Revision 5

Store at -20C

#14898

USP9X (D4Y7W) Rabbit mAb

Cell Signaling TECHNOLOGY®

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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, W-S, IP, IHC-P, IF-IC	H M R Mk	Endogenous	270	Rabbit IgG	#Q93008	8239

Product Usage Information

Application	Dilution
Western Blotting	1:1000
Simple Western™	1:10 - 1:50
Immunoprecipitation	1:50
Immunohistochemistry (Paraffin)	1:100
Immunofluorescence (Immunocytochemistry)	1:400

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.

For a carrier free (BSA and azide free) version of this product see product #63924.

Specificity/Sensitivity

USP9X (D4Y7W) Rabbit mAb recognizes endogenous levels of total USP9X protein.

Species predicted to react based on 100% sequence homology

Bovine, Dog, Horse

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Asn1272 of human USP9X protein.

Background

Protein ubiquitination and deubiquitination are reversible processes catalyzed by ubiquitinating enzymes (UBEs) and deubiquitinating enzymes (DUBs) respectively (1,2). DUBs are categorized into five subfamilies-USP, UCH, OTU, MJD, and JAMM. Ubiquitin-specific protease 9, X-linked (USP9X) possesses a well-conserved catalytic domain with cysteine peptidase activity, which allows for cleavage of ubiquitin and polyubiquitin conjugates. USP9X is the mammalian homolog of the *Drosophila fat-facets* (*faf*) gene, which is essential for normal eye development and viability of the early fly embryo (3,4). While USP9X expression is also critical for normal mammalian development (5-7), many of its substrates are only beginning to be elucidated. There is mounting evidence that USP9X functions in the formation of epithelial cell-cell contacts through deubiquitination-dependent stabilization of molecules involved in maintaining the integrity of both adherens and tight junctions. Indeed, USP9X has been found to associate with AF-6, the β-catenin-E-cadherin complex, and EFA6 (8-11). Research studies have also demonstrated that USP9X is an integral component of the TGF-β/BMP signaling cascade by opposing TRIM33-mediated monoubiquitination of SMAD4 (12). USP9X is overexpressed in a variety of human cancers and contributes to enhanced cell survival, in part, through its ability to deubiquitinate and stabilize the Mcl-1 oncoprotein (13). There is some evidence, however, that suggests the role of USP9X in tumorigenesis is context dependent. Research studies have implicated USP9X in a tumor suppressor role during the early stages of pancreatic ductal adenocarcinoma (PDAC) and in an oncogenic role during advanced stages of PDAC (14,15).

Background References

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3. Huang, Y. et al. (1995) *Science* 270, 1828-31.
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5. Pantaleon, M. et al. (2001) *Mech Dev* 109, 151-60.
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7. Xu, J. et al. (2005) *J Neurosci Res* 80, 47-55.
8. Taya, S. et al. (1998) *J Cell Biol* 142, 1053-62.
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12. Dupont, S. et al. (2009) *Cell* 136, 123-35.
13. Schwickart, M. et al. (2010) *Nature* 463, 103-7.

14. Pérez-Mancera, P.A. et al. (2012) *Nature* 486, 266-70.
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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 **W-S:** Simple Western™ **IP:** Immunoprecipitation **IHC-P:** Immunohistochemistry (Paraffin) **IF-IC:** Immunofluorescence (Immunocytochemistry)

Cross-Reactivity Key

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

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Limited Uses