ERK1/2 Phospho-Regulation

Antibody Sampler Kit

Cat. # EK6440
Size Kit

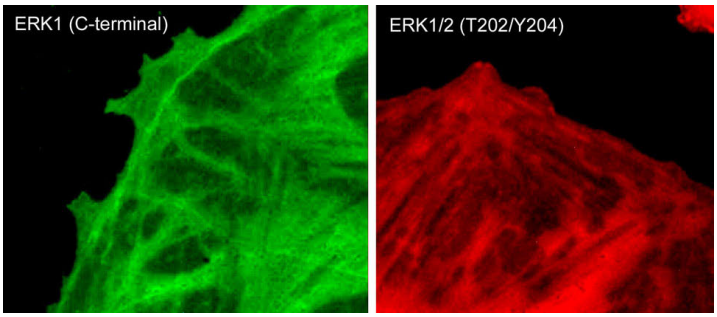
Kit Summary

The ERK phospho-regulation antibody sampler kit can be used to examine ERK1 phosphorylation at Thr-202/Tyr-204 and Thr-207. These phosphorylation sites are also conserved in ERK2. A mouse monoclonal antibody to ERK1 and a rabbit polyclonal antibody to ERK2 are also included for examining total ERK expression levels.

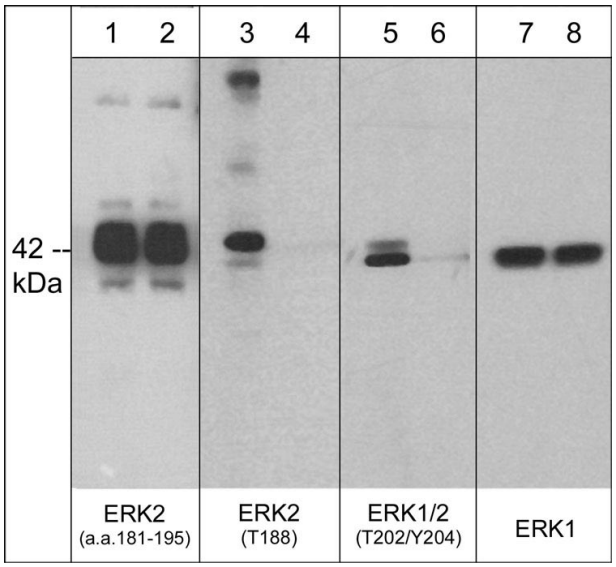
Kit Components

Cat. #	Description	Product Type	Size	Applications	Species Reactivity	WB Dilution
EM2331	ERK1 (C-terminal region)	Mouse mAb	50 µl	WB, E, ICC, IHC	Hu, Rt, Ms	1:1000
EM2061	ERK1 (Thr-202/Tyr-204)[conserved], phospho-specific	Mouse mAb	50 µl	WB, E, ICC	Hu, Rt, Ms	1:1000
EP4071	ERK2 (a.a.181-195) [conserved site]	Rabbit pAb	50 µl	WB, E, ICC	Hu, Rt, Ms, Ck, F	1:500
EP4101	ERK1(T207)/ERK2(T188)[conserved], phospho-specific	Rabbit pAb	50 µl	WB, E	Hu, Rt, Ms, Ck, F	1:1000
MS3001	Anti-Mouse Ig:HRP	Donkey pAb	100 µl	WB, E	Ms	1:5000
RS3251	Anti-Rabbit Ig Light-Chain Specific:HRP	Mouse mAb	100 µl	WB, E, ICC, IHC	Rb	1:5000

Applications: WB = Western blot, E = ELISA, ICC = Immunocytochemistry, IP = Immunoprecipitation, IHC = Immunohistochemistry, FC = Flow Cytometry
Species: H = Human, R = Rat, Ms = Mouse, C = Chicken, F = Fish, Fr = Frog, Rb = Rabbit



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 treated with 100 nM calyculin A for 30 min. (lanes 1, 3, 5, & 7) then the blot was treated with lambda phosphatase (lanes 2, 4, 6, & 8). The blots were probed with polyclonal anti-ERK2 (a.a. 181-195) (lanes 1 & 2), anti-ERK2 (Thr -188) (lanes 3 & 4), anti-ERK1/2 (Thr-202/Tyr-204) (lanes 5 & 6), or monoclonal anti-ERK1 (C-terminal region) (lanes 7 & 8).

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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 ERK.

Background References

Murphy, L.O. & Blenis, J. (2006) Trends Biochem Sci 31:268.

Owens, D.M. & Keyse, S.M. (2007) Oncogene 26:3203.

Buffer and Storage

Mouse monoclonal and rabbit polyclonal antibodies are supplied in phosphate-buffered saline, 50% glycerol, 1 mg/ml BSA, and 0.05% sodium azide. The secondary reagents are supplied in the same buffer without azide. Store all at –20°C. Stable for 1 year.

Product Citations

Cat. #	Citation & Application
EM2331	Elizondo, DM et al. (2016) J Leukoc Biol. 100(5):855. (WB: mouse dendritic cells)
EM2331	Kyjacova, L. et al. (2015) Cell Death Differ. 22(6):898. (WB: human DU145)
EM2061	Elizondo, DM et al. (2019) Front Immunol. 10:173. (WB: mouse dendritic cells)
EM2061	Park, K. et al. (2013) Mol Cell Biol. 33(4):752. (WB: human keratinocytes)
EP4101	H. Huang, et al. (2015) Cardiovasc Res. 108(1):50. (WB: mouse heart)
EP4101	Lu, J. et al. (2013) Basic Res Cardiol. 108(2):326. (WB fluorescence: mouse heart)
MS3001	Estrada-Bernal, A. et al. (2011) J Neurooncol. 102:353. (Western blot: MDCK epithelial, A549, and HEK293
RS3251	Kawasaki, H. et al. (2013) World J Gastroenter. 19(17):2629. (WB, ICC: mouse intestinal myofibroblasts and
RS3251	Estrada-Bernal, A. et al. (2011) J Neurooncol. 102:353. (Western blot)

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