SANTA CRUZ BIOTECHNOLOGY, INC.

ERK 1/2 (C-9): sc-514302

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Mitogen-activated protein kinase (MAPK) signaling pathways involve two closely related MAP kinases, known as extracellular-signal-related kinase 1 (ERK 1, p44) and 2 (ERK 2, p42). Growth factors, steroid hormones, G protein-coupled receptor ligands and neurotransmitters can initiate MAPK signaling pathways. Activation of ERK 1 and ERK 2 requires phosphorylation by upstream kinases such as MAP kinasekinase (MEK), MEK kinase and Raf-1. ERK 1 and ERK 2 phosphorylation can occur at specific tyrosine and threonine sites mapping within consensus motifs that include the threonine-glutamate-tyrosine motif. ERK activation leads to dimerization with other ERKs and subsequent localization to the nucleus. Active ERK dimers phosphorylate serine and threonine residues on nuclear proteins and influence a host of responses that include proliferation, differentiation, transcription regulation and development. The human ERK 1 gene maps to chromosome 16p11.2 and encodes a 379 amino acid protein that shares 83% sequence identity to ERK 2.

CHROMOSOMAL LOCATION

Genetic locus: MAPK3 (human) mapping to 16p11.2, MAPK1 (human) mapping to 22q11.21; Mapk3 (mouse) mapping to 7 F3, Mapk1 (mouse) mapping to 16 A3.

SOURCE

ERK 1/2 (C-9) is a mouse monoclonal antibody raised against amino acids 101-172 mapping near the N-terminus of ERK 2 of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

ERK 1/2 (C-9) is available conjugated to agarose (sc-514302 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-514302 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-514302 PE), fluorescein (sc-514302 FITC), Alexa Fluor® 488 (sc-514302 AF488), Alexa Fluor® 546 (sc-514302 AF546), Alexa Fluor® 594 (sc-514302 AF594) or Alexa Fluor® 647 (sc-514302 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-514302 AF680) or Alexa Fluor® 790 (sc-514302 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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APPLICATIONS

ERK 1/2 (C-9) is recommended for detection of ERK 1 and ERK 2 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Molecular Weight of ERK 1: 44 kDa.

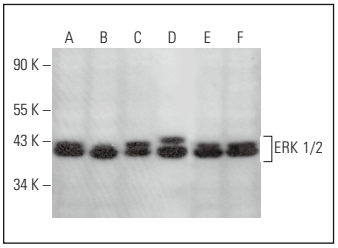
Molecular Weight of ERK 2: 42 kDa.

Positive Controls: DU 145 cell lysate: sc-2268, Jurkat whole cell lysate: sc-2204 or K-562 whole cell lysate: sc-2203.

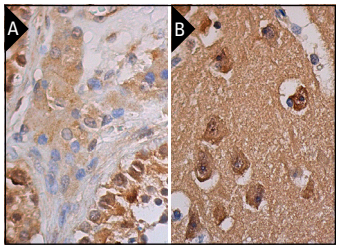
STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

DATA



ERK 1/2 (C-9): sc-514302. Western blot analysis of ERK 1/2 expression in HEK293 (**A**), THP-1 (**B**), DU 145 (**C**), 3611-RF (**D**), K-562 (**E**) and Jurkat (**F**) whole cell lysates.



ERK 1/2 (C-9): sc-514302. Immunoperoxidase staining of formalin fixed, paraffin-embedded human testis tissue showing cytoplasmic and nuclear staining of cells in seminiferous ducts and cytoplasmic staining of Leydig cells (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human cerebral cortex tissue showing cytoplasmic and nuclear staining of neuronal cells, nuclear staining of glial cells and neuropil staining (**B**).

SELECT PRODUCT CITATIONS

1. Jiajun, Z., et al. 2014. Protein kinase C inhibitors for migraine rat spinal nucleus of trigeminal nerve cells regulate the effects of protein kinase phosphorylation. Chin. J. Behav. Med. Brain Sci. 23: 1072-1074.
2. Jin, Q., et al. 2016. Novel function of FAXDC2 in megakaryopoiesis. Blood Cancer J. 6: e478.
3. Yu, L.M., et al. 2017. Melatonin protects diabetic heart against ischemia-reperfusion injury, role of membrane receptor-dependent cGMP-PKG activation. Biochim. Biophys. Acta 1864: 563-578.
4. Fei, Y., et al. 2018. CFTR ameliorates high glucose-induced oxidative stress and inflammation by mediating the NFκB and MAPK signaling pathways in endothelial cells. Int. J. Mol. Med. 41: 3501-3508.
5. Kim, J., et al 2019. LRRK2 kinase plays a critical role in manganese-induced inflammation and apoptosis in microglia. PLoS ONE 14: e0210248.
6. Yang, H.W., et al. 2020. Ribosomal protein S3-derived repair domain peptides regulate UV-induced matrix metalloproteinase-1. Biochem. Biophys. Res. Commun. 530: 149-154.
7. González Wusener, A.E., et al. 2021. Protein tyrosine phosphatase 1B targets focal adhesion kinase and paxillin in cell-matrix adhesions. J. Cell Sci. 134: jcs258769.
8. Do, M.H., et al. 2022. CD46 protects the bladder cancer cells from cetuximab-mediated cytotoxicity. Sci. Rep. 12: 22420.
9. Wang, Q., et al. 2023. Low-intensity pulsed ultrasound attenuates postoperative neurocognitive impairment and salvages hippocampal synaptogenesis in aged mice. Brain Sci. 13: 657.

RESEARCH USE

For research use only, not for use in diagnostic procedures.