**BACKGROUND**

The activation of signal transduction pathways by growth factors, hormones and neurotransmitters is mediated through two closely related MAP kinases, p44 and p42, designated extracellular-signal related kinase 1 (ERK 1) and ERK 2, respectively. ERK proteins are regulated by dual phosphorylation at Tyrosine 204 and 187, and Threonine 177 and 160 residues mapping within a characteristic Thr-Glu-Tyr motif. Phosphorylation at both the Threonine 202 and Tyrosine 204 residues of ERK 1, and Threonine 185 and Tyrosine 187 residues of ERK 2 is required for full enzymatic activation. The structural consequences of dual-phosphorylation in ERK 2 include active site closure, alignment of key catalytic residues that interact with ATP and remodeling of the activation loop. In response to activation, MAP kinases phosphorylate downstream components on serine and threonine. Upstream MAP kinase regulators include MAP kinase kinase (MEK), MEK kinase and Raf-1. The ERK family has three additional members: ERK 3, ERK 5 and ERK 6.

**CHROMOSOMAL LOCATION**

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

**SOURCE**

p-ERK 1/2 (12D4) is a mouse monoclonal antibody raised against a synthetic phosphopeptide corresponding to amino acid residues surrounding the T-E-Y motif of ERK 1 of human origin.

**PRODUCT**

Each vial contains 50 µg IgG1 in 0.5 ml of PBS with < 0.1% sodium azide, 0.1% gelatin, PEG and sucrose.

**APPLICATIONS**

p-ERK 1/2 (12D4) is recommended for detection of Thr 202 and Tyr 204 dually phosphorylated ERK 1 and ERK 2 of mouse, rat, human and canine 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)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500); non-cross-reactive with non-phosphorylated ERK 1/2. Requires phosphorylation at both the Thr and Tyr site.

Molecular Weight of ERK 1: 44 kDa.
Molecular Weight of ERK 2: 42 kDa.

Positive Controls: NIH/3T3 whole cell lysate: sc-2210, Jurkat + PMA cell lysate: sc-24718 or Jurkat whole cell lysate: sc-2204.

**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.

**SELECT PRODUCT CITATIONS**


See p-ERK (E-4): sc-7383 for p-ERK antibody conjugates, including AC, HRP, FITC, PE, Alexa Fluor® 488 and Alexa Fluor® 647.