. Tip110/SART3-mediated regulation of NFκB activity by targeting IκBα stability through USP15. Front. Oncol. 12: 843157.
9. Zhang, T., et al. 2023. Alleviative effect of microRNA-497 on diabetic neuropathic pain in rats in relation to decreased USP15. Cell Biol. Toxicol. 39: 1-16.
10. Zhang, X., et al. 2024. Stress granule-localized USP8 potentiates cGAS-mediated type I interferonopathies through deubiquitination of DDX3X. Cell Rep. 43: 114248.

RESEARCH USE

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