

Phospho-DRP1 (Ser637) (D3A4) Rabbit mAb

✓ 100 µl
(10 western blots)

Orders ■ 877-616-CELL (2355)
orders@cellsignal.com
Support ■ 877-678-TECH (8324)
info@cellsignal.com
Web ■ www.cellsignal.com

rev. 12/27/13

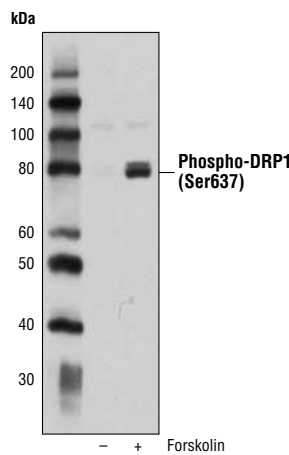
For Research Use Only. Not For Use In Diagnostic Procedures.

Applications W Endogenous	Species Cross-Reactivity* R, (H, M, Mk)	Molecular Wt. 78–82 kDa	Isotype Rabbit IgG**
---------------------------------	--	----------------------------	-------------------------

Background: Dynamin-related protein 1 (DRP1) is a member of the dynamin superfamily of GTPases. Members of this family have diverse cellular functions including vesicle scission, organelle fission, viral resistance, and intracellular trafficking (reviewed in 1). DRP1 affects mitochondrial morphology and is important in mitochondrial and peroxisomal fission in mammalian cells (2-5). The yeast ortholog of DRP1 clusters into a spiral-shaped structure on the mitochondrial membrane at the site of fission (reviewed in 6), and this structure is likely conserved in mammalian cells (3). The division of the mitochondria, which is required for apoptosis, as well as normal cell growth and development is controlled, in part, by the phosphorylation of DRP1 at Ser616 by Cdk1/cyclin B and at Ser637 by protein kinase A (PKA) (reviewed in 6). When phosphorylated at Ser616, DRP1 stimulates mitochondrial fission during mitosis. Conversely, fission is inhibited when DRP1 is phosphorylated at Ser637 (reviewed in 6). Dephosphorylation at Ser637 by calcineurin reverses this inhibition (7). In addition to phosphorylation, sumoylation of DRP1 is also an enhancer of mitochondrial fission (8). Balancing fission and fusion events is essential for proper mitochondrial function. Research studies have demonstrated mitochondrial defects in a variety of neurodegenerative diseases including Alzheimer's disease, Parkinson's disease, and Huntington's disease (reviewed in 6).

Specificity/Sensitivity: Phospho-DRP1 (Ser637) (D3A4) Rabbit mAb recognizes endogenous levels of DRP1 protein only when phosphorylated at Ser637.

Source/Purification: Monoclonal antibody is produced by immunizing animals with a synthetic phosphopeptide corresponding to residues surrounding Ser637 of human DRP1 protein.



Western blot analysis of extracts from PC-12 cells, untreated or treated with Forskolin #3828 (20 µM, 1 hr), using Phospho-DRP1 (Ser637) (D3A4) Rabbit mAb.

Entrez-Gene ID #10059
UniProt ID #000429

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.

*Species cross-reactivity is determined by western blot.

**Anti-rabbit secondary antibodies must be used to detect this antibody.

Recommended Antibody Dilutions:

Western blotting 1:1000

For application specific protocols please see the web page for this product at www.cellsignal.com.

Please visit www.cellsignal.com for a complete listing of recommended companion products.

Background References:

- (1) Praefcke, G.J. and McMahon, H.T. (2004) *Nat Rev Mol Cell Biol* 5, 133-47.
- (2) Taguchi, N. et al. (2007) *J Biol Chem* 282, 11521-9.
- (3) Smirnova, E. et al. (2001) *Mol Biol Cell* 12, 2245-56.
- (4) Smirnova, E. et al. (1998) *J Cell Biol* 143, 351-8.
- (5) Koch, A. et al. (2003) *J Biol Chem* 278, 8597-605.
- (6) Knott, A.B. et al. (2008) *Nat Rev Neurosci* 9, 505-18.
- (7) Cereghetti, G.M. et al. (2008) *Proc Natl Acad Sci USA* 105, 15803-8.
- (8) Zunino, R. et al. (2007) *J Cell Sci* 120, 1178-88.

IMPORTANT: For western blots, incubate membrane with diluted antibody in 5% w/v BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Tween® is a registered trademark of ICI Americas, Inc.