Revision 1

Store at -20C

#67589

OPA1 (D7C1A) Rabbit mAb

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

Product Usage Information

Application	Dilution
Western Blotting	1:1000
Immunoprecipitation	1:100
Immunofluorescence (Immunocytochemistry)	1:800

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 (D7C1A) recognizes endogenous levels of total OPA1 protein.

Source / Purification

Monoclonal antibody is produced by immunizing animals with recombinant protein specific to a central region 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.
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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.
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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 **IP:** Immunoprecipitation **IF-IC:** Immunofluorescence (Immunocytochemistry)

Cross-Reactivity Key

H: Human

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Limited Uses

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