

Phospho-Optineurin (Ser177) Antibody



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Applications: W, IP	Reactivity: H	Sensitivity: Endogenous	MW (kDa): 75	Source/Isotype: Rabbit	UniProt ID: #Q96CV9	Entrez-Gene Id: 10133
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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 and 50% glycerol. Store at -20°C. Do not aliquot the antibody.

Specificity/Sensitivity

Phospho-Optineurin (Ser177) Antibody recognizes endogenous levels of optineurin protein only when phosphorylated at Ser177.

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic phospho-peptide corresponding to residues surrounding Ser177 of human optineurin protein.

Background

Optineurin is a signaling protein involved in maintenance of the Golgi complex, membrane trafficking, NF-κB, and interferon signaling. Mutations in the gene encoding optineurin have been associated with human diseases including glaucoma, Paget disease of bone, and amyotrophic lateral sclerosis (ALS) (1-2). Optineurin is thought to contribute to these pathologies through regulation of inflammatory signaling, autophagy, and mitophagy (1, 3). The NF-κB-activating kinase/TANK-binding kinase 1 (NAK/TBK1) phosphorylates optineurin at serine 177, regulating optineurin's role in autophagy and mitophagy (4-6). The tumor suppressor HACE1 ubiquitylates optineurin, promoting the interaction of optineurin with the autophagy receptor p62/SQSTM1 (7). Phosphorylation of optineurin at serine 177 by TBK1 enhances binding to LC3 and promotes autophagic clearance (8). Additional studies also suggest that serine 177 is phosphorylated during mitosis by PLK1 (9). In addition to serine 177, TBK1 also phosphorylates optineurin at serine 473 and 513, which can enhance its binding to ubiquitin chains and promote mitophagy (5, 6).

Background References

1. Ying, H. and Yue, B.Y. (2016) *Exp Eye Res* 144, 73-80.
2. Slowicka, K. et al. (2016) *Trends Immunol* 37, 621-33.
3. Markovinovic, A. et al. (2017) *Prog Neurobiol* 154, 1-20.
4. Moore, A.S. and Holzbaur, E.L. (2016) *Proc Natl Acad Sci U S A* 113, E3349-58.
5. Richter, B. et al. (2016) *Proc Natl Acad Sci U S A* 113, 4039-44.
6. Heo, J.M. et al. (2015) *Mol Cell* 60, 7-20.
7. Liu, Z. et al. (2014) *Cancer Cell* 26, 106-20.
8. Wild, P. et al. (2011) *Science* 333, 228-33.
9. Kachaner, D. et al. (2012) *Mol Cell* 45, 553-66.

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

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