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p44/42 MAPK (Erk1/2) (3A7) Mouse mAb (Alexa Fluor® 647 Conjugate)

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

Reactivity:	Sensitivity:	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
H M R Hm Mk Mi Z B Pg	Endogenous	Mouse IgG1	#P27361, #P28482	5595, 5594

Storage	Supplied in PBS (pH 7.2), less than 0.1% sodium azide and 2 mg/ml BSA. Store at 4°C. Do not aliquot the antibody. Protect from light. Do not freeze.
Specificity/Sensitivity	p44/42 MAP Kinase (3A7) Mouse mAb detects endogenous levels of total p42 MAP kinase (Erk2) protein. The antibody also recognizes p44 MAP kinase (Erk1) in some cell types, although with lower affinity. It does not cross-react with either JNK/SAPK or p38 MAP kinase.
Source / Purification	<p>Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to the sequence of rat p42 MAP kinase.</p> <p>The antibody was conjugated with Alexa Fluor® 647 under optimum conditions with a F/P ratio of 2-6. The Alexa Fluor® 647 dye is maximally excited by red light (e.g. 633 nm He-Ne laser). Antibody conjugates of the Alexa Fluor® 647 dye produce bright far-red-fluorescence emission, with a peak at 665 nm.</p>
Description	<p>Cell Signaling Technology Antibody conjugated to Alexa Fluor® 647 fluorescent dye and tested in-house for direct Flow Cytometric analysis of human cells.</p> <p>*The unconjugated antibody #9107 reacts with, among others, human, mouse, rat, and hamster p42 MAPK. CST expects that p42 MAPK (3A7) Mouse mAb (Alexa Fluor® 647 Conjugate) will also recognize p42 MAPK in these species.</p>
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	<ol style="list-style-type: none"> Roux, P.P. and Blenis, J. (2004) <i>Microbiol Mol Biol Rev</i> 68, 320-44. Baccarini, M. (2005) <i>FEBS Lett</i> 579, 3271-7. Meloche, S. and Pouyssegur, J. (2007) <i>Oncogene</i> 26, 3227-39. Roberts, P.J. and Der, C.J. (2007) <i>Oncogene</i> 26, 3291-310. Rubinfield, H. and Seger, R. (2005) <i>Mol Biotechnol</i> 31, 151-74. Murphy, L.O. and Blenis, J. (2006) <i>Trends Biochem Sci</i> 31, 268-75. Dalby, K.N. et al. (1998) <i>J Biol Chem</i> 273, 1496-505. Marais, R. et al. (1993) <i>Cell</i> 73, 381-93. Kortenjann, M. et al. (1994) <i>Mol Cell Biol</i> 14, 4815-24. Owens, D.M. and Keyse, S.M. (2007) <i>Oncogene</i> 26, 3203-13.

Species Reactivity Species reactivity is determined by testing in at least one approved application (e.g., western blot).

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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