

#3783
Store at -20C

OTUB1 (D8F7) Rabbit mAb



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Applications: WB	Reactivity: H M R Mk	Sensitivity: Endogenous	MW (kDa): 31	Source/Isotype: Rabbit IgG	UniProt ID: #Q96FW1	Entrez-Gene Id: 55611
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Product Usage Information	Application			Dilution		
	Western Blotting			1:1000		
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	OTUB1 (D8F7) Rabbit mAb recognizes endogenous levels of total OTUB1 protein. This antibody does not cross-react with OTUB2 and based upon sequence alignment, is not predicted to cross-react with OTUB1, isoform 2 (ARF-1).					
Species predicted to react based on 100% sequence homology:	Hamster, Bovine, Dog					
Source / Purification	Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Ile82 of human OTUB1 protein.					

Background

Protein ubiquitination and deubiquitination are reversible processes catalyzed by ubiquitinating enzymes (UBEs) and deubiquitinating enzymes (DUBs) (1,2). DUBs are categorized into 5 subfamilies: USP, UCH, OTU, MJD, and JAMM (1,2). The OTU subfamily comprises a group of approximately 100 putative cysteine proteases that are homologous to the ovarian tumor gene product of *Drosophila* (3). OTUB1 and OTUB2 (OTU domain-containing Ubal-binding proteins) display no significant similarity to any known DUB, but are close homologs and possess an OTU domain that contains conserved cysteine, histidine, and aspartate residues that define the putative catalytic triad of cysteine proteases. Furthermore, sequence analysis of OTUB1 and OTUB2 reveals the presence of putative Ub-interaction motifs (UIMs) and Ub-associated domains (UBAs), which are characteristic of proteins that regulate protein ubiquitination. OTUB1 and OTUB2 also possess a putative nuclear localization signal (NLS) and a consensus LxxLL motif, which mediates the interaction between transcriptional co-activators and nuclear hormone receptors (4).

OTUB1 exists as two isoforms that are generated by alternative splicing; the shorter 31 kDa isoform is ubiquitously expressed, while the longer 35 kDa isoform (ARF-1) has a more restricted expression pattern and is mostly detected in lymphoid organs (5). Biochemical analysis has demonstrated that OTUB1 has a preference for cleaving K48-linked polyubiquitin chains over K63-linked polyubiquitin chains and is capable of cleaving NEDD8, but not SUMO-1, -2, and -3 or ISG15 conjugates (6). OTUB1 isoforms have been implicated in anergy induction in CD4⁺ T cells by regulating the stability of the E3 ligase GRAIL (5). More recently, OTUB1 was found to bind to and inhibit the E2 activity of UBE2N through a novel mechanism not involving OTUB1 DUB activity, thus compromising the ability of the E3 ligase RNF168 to drive ubiquitination-dependent repair of DNA double-strand lesions (7). OTUB1 also appears to suppress MDM2-dependent ubiquitination of p53 independent of its catalytic activity, primarily by suppressing the activity of the MDM2 cognate E2 Ubch5 (8).

Background References

1. Nijman, S.M. et al. (2005) *Cell* 123, 773-86.
2. Nalepa, G. et al. (2006) *Nat Rev Drug Discov* 5, 596-613.
3. Makarova, K.S. et al. (2000) *Trends Biochem Sci* 25, 50-2.
4. Balakirev, M.Y. et al. (2003) *EMBO Rep* 4, 517-22.
5. Soares, L. et al. (2004) *Nat Immunol* 5, 45-54.
6. Edelman, M.J. et al. (2009) *Biochem J* 418, 379-90.
7. Nakada, S. et al. (2010) *Nature* 466, 941-6.
8. Sun, X.X. et al. (2012) *EMBO J* 31, 576-92.

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

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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