Revision 1

Store at -20C

#12929

TMEM49/VMP1 (D1Y3E) 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, IP	H M R	Endogenous	46	Rabbit IgG	#Q96GC9	81671

Product Usage Information

Application	Dilution
Western Blotting	1:1000
Immunoprecipitation	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

TMEM49/VMP1 (D1Y3E) Rabbit mAb recognizes endogenous levels of total TMEM49/VMP1 protein.

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues near the carboxy terminus of human TMEM49/VMP1 protein.

Background

Vacuole membrane protein 1 (VMP1, TMEM49) is a transmembrane protein localized to intracellular vacuoles that was originally described as a protein promoting vacuole formation in acinar cells associated with acute pancreatitis (1). Over-expression of VMP1 promotes vacuole formation and subsequent cell death (1). Additional research studies demonstrated that VMP1 expression might be induced by starvation or the mTOR inhibitor rapamycin, which triggers autophagy (2). VMP1 is targeted along with LC3 to autophagosome membranes (2). Knockdown of VMP1 can inhibit autophagosome formation (2). VMP1 interacts with beclin-1, a key autophagy protein that activates the class III PI3 kinase Vps34 (3). VMP1 functions in the degradation and clearance of zymogen-containing vacuoles during experimentally induced pancreatitis (4). During vacuole degradation and clearance, VMP1 interacts with the ubiquitin protease USP9X, suggesting a possible functional link between the molecular machinery of autophagy and the ubiquitin pathway. Orthologs of VMP1 from *C. elegans* (known as EPG-3), *Drosophila* (known as TANGO-5), and *Dictyostelium*, have been shown to play a role in membrane trafficking, organelle organization, and autophagy (5-7).

Background References

1. Dusetti, N.J. et al. (2002) *Biochem Biophys Res Commun* 290, 641-9.
2. Ropolo, A. et al. (2007) *J Biol Chem* 282, 37124-33.
3. Kang, R. et al. (2011) *Cell Death Differ* 18, 571-80.
4. Grasso, D. et al. (2011) *J Biol Chem* 286, 8308-24.
5. Tian, Y. et al. (2010) *Cell* 141, 1042-55.
6. Bard, F. et al. (2006) *Nature* 439, 604-7.
7. Calvo-Garrido, J. et al. (2008) *Mol Biol Cell* 19, 3442-53.

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

W: Western Blotting **IP:** Immunoprecipitation

Cross-Reactivity Key

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

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Limited Uses

force or effect.

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