Revision 1

Store at -20C

#26975

Phospho-MEK1 (Thr292) (D5L3K) Rabbit mAb

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, IP	H M R	Endogenous	45	Rabbit IgG	#Q02750	5604

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-MEK1 (Thr292) (D5L3K) Rabbit mAb recognizes endogenous levels of MEK1 protein only when phosphorylated at Thr292. This antibody does not cross-react with MEK2 protein.

Species predicted to react based on 100% sequence homology

Dog, Pig

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic phosphopeptide corresponding to residues surrounding Thr292 of human MEK1 protein.

Background

MEK1 and MEK2, also called MAPK or Erk kinases, are dual-specificity protein kinases that function in a mitogen activated protein kinase cascade controlling cell growth and differentiation (1-3). Activation of MEK1 and MEK2 occurs through phosphorylation of two serine residues at positions 217 and 221, located in the activation loop of subdomain VIII, by Raf-like molecules. MEK1/2 is activated by a wide variety of growth factors and cytokines and also by membrane depolarization and calcium influx (1-4). Constitutively active forms of MEK1/2 are sufficient for the transformation of NIH/3T3 cells or the differentiation of PC-12 cells (4). MEK activates p44 and p42 MAP kinase by phosphorylating both threonine and tyrosine residues at sites located within the activation loop of kinase subdomain VIII. In response to integrin signaling, p21-activated kinase-1 (PAK-1) phosphorylates MEK1 at Ser298, which enhances MEK1-ERK2 complex formation and MEK1 activation by Raf-1. These events positively regulate the Raf-1-MEK-ERK signaling cascade (5-9). Research studies have identified a negative regulatory loop in the Raf-1-MEK-ERK signaling cascade, in which ERK2-dependent phosphorylation of MEK1 at Thr292 negatively regulates MEK1 activation following cell adhesion. Specifically, ERK2-dependent phosphorylation of MEK1 also attenuates its PAK-1-mediated phosphorylation, contributing to a reduction in Raf-dependent phosphorylation of residues within the MEK1 activation loop (7,10).

Background References

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3. Rosen, L.B. et al. (1994) *Neuron* 12, 1207-21.
4. Cowley, S. et al. (1994) *Cell* 77, 841-52.
5. Frost, J.A. et al. (1997) *EMBO J* 16, 6426-38.
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7. Eblen, S.T. et al. (2004) *Mol Cell Biol* 24, 2308-17.
8. Eblen, S.T. et al. (2002) *Mol Cell Biol* 22, 6023-33.
9. Coles, L.C. and Shaw, P.E. (2002) *Oncogene* 21, 2236-44.
10. Xu, B.e. et al. (1999) *J Biol Chem* 274, 34029-35.

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 **M:** Mouse **R:** Rat

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