

Anti-ERK 1/2

Catalog# SPC-120 C/D

Size: 25/100µL

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This product is for *in vitro* research use only and is not intended for use in humans or animals

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Product	Rabbit anti-ERK 1/2 antibody; polyclonal
Clone	N/A
Immunogen	A rat 35 residue synthetic peptide, corresponding to Erk1 MAP kinase with the CGG spacer group added and the peptide coupled to KLH.
Host and Subclass	Rabbit
Applