Revision 1

Store at -20C

#14041

Phospho-Prdx1 (Tyr194) (D1T9C) Rabbit mAb

Cell Signaling TECHNOLOGY®

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Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W, IP	H	Endogenous	21	Rabbit IgG	#Q06830	5052

Product Usage Information

Application	Dilution
Western Blotting	1:1000
Immunoprecipitation	1:50

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

Phospho-Prdx1 (Tyr194) (D1T9C) Rabbit mAb recognizes endogenous levels of Prdx1 protein only when phosphorylated at Tyr194. This antibody may cross react with other activated receptor tyrosine kinases including EGFR.

Species predicted to react based on 100% sequence homology

Mouse, Rat

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic phosphopeptide corresponding to residues surrounding Tyr194 of human Prdx1 protein.

Background

Prdx1 belongs to a family of non-seleno peroxidases that function as H_2O_2 scavengers. All 6 Prdx isoforms share a conserved N-terminal cysteine (Cys51) that is oxidized by H_2O_2 to form cysteine-sulfenic acid (Cys51-SOH) and, in turn, reacts with Cys172-SH of another Prdx protein, forming a disulfide dimer and protecting it from degradation (1-3). Abnormally high levels of H_2O_2 cause Prdx1 to form an oligomeric chaperone that loses its peroxidase activity (4). Prdx family members have been reported to bind to JNK and c-Abl and regulate their kinase activity (5,6). Prdx1 was shown to bind to PTEN and regulate its phosphatase activity in conditions of mild or no cellular stress, hence preventing Akt-driven transformation by protecting PTEN from oxidation-induced inactivation (7).
The transient phosphorylation of Prdx1 at Tyr194 leads to inactivation of Prdx1 that in turn promotes localized hydrogen peroxide accumulation (8). Evidence suggests that the Tyr194 phosphorylation of Prdx1 is prominent at the wound edge during repair of cutaneous injury in mice (8,9).

Background References

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2. Chae, H.Z. et al. (1994) *J Biol Chem* 269, 27670-8.
3. Chae, H.Z. et al. (1994) *Proc Natl Acad Sci U S A* 91, 7022-6.
4. Jang, H.H. et al. (2004) *Cell* 117, 625-35.
5. Wen, S.T. and Van Etten, R.A. (1997) *Genes Dev* 11, 2456-67.
6. Kim, Y.J. et al. (2006) *Cancer Res* 66, 7136-42.
7. Cao, J. et al. (2009) *EMBO J* 28, 1505-17.
8. Woo, H.A. et al. (2010) *Cell* 140, 517-28.
9. Singer, A.J. and Clark, R.A. (1999) *N Engl J Med* 341, 738-46.

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

Cross-Reactivity Key

H: Human

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