

#4695 Store at **-20°C**

p44/42 MAPK (Erk1/2) (137F5) Rabbit mAb

200 µl
 (20 western blots)



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

rev. 01/27/10

This product is intended for research purposes only. This product is not intended to be used for therapeutic or diagnostic purposes in humans or animals.

Applications	Species Cross-Reactivity*	Molecular Wt.	Isotype
W, IP, IHC-P, IF-IC, F Endogenous	H, M, R, Mk, Mi, Pg, Hm B, Dm, Z, (C)	42, 44 kDa	Rabbit IgG**

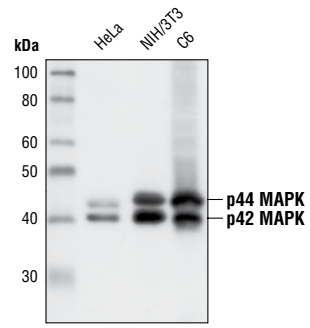
Background: Mitogen-activated protein kinases (MAPKs) are a widely conserved family of serine/threonine protein kinases involved in many cellular programs such as cell proliferation, differentiation, motility, and death. The p44/42 MAPK (ERK1/2) signaling pathway can be activated in response to a diverse range of extracellular stimuli including mitogens, growth factors, and cytokines (1-3) and is an important target in the diagnosis and treatment of cancer (4). Upon stimulation, a sequential three-part protein kinase cascade is initiated, consisting of a MAP kinase kinase kinase (MAPKKK or MAP3K), a MAP kinase kinase (MAPKK or MAP2K), and a MAP kinase (MAPK). Multiple p44/42 MAP3Ks have been identified, including members of the Raf family as well as Mos and Tpl2/Cot. MEK1 and MEK2 are the primary MAPKKs in this pathway (5,6). MEK1 and MEK2 activate p44 and p42 through phosphorylation of activation loop residues Thr202/Tyr204 and Thr185/Tyr187, respectively. Several downstream targets of p44/42 have been identified, including p90RSK (7) and the transcription factor Elk-1 (8,9). p44/42 are negatively regulated by a family of dual-specificity (Thr/Tyr) MAPK phosphatases, known as DUSPs or MKPs (10), along with MEK inhibitors such as U0126 and PD98059.

Specificity/Sensitivity: p44/42 MAP Kinase (137F5) Rabbit mAb detects endogenous levels of total p44/42 MAP kinase (Erk1/Erk2) protein. The antibody does not cross-react with JNK/SAPK or p38 MAP kinase.

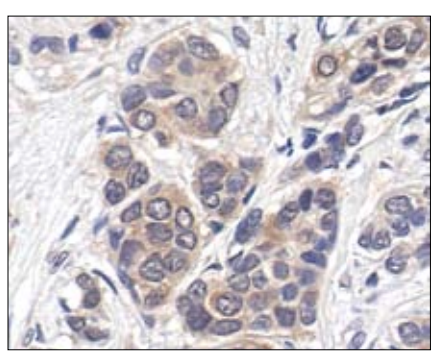
Source/Purification: Monoclonal antibodies are produced by immunizing animals with a synthetic peptide (KLH-coupled) corresponding to residues near the C-terminus of rat p44 MAP kinase.

Background References:

- Roux, P.P. and Blenis, J. (2004) *Microbiol Mol Biol Rev* 68, 320–44.
- Baccarini, M. (2005) *FEBS Lett* 579, 3271–7.
- Meloche, S. and Pouyssegur, J. (2007) *Oncogene* 26, 3227–39.
- Roberts, P.J. and Der, C.J. (2007) *Oncogene* 26, 3291–310.
- Rubinfeld, H. and Seger, R. (2005) *Mol Biotechnol* 31, 151–74.
- Murphy, L.O. and Blenis, J. (2006) *Trends Biochem Sci* 31, 268–75.
- Dalby, K.N. et al. (1998) *J Biol Chem* 273, 1496–505.
- Marais, R. et al. (1993) *Cell* 73, 381–93.
- Kortenjann, M. et al. (1994) *Mol Cell Biol* 14, 4815–24.
- Owens, D.M. and Keyse, S.M. (2007) *Oncogene* 26, 3203–13.



Western blot analysis of extracts from HeLa, NIH/3T3 and C6 cells, using p44/42 MAPK (Erk1/2) (137F5) Rabbit mAb.



Immunohistochemical analysis of paraffin-embedded human breast carcinoma, showing cytoplasmic and nuclear localization, using p44/42 MAPK (Erk1/2) (137F5) Rabbit mAb.

