Revision 4

Store at -20C

#80471

OPA1 (D6U6N) Rabbit mAb

Cell Signaling TECHNOLOGY®

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Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W, W-S, IP	H M R	Endogenous	80-100	Rabbit IgG	#O60313	4976

Product Usage Information

Application	Dilution
Western Blotting	1:1000
Simple Western™	1:50 - 1:250
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

OPA1 (D6U6N) Rabbit mAb recognizes endogenous levels of total OPA1 protein.

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Leu821 of human OPA1 protein.

Background

Changes in mitochondrial dynamics regulated by environmental cues affect mitochondrial size and shape and have been shown to dramatically impact mitochondrial metabolism, apoptosis, and autophagy (1). These processes are largely controlled by mitochondrial dynamin-related GTPases, including mitofusin-1, mitofusin-2, OPA1, and DRP1. DRP1 regulates mitochondrial fission, while the mitofusins and OPA1 control fusion at the outer and inner mitochondrial membrane, respectively.

OPA1, or Optic Atrophy 1, was originally identified as a genetic cause for Autosomal Dominant Optic Atrophy, a neuropathy resulting in progressive visual loss (2,3). OPA1 is a widely expressed protein localized to the inner mitochondrial membrane, which regulates mitochondrial fusion and cristae morphology and protects against apoptosis (4-6). OPA1 activity is tightly regulated through alternative splicing and post-translational modifications including complex proteolytic processing by multiple proteases (7-12). In addition, OPA1 expression can be induced under conditions of metabolic demand through a pathway involving Parkin induced NF-κB activation (13).

Background References

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3. Alexander, C. et al. (2000) *Nat Genet* 26, 211-5.
4. Frezza, C. et al. (2006) *Cell* 126, 177-89.
5. Olichon, A. et al. (2003) *J Biol Chem* 278, 7743-6.
6. Griparic, L. et al. (2004) *J Biol Chem* 279, 18792-8.
7. Delettre, C. et al. (2001) *Hum Genet* 109, 584-91.
8. Olichon, A. et al. (2007) *Cell Death Differ* 14, 682-92.
9. Ishihara, N. et al. (2006) *EMBO J* 25, 2966-77.
10. Cipolat, S. et al. (2006) *Cell* 126, 163-75.
11. Griparic, L. et al. (2007) *J Cell Biol* 178, 757-64.
12. Merkwirth, C. et al. (2008) *Genes Dev* 22, 476-88.
13. Müller-Rischart, A.K. et al. (2013) *Mol Cell* 49, 908-21.

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 **W-S:** Simple Western™ **IP:** Immunoprecipitation

Cross-Reactivity Key

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

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