SANTA CRUZ BIOTECHNOLOGY, INC.

ERK 1 (C-16): sc-93

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

SOURCE

ERK 1 (C-16) is available as either rabbit (sc-93) or goat (sc-93-G) polyclonal affinity purified antibody raised against a peptide mapping at the C-terminus of ERK 1 of rat origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

ERK 1 (C-16) is available conjugated to agarose (sc-93 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; and to either phycoerythrin (sc-93 PE, 200 µg/ml), Alexa Fluor® 488 (sc-93 AF488, 200 µg/ml) or Alexa Fluor® 647 (sc-93 AF647, 200 µg/ml), for IF, IHC(P) and FCM.

In addition, ERK 1 (C-16) is available conjugated to Alexa Fluor® 405 (sc-93 AF405), 100 µg/2 ml, for IF, IHC(P) and FCM.

Blocking peptide available for competition studies, sc-93 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

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

RESEARCH USE

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

PROTOCOLS

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

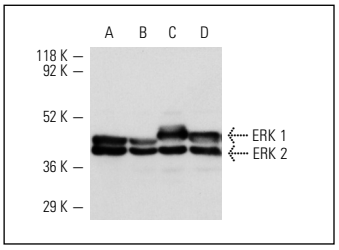
APPLICATIONS

ERK 1 (C-16) is recommended for detection of ERK 1 p44 and, to a lesser extent, ERK 2 p42 of mouse, rat, human, chicken, frog and zebrafish 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)], immu-nofluorescence (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).

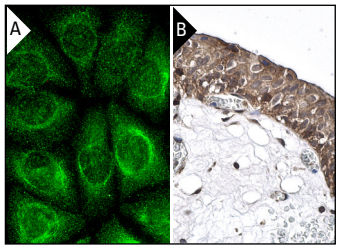
ERK 1 (C-16) is also recommended for detection of ERK 1 p44 and, to a lesser extent, ERK 2 p42 in additional species, including equine, canine, bovine and porcine.

Molecular Weight of ERK 1: 44 kDa.

DATA



ERK 1 (C-16): sc-93. Western blot analysis of ERK 1 and ERK 2 expression in A-431 (**A**), HeLa (**B**), KNRK (**C**) and NIH/3T3 (**D**) whole cell lysates.



ERK 1 (C-16): sc-93. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic and nuclear localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human urinary bladder tissue showing cytoplasmic and nuclear staining of urothelial cells (**B**).

SELECT PRODUCT CITATIONS

1. Wary, K.K., et al. 1996. The adaptor protein Shc couples a class of integrins to the control of cell cycle progression. Cell 87: 733-743.
2. Lii, C.K., et al. 2012. Diallyl trisulfide suppresses the adipogenesis of 3T3-L1 preadipocytes through ERK activation. Food Chem. Toxicol. 50: 478-484.
3. Blivet-Van Eggelpoël, M.J., et al. 2012. Epidermal growth factor receptor and HER-3 restrict cell response to sorafenib in hepatocellular carcinoma cells. J. Hepatol. 57: 108-115.
4. Xavier, C.P., et al. 2012. *Hypericum androsaemum* water extract inhibits proliferation in human colorectal cancer cells through effects on MAP kinases and PI3K/Akt pathway. Food Funct. 3: 844-852.
5. Nanjappa, M.K., et al. 2012. The industrial chemical bisphenol A (BPA) interferes with proliferative activity and development of steroidogenic capacity in rat Leydig cells. Biol. Reprod. 86: 135.