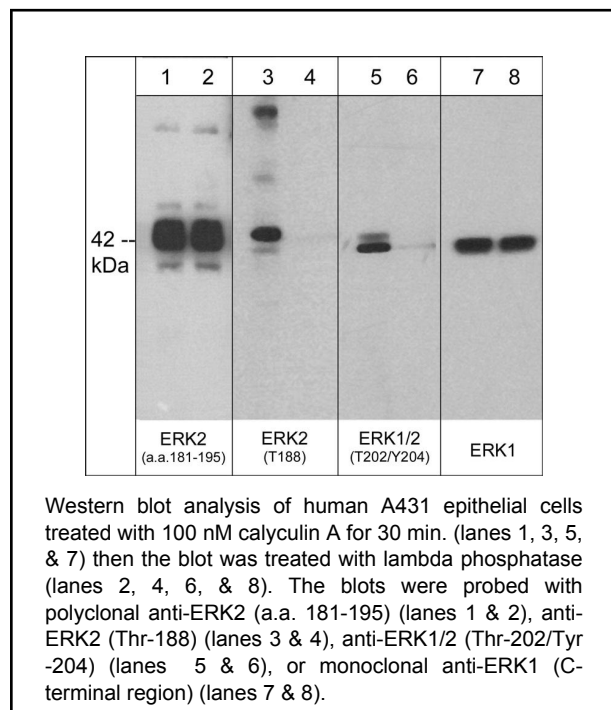


Background

The ERK1/2 (p44/42) MAPK 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 MAP kinase cascade is initiated, consisting of a MAP kinase kinase kinase (MAPKKK), a MAP kinase kinase (MAPKK), and a MAP kinase (MAPK). Activation of the MAPKs, ERK1 and ERK2, leads to phosphorylation of activation loop residues Thr-202/Tyr-204 and Thr-185/Tyr-187, respectively. In addition to dual phosphorylation, ERK1 and 2 are autophosphorylated on Thr-207 or Thr-188, respectively. This phosphorylation is required for nuclear translocation of ERK, and leads to phosphorylation of several nuclear proteins involved in cardiac hypertrophy. Mouse models with mutation of Thr-188 in ERK2 show that this site is critical for ERK-mediated cardiac hypertrophy. Thus, phosphorylation of Thr-188 in ERK2 may be important for controlling the nuclear functions of activated ERK1 and ERK2.

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.



Applications

WB 1:1000
 ELISA 1:2000

Species Reactivity

Hu, Rt, Ms, Ck, F

Specificity

The antibody detects 42 and 44 kDa* proteins corresponding to ERK1 (Thr-207) and ERK2 (Thr-188) on SDS-PAGE immunoblots of human A431 epithelial cells stimulated with calyculin A. It does not detect these ERK proteins in control cells or in blots treated with lambda phosphatase.

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, PBS, 0.04% Tween20 for 1 hour at room temperature.

*All molecular weights (MW) are confirmed by comparison to Bio-Rad Rainbow Markers and to western blot mobilities of known proteins with similar MW.

Immunogen

Uniprot ID: P63085

Phospho-ERK2 (Thr-188) synthetic peptide (coupled to carrier protein) corresponds to amino acids surrounding Thr-188 in mouse ERK2. This sequence is conserved in human, rat, chicken, and fish ERK2, and is highly conserved in ERK1 (Thr-207), ERK5 (Thr-224), and ERK7 (Thr-180).

Buffer and Storage

Rabbit polyclonal, affinity-purified antibody 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.

Related Products

EK6440 ERK1/2 Phospho-Regulation Antibody Sampler Kit
 EM2331 ERK1 (C-terminal region) Mouse Monoclonal
 EM2061 ERK1 (Thr-202/Tyr-204)[conserved], phospho-specific Mouse
 EP4071 ERK2 (a.a. 181-195) [conserved site] Rabbit Polyclonal
 PP3411 p38α MAP Kinase (Tyr-323), phospho-specific Rabbit Polyclonal

Product References

H. Huang, et al. (2015) *Cardiovasc Res*. 108(1):50.
 WB: mouse heart
 Lu, J. et al. (2013) *Basic Res Cardiol*. 108(2):326.
 WB fluorescence: mouse heart

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