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## p44/42 MAPK (Erk1/2) (3A7) Mouse mAb

For Research Use Only. Not for Use in Diagnostic Procedures.

<b>Applications:</b> W, W-S	<b>Reactivity:</b> H M R Hm Mk Mi Z B Pg	<b>Sensitivity:</b> Endogenous	<b>MW (kDa):</b> 42, 44	<b>Source/Isotype:</b> Mouse IgG1	<b>UniProt ID:</b> #P27361, #P28482	<b>Entrez-Gene Id:</b> 5595, 5594
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### Product Usage Information

#### Application

Western Blotting  
Simple Western™

#### Dilution

1:1000  
1:50 - 1:250

### 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

p44/42 MAPK (Erk1/2) (3A7) Mouse mAb detects endogenous levels of total p44/42 MAP kinase (Erk1/2). It does not cross-react with either JNK/SAPK or p38 MAP kinase.

### Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to the sequence of p44/42 MAP kinase.

### 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 research investigators consider it 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.

### Background References

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3. Meloche, S. and Pouyssegur, J. (2007) *Oncogene* 26, 3227-39.
4. Roberts, P.J. and Der, C.J. (2007) *Oncogene* 26, 3291-310.
5. Rubinfeld, H. and Seger, R. (2005) *Mol Biotechnol* 31, 151-74.
6. Murphy, L.O. and Blenis, J. (2006) *Trends Biochem Sci* 31, 268-75.
7. Dalby, K.N. et al. (1998) *J Biol Chem* 273, 1496-505.
8. Marais, R. et al. (1993) *Cell* 73, 381-93.
9. Kortenjann, M. et al. (1994) *Mol Cell Biol* 14, 4815-24.
10. Owens, D.M. and Keyse, S.M. (2007) *Oncogene* 26, 3203-13.

### 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 nonfat dry milk, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

### Applications Key

**W:** Western Blotting **W-S:** Simple Western™

### Cross-Reactivity Key

**H:** Human **M:** Mouse **R:** Rat **Hm:** Hamster **Mk:** Monkey **Mi:** Mink **Z:** Zebrafish **B:** Bovine **Pg:** Pig

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