

USP18 (E-5): sc-374064

BACKGROUND

The ubiquitin (Ub) pathway involves three sequential enzymatic steps that facilitate the conjugation of Ub and Ub-like molecules to specific protein substrates. A wide range of enzymes facilitate the proteolytic Ub pathway, including the ubiquitin specific peptidase, USP18 (also designated interferon-stimulated gene 43 (ISG43), ISG15-specific-processing protease, Ubl carboxyl-terminal hydrolase 18 and Ubp43). USP18, a member of the peptidase C19 family, maintains a critical cellular balance of ISG15-conjugated proteins in stressed and healthy organisms. It can efficiently cleave ISG15 fusions including native ISG15 conjugates linked by isopeptide bonds. In mice, deletion of the USP18 gene leads to a large increase of ISG15 conjugates in tissues. USP18 expression is negatively regulated by RNase-L and induced by interferon.

REFERENCES

1. Liu, L.Q., et al. 1999. A novel ubiquitin-specific protease, UBP43, cloned from leukemia fusion protein AML1-ETO-expressing mice, functions in hematopoietic cell differentiation. *Mol. Cell. Biol.* 19: 3029-3038.
2. Schwer, H., et al. 2000. Cloning and characterization of a novel human ubiquitin-specific protease, a homologue of murine UBP43 (Usp18). *Genomics* 65: 44-52.
3. Li, X. L., et al. 2000. RNase-L-dependent destabilization of interferon-induced mRNAs. A role for the 2-5A system in attenuation of the interferon response. *J. Biol. Chem.* 275: 8880-8888.
4. Malakhov, M.P., et al. 2002. UBP43 (USP18) specifically removes ISG15 from conjugated proteins. *J. Biol. Chem.* 277: 9976-9981.

CHROMOSOMAL LOCATION

Genetic locus: USP18 (human) mapping to 22q11.21.

SOURCE

USP18 (E-5) is a mouse monoclonal antibody raised against amino acids 73-372 mapping at the C-terminus of USP18 of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

USP18 (E-5) is available conjugated to agarose (sc-374064 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-374064 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-374064 PE), fluorescein (sc-374064 FITC), Alexa Fluor® 488 (sc-374064 AF488), Alexa Fluor® 546 (sc-374064 AF546), Alexa Fluor® 594 (sc-374064 AF594) or Alexa Fluor® 647 (sc-374064 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-374064 AF680) or Alexa Fluor® 790 (sc-374064 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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RESEARCH USE

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

APPLICATIONS

USP18 (E-5) is recommended for detection of USP18 of 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).

Suitable for use as control antibody for USP18 siRNA (h): sc-60865, USP18 shRNA Plasmid (h): sc-60865-SH and USP18 shRNA (h) Lentiviral Particles: sc-60865-V.

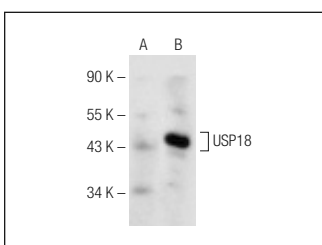
Molecular Weight of USP18: 43 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204 or human USP18 transfected HEK293T whole cell lysate.

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



USP18 (E-5): sc-374064. Western blot analysis of USP18 expression in non-transfected (A) and human USP18 transfected (B) HEK293T whole cell lysates.

SELECT PRODUCT CITATIONS

1. Auclair, M., et al. 2020. HIV antiretroviral drugs, dolutegravir, maraviroc and ritonavir-boosted atazanavir use different pathways to affect inflammation, senescence and Insulin sensitivity in human coronary endothelial cells. *PLoS ONE* 15: e0226924.
2. Pan, A., et al. 2021. USP18-deficiency in cervical carcinoma is crucial for the malignant behavior of tumor cells in an ERK signal-dependent manner. *Oncol. Lett.* 21: 421.

STORAGE

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