

USP33 (1D7): sc-100632



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. USP33 (ubiquitin specific peptidase 33), also known as VDU1 (VHL-interacting deubiquitinating enzyme 1), is a widely expressed 942 amino acid protein that belongs to the peptidase C19 family of proteins. Containing two DUSP domains and a UBP-type zinc finger, USP33 functions as deubiquitinating enzyme that cleaves ubiquitin residues from both ubiquitinated proteins and ubiquitin-fused precursors, thereby saving these proteins from proteasomal degradation. In addition, USP33 binds VHL and can be ubiquitinated for degradation in a VHL-dependent manner. Three isoforms of USP33 are expressed due to alternative splicing events.

REFERENCES

- Li, Z., et al. 2002. Identification of a deubiquitinating enzyme subfamily as substrates of the von Hippel-Lindau tumor suppressor. *Biochem. Biophys. Res. Commun.* 294: 700-709.
- Li, Z., et al. 2002. Ubiquitination of a novel deubiquitinating enzyme requires direct binding to von Hippel-Lindau tumor suppressor protein. *J. Biol. Chem.* 277: 4656-4662.

CHROMOSOMAL LOCATION

Genetic locus: USP33 (human) mapping to 1p31.1.

SOURCE

USP33 (1D7) is a mouse monoclonal antibody raised against recombinant USP33 of human origin.

PRODUCT

Each vial contains 100 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

USP33 (1D7) is recommended for detection of USP33 of 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), 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 USP33 siRNA (h): sc-76839, USP33 shRNA Plasmid (h): sc-76839-SH and USP33 shRNA (h) Lentiviral Particles: sc-76839-V.

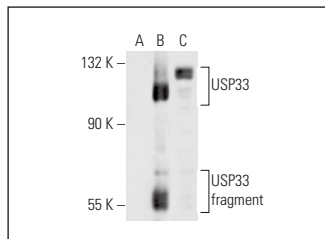
Molecular Weight of USP33: 107 kDa.

Positive Controls: USP33 (h): 293 Lysate: sc-111190 or HeLa whole cell lysate: sc-2200.

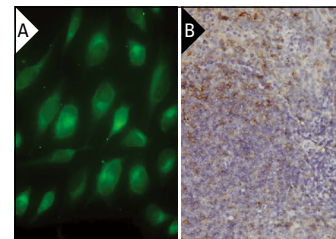
STORAGE

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

DATA



USP33 (1D7): sc-100632. Western blot analysis of USP33 expression in non-transfected 293: sc-110760 (A), human USP33 transfected 293: sc-111190 (B) and HeLa (C) whole cell lysates.



USP33 (1D7): sc-100632. Immunofluorescence staining of paraformaldehyde-fixed HeLa cells showing nuclear and cytoplasmic localization (A). Immunoperoxidase staining of formalin-fixed, paraffin-embedded human tonsil tissue showing cytoplasmic localization (B).

SELECT PRODUCT CITATIONS

- Jia, M., et al. 2018. USP33 is a biomarker of disease recurrence in papillary thyroid carcinoma. *Cell. Physiol. Biochem.* 45: 2044-2053.
- Chen, Y., et al. 2018. Reduced expression of deubiquitinase USP33 is associated with tumor progression and poor prognosis of gastric adenocarcinoma. *Med. Sci. Monit.* 24: 3496-3505.
- Mishra, R., et al. 2020. Dengue virus degrades USP33-ATF3 axis via extracellular vesicles to activate human microglial cells. *J. Immunol.* 205: 1787-1798.
- Mishra, R. and Banerjee, A.C. 2021. SARS-CoV-2 spike targets USP33-IRF9 axis via exosomal miR-148a to activate human microglia. *Front. Immunol.* 12: 656700.
- Mishra, R., et al. 2022. Japanese encephalitis virus infection increases USP42 to stabilize TRIM21 and OAS1 for neuroinflammatory and anti-viral response in human microglia. *Virology* 573: 131-140.
- 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.

PROTOCOLS

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