

Background

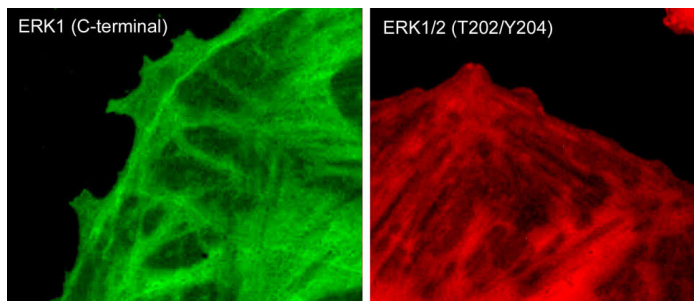
Mitogen-activated protein kinases (MAPKs) are a widely conserved family of serine/threonine protein kinases involved in many cellular programs such as cell proliferation, differentiation, motility, and death. The ERK1/2 (p44/42) signaling pathway can be activated in response to a diverse range of extracellular stimuli including mitogens, growth factors, and cytokines. Upon stimulation, a sequential three-part protein kinase cascade is initiated, consisting of a MAP kinase kinase kinase (MAPKKK), a MAP kinase kinase (MAPKK), and a MAP kinase (MAPK). Multiple ERK1/2 MAPKKs 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. MEK1 and MEK2 activate ERK1 and ERK2 through phosphorylation of activation loop residues Thr-202/Tyr-204 and Thr-185/Tyr-187, respectively. ERK1/2 are negatively regulated by a family of dual-specificity (Thr/Tyr) MAPK phosphatases. Several downstream targets of ERK1/2 have been identified, including p90RSK and the transcription factor Elk-1.



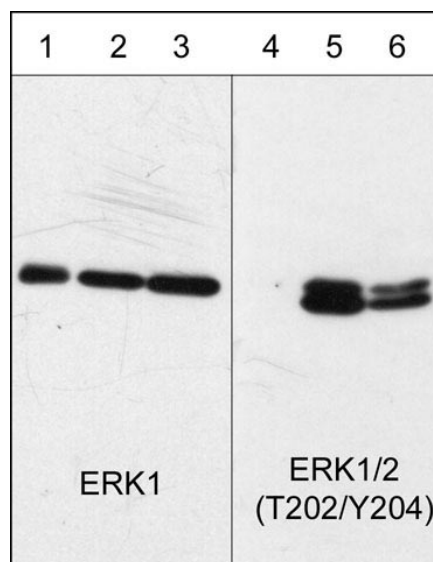
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Background References

- Roux, P.P. & Blenis, J. (2004) *Microbiol Mol Biol Rev* 68:320.
 Murphy, L.O. & Blenis, J. (2006) *Trends Biochem Sci* 31:268.
 Owens, D.M. & Keyse, S.M. (2007) *Oncogene* 26:3203.



Immunocytochemical labeling of phosphorylated ERK1 in paraformaldehyde-fixed and NP-40-permeabilized rat A7r5 cells treated with calyculin A. The fixed cells were labeled with mouse monoclonal antibodies to anti-ERK1 (EM2331) and anti-ERK1/2 (Thr-202/Tyr-204) (EM2061). The antibodies were detected using Goat anti-Mouse secondary antibodies conjugated to DyLight® 488 (left) and DyLight® 594 (right).



Western blot analysis of human A431 epithelial cells untreated (lanes 1 & 4) or treated with 100 nM calyculin A for 30 min. (lanes 2 & 5) or 100 ng/ml EGF for 60 min. (lanes 3 & 6). The blots were probed with anti-ERK1 (C-terminal region) (lanes 1, 2, & 3) or anti-ERK1/2 (Thr-202/Tyr-204) (lanes 4, 5, & 6).

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Immunogen

Uniprot ID: P27361

Clone M206 was generated from a dual phosphorylated ERK1 (Thr-202/Tyr-204) synthetic peptide (coupled to carrier protein) corresponding to amino acids surrounding Thr-202 and Tyr-204 in human ERK1. This sequence is conserved in rat and mouse ERK1, and is highly conserved in ERK2.

Buffer and Storage

Mouse monoclonal antibody purified with protein A chromatography is supplied in 100µl phosphate-buffered saline, 50% glycerol, 1 mg/ml BSA, and 0.05% sodium azide. Store at -20°C. Stable for 1 year.

Product Citations

Elizondo, DM et al. (2019) Front Immunol. 10:173.
WB: mouse dendritic cells

Park, K. et al. (2013) Mol Cell Biol. 33(4):752.
WB: human keratinocytes

Applications

WB	1:1000
ELISA	1:2000
ICC	1:100

Species Reactivity

Hu, Rt, Ms

Isotype: IgG1

End user should determine optimal dilution for their particular applications and experiments.
Western blot membranes were incubated with diluted antibody in 5% non-fat milk, Tris buffer, 0.04% Tween20 for 1 hour at room temperature.
Abbreviations: E = ELISA, ICC = immunocytochemistry, IHC = immunohistochemistry, IP = immunoprecipitation, MS = mass spectrometry, WB = western blot
Hu = Human, Ms = Mouse, Rt = Rat, Ck = Chicken, F = Frog, B = Bovine

Specificity

The antibody detects 42 and 44 kDa* proteins corresponding to ERK1 and ERK2 on SDS-PAGE immunoblots of human A431 epithelial cells stimulated with EGF or calyculin A. It does not detect bands in control cells.

*All molecular weights (MW) are confirmed by comparison to MW standards and to western blot mobilities of known proteins with similar MW.
"Native" western blot utilizes non-reducing sample buffer (no mercaptoethanol or SDS), normal SDS-PAGE gel electrophoresis, and no methanol in transfer buffers.

Related Products

- EM2331 ERK1 (C-terminal region) Mouse Monoclonal
- EK6440 ERK1/2 Phospho-Regulation Antibody Sampler Kit
- PM1391 p38 MAP Kinase (Thr-180/Tyr-182), phospho-specific Mouse Monoclonal
- PP3411 p38α MAP Kinase (Tyr-323), phospho-specific Rabbit Polyclonal
- PK6140 p38 MAPK Phospho-Regulation Antibody Sampler Kit
- MK6050 MAP Kinase Activation Antibody Sampler Kit



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