Revision 1

#4813 Store at -20C

USP18 (D4E7) Rabbit mAb

Cell Signaling TECHNOLOGY®

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Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
WB, IP	H	Endogenous	34, 39	Rabbit IgG	#Q9UMW8	11274

Product Usage Information

Application	Dilution
Western Blotting	1:1000
Immunoprecipitation	1:50

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at –20°C. Do not aliquot the antibody.

Specificity / Sensitivity

USP18 (D4E7) Rabbit mAb detects endogenous levels of total USP18 protein. The doublet band detected by western blot represents full length (39 kDa) and amino-terminal deleted derivative of USP18 (8).

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Pro45 of human USP18 protein.

Background

Ubiquitinating enzymes (UBEs) catalyze protein ubiquitination, a reversible process countered by deubiquitinating enzyme (DUB) action. Five DUB subfamilies are recognized, including the USP, UCH, OTU, MJD and JAMM enzymes (1,2). USP18 (also known as UBP43) is a deubiquitinase best known for catalyzing the removal of ISG15, an interferon-regulated ubibiquitin-like protein, from conjugated proteins (3). Removal of ISG15 from target proteins by the USP18 peptidase maintains the critical cellular balance of ISG15-conjugated proteins important for normal development and brain function (4,5). Following induction by IFN or LPS (6), USP18 binds the INF receptor subunit IFNAR2 and inhibits signal transduction through the JAK-STAT pathway (7). USP18 regulation of IFN signaling inhibits IFN-mediated apoptosis and does not necessarily rely on USP18 peptidase activity (8). As the therapeutic use of recombinant IFN can lead to refractory IFN signaling and a less effective response, the combination of IFN treatment and regulation of USP18 expression may produce a more positive outcome (9).

Background References

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2. Nalepa, G. et al. (2006) *Nat Rev Drug Discov* 5, 596-613.
3. Malakhov, M.P. et al. (2002) *J Biol Chem* 277, 9976-81.
4. Rempel, L.A. et al. (2007) *Reprod Biol Endocrinol* 5, 13.
5. Ritchie, K.J. et al. (2002) *Genes Dev* 16, 2207-12.
6. Malakhova, O. et al. (2002) *J Biol Chem* 277, 14703-11.
7. Malakhova, O.A. et al. (2006) *EMBO J* 25, 2358-67.
8. Potu, H. et al. (2010) *Cancer Res* 70, 655-65.
9. Sarasin-Filipowicz, M. et al. (2009) *Mol Cell Biol* 29, 4841-51.

Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Western Blot Buffer

IMPORTANT: For western blots, incubate membrane with diluted primary antibody in 5% w/v BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

WB: Western Blotting **IP:** Immunoprecipitation

Cross-Reactivity Key

H: human **M:** mouse **R:** rat **Hm:** hamster **Mk:** monkey **Vir:** virus **Mi:** mink **C:** chicken **Dm:** D. melanogaster **X:** Xenopus **Z:** zebrafish **B:** bovine **Dg:** dog **Pg:** pig **Sc:** S. cerevisiae **Ce:** C. elegans **Hr:** horse **GP:** Guinea Pig **Rab:** rabbit **All:** all species expected

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