Entrez-Gene ID # 5594, 5595
Swiss-Prot Acc. # P27361, P28482

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
Immunoprecipitation	1:50
Immunohistochemistry (Paraffin)	1:250
Unmasking buffer:	Citrate
Antibody diluent:	SignalStain® Antibody Diluent #8112
Immunofluorescence (IF-IC)	1:100
Flow Cytometry	1:100

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

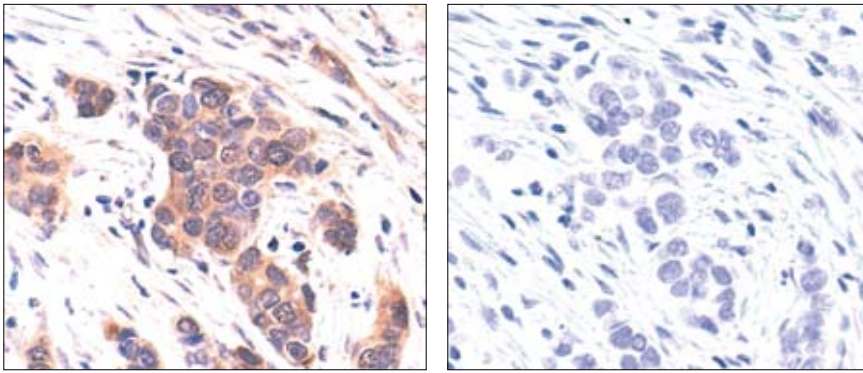
Please visit www.cellsignal.com for a complete listing of recommended companion products.

Alexa Fluor® is a registered trademark of Molecular Probes, Inc.

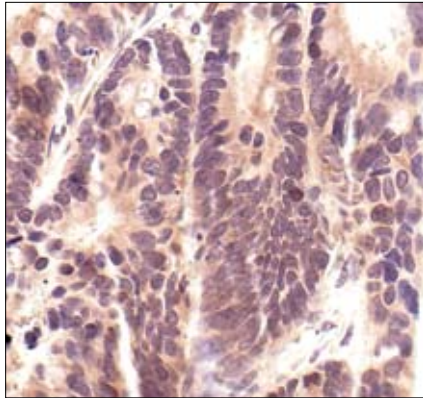
IMPORTANT: For western blots, incubate membrane with diluted antibody in 5% w/v BSA, 1X TBS, 0.1% Tween-20 at 4°C with gentle shaking, overnight.

Applications Key: W—Western IP—Immunoprecipitation IHC—Immunohistochemistry ChIP—Chromatin Immunoprecipitation IF—Immunofluorescence F—Flow cytometry E-P—ELISA-Peptide
Species Cross-Reactivity Key: H—human M—mouse R—rat Hm—hamster Mk—monkey Mi—mink C—chicken Dm—D. melanogaster X—Xenopus Z—zebrafish B—bovine
 Dg—dog Pg—pig Sc—S. cerevisiae Ce—C. elegans Hr—Horse All—all species expected Species enclosed in parentheses are predicted to react based on 100% homology.

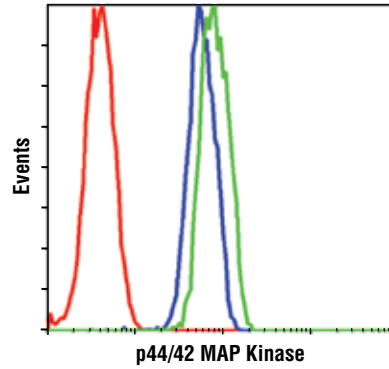
© 2010 Cell Signaling Technology, Inc. Rabbit monoclonal antibody is produced under license (granting certain rights including those under U. S. Patents No. 5,675,063 and 7,429,487) from Epitomics, Inc.



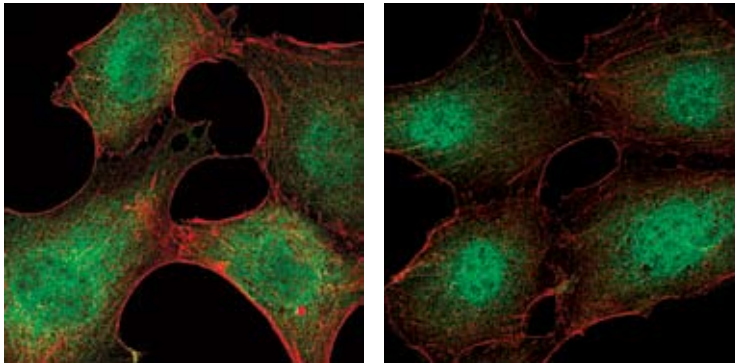
Immunohistochemical analysis of paraffin-embedded human breast carcinoma, using p44/42 MAPK (Erk1/2) (137F5) Rabbit mAb in the presence of control peptide (left) or #1240 p44/42 MAPK (Erk1/2) Blocking Peptide (#4695 Specific) (right).



Immunohistochemical analysis of paraffin-embedded human colon carcinoma, using p44/42 MAPK (Erk1/2) (137F5) Rabbit mAb.



Flow cytometric analysis of Jurkat cells, U0126-treated (blue) or PMA-treated (green), using p44/42 MAPK (Erk1/2) (137F5) Rabbit mAb compared to a nonspecific negative control antibody (red).



Confocal immunofluorescent analysis of NIH/3T3 cells either U0126-treated (left) or PDGF-treated (right) and labeled with p44/42 MAPK (Erk1/2) (137F5) Rabbit mAb (green). Actin filaments have been labeled with Alexa Fluor[®] 555 phalloidin (red).