SANTA CRUZ BIOTECHNOLOGY, INC.

ERK 2 (D-2): sc-1647

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 kinase kinase (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 ERK2 gene maps to chromosome 22q11.21 and encodes a 360-amino acid protein.

CHROMOSOMAL LOCATION

Genetic locus: MAPK1 (human) mapping to 22q11.21; Mapk1 (mouse) mapping to 16 A3.

SOURCE

ERK 2 (D-2) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 328-358 at the C-terminus of ERK 2 MAP kinase p42 of human origin.

PRODUCT

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

ERK 2 (D-2) is available conjugated to agarose (sc-1647 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-1647 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-1647 PE), fluorescein (sc-1647 FITC), Alexa Fluor® 488 (sc-1647 AF488), Alexa Fluor® 546 (sc-1647 AF546), Alexa Fluor® 594 (sc-1647 AF594) or Alexa Fluor® 647 (sc-1647 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-1647 AF680) or Alexa Fluor® 790 (sc-1647 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

In addition, ERK 2 (D-2) is available conjugated to biotin (sc-1647 B), 200 µg/ml, for WB, IHC(P) and ELISA.

Blocking peptide available for competition studies, sc-1647 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

Alexa Fluor® is a trademark of Molecular Probes, Inc., Oregon, USA

STORAGE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

APPLICATIONS

ERK 2 (D-2) is recommended for detection of ERK 2 p42 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, 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), flow cytometry (1 µg per 1 x 10^6 cells) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

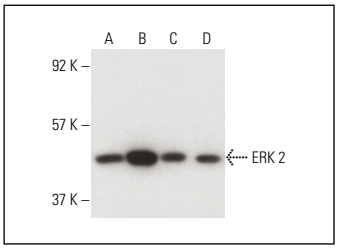
ERK 2 (D-2) is also recommended for detection of ERK 2 p42 in additional species, including canine, bovine, porcine and avian.

Suitable for use as control antibody for ERK 2 siRNA (h): sc-35335, ERK 2 siRNA (m): sc-35336, ERK 2 shRNA Plasmid (h): sc-35335-SH, ERK 2 shRNA Plasmid (m): sc-35336-SH, ERK 2 shRNA (h) Lentiviral Particles: sc-35335-V and ERK 2 shRNA (m) Lentiviral Particles: sc-35336-V.

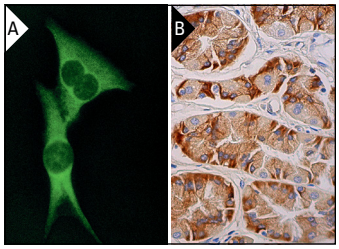
Molecular Weight of ERK 2: 42 kDa.

Positive Controls: A-431 whole cell lysate: sc-2201, K-562 whole cell lysate: sc-2203 or HeLa whole cell lysate: sc-2200.

DATA



ERK 2 (D-2): sc-1647. Western blot analysis of ERK 2 expression in HeLa (**A**), K-562 (**B**), A-431 (**C**) and A549 (**D**) whole cell lysates. Detection reagent used: m-IgG Fc BP-HRP: sc-525409.



ERK 2 (D-2): sc-1647. Immunofluorescence staining of methanol-fixed NIH/3T3 cells showing cytoplasmic localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human upper stomach tissue showing cytoplasmic staining of glandular cells (**B**).

SELECT PRODUCT CITATIONS

1. Hegen, M., et al. 1997. Cross-linking of CD26 by antibody induces tyrosine phosphorylation and activation of mitogen-activated protein kinase. Immunology 90: 257-264.
2. Trefny, M.P., et al. 2023. Deletion of SNX9 alleviates CD8 T cell exhaustion for effective cellular cancer immunotherapy. Nat. Commun. 14: 86.
3. Belli, S., et al. 2024. EGFR and HER2 hyper-activation mediates resistance to endocrine therapy and CDK4/6 inhibitors in ER+ breast cancer. Cancer Lett. 593: 216968.
4. Di Donato, M., et al. 2025. Role of the androgen receptor in melanoma aggressiveness. Cell Death Dis. 16: 34.

RESEARCH USE

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