Revision 1

Store at -20C

#49281

Phospho-MFF (Ser146) Antibody

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	H M R	Endogenous	25, 27	Rabbit	#Q9GZY8-2, #Q9GZY8-5	56947

Product Usage Information

Application	Dilution
Western Blotting	1:1000

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-MFF (Ser146) Antibody recognizes endogenous levels of MFF protein only when phosphorylated at Ser146. This antibody has been shown to react with phosphorylated Ser146 of human MFF isoforms 2, 4, and 5 but not phosphorylated Ser172 of human MFF isoform 1 (7). This antibody cross-reacts with a 140kDa protein of unknown identity.

Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic phosphopeptide corresponding to residues surrounding Ser146 of human MFF isoform 2 protein. Antibodies are purified by protein A and peptide affinity chromatography.

Background

Mitochondrial fission factor (MFF) is a tail-anchored protein that resides within the outer mitochondrial membrane and is part of the mitochondrial fission complex. MFF participates in mitochondrial fission by serving as one of multiple receptors for the GTPase dynamin-related protein 1 (Drp1) (1-4). Research studies have also shown that MFF is a peroxisomal membrane protein and participates in peroxisome fission by serving as a receptor for another GTPase, dynamin-like protein 1 (5,6).
Research studies have demonstrated that the ability of MFF to drive acute mitochondrial fission in response to mitochondrial stress is controlled by AMPK-dependent phosphorylation. AMPK directly phosphorylates MFF at two sites to allow for enhanced recruitment of Drp1 to the mitochondra (7). Multiple isoforms of MFF are expressed as a result of alternative splicing (8). One of the major phosphoacceptor sites of MFF (Ser172 of human isoform 1/Ser146 of human isoforms 2-5) lies within an AMPK phsophorylation motif that spans the boundary of differentially spliced exons of MFF isoforms, suggesting that MFF splice isoforms are phosphorylated by AMPK to varying degrees.

Background References

1. Liu, R. and Chan, D.C. (2015) *Mol Biol Cell* 26, 4466-77.
2. Shen, Q. et al. (2014) *Mol Biol Cell* 25, 145-59.
3. Losón, O.C. et al. (2013) *Mol Biol Cell* 24, 659-67.
4. Otera, H. et al. (2010) *J Cell Biol* 191, 1141-58.
5. Itoyama, A. et al. (2013) *Biol Open* 2, 998-1006.
6. Gandre-Babbe, S. and van der Bliek, A.M. (2008) *Mol Biol Cell* 19, 2402-12.
7. Toyama, E.Q. et al. (2016) *Science* 351, 275-81.
8. Ducommun, S. et al. (2015) *Cell Signal* 27, 978-88.

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

Cross-Reactivity Key

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

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