

**USP14 (D8Q6S) Rabbit mAb**

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**For Research Use Only. Not for Use in Diagnostic Procedures.**

Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W, IP	H M R	Endogenous	60	Rabbit IgG	#P54578	9097

**Product Usage Information****Application**

Western Blotting  
Immunoprecipitation

**Dilution**

1:1000  
1:100

**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**

USP14 (D8Q6S) Rabbit mAb recognizes endogenous levels of total USP14 protein. Based upon sequence alignment, this antibody is predicted to react with both isoform a and isoform b of USP14.

**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 near the carboxy terminus of human USP14 protein.

**Background**

Ubiquitinating enzymes (UBEs) catalyze protein ubiquitination, a reversible process countered by deubiquitinating enzyme (DUB) action (1,2). Five DUB subfamilies are recognized, including the USP, UCH, OTU, MJD, and JAMM enzymes. In humans, there are three proteasomal DUBs: PSMD14 (POH1/RPN11), UCH37 (UCH-L5), and Ubiquitin-Specific Protease 14, which is also known as the 60 kDa subunit of tRNA-guanine transglycosylase (USP14/TGT60 kDa). USP14 is recruited to the proteasome through its reversible association with the PSMD2 (S2/hRPN1) subunit of the 19S regulatory particle. Whereas PSMD14 appears to promote substrate degradation (3,4), USP14 is thought to antagonize substrate degradation (5-8). While the underlying mechanism for the opposing roles of these two proteasomal DUBs is still uncertain, it is thought that USP14 removes ubiquitin from substrate upon docking of the substrate with the 26S proteasome. Furthermore, USP14 trims ubiquitin residues from the distal end of the polyubiquitin chain, thus decreasing the affinity of the chain for the ubiquitin receptors of the proteasome, and allowing for enhanced substrate stability (6,9,10). Studies have elucidated a physiologic role for USP14 in regulating synaptic activity in mammals (11). Research studies have shown that targeting this activity with small molecule inhibitors has potential benefits for the treatment of neurodegenerative diseases and cancer (5,12).

**Background References**

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3. Verma, R. et al. (2002) *Science* 298, 611-5.
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7. Koulich, E. et al. (2008) *Mol Biol Cell* 19, 1072-82.
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9. Hanna, J. et al. (2006) *Cell* 127, 99-111.
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11. Wilson, S.M. et al. (2002) *Nat Genet* 32, 420-5.
12. D'Arcy, P. et al. (2011) *Nat Med*, Epub ahead of print.

**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 nonfat dry milk, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

**Applications Key**

**W:** Western Blotting **IP:** Immunoprecipitation

## Cross-Reactivity Key

**H:** Human **M:** Mouse **R:** Rat

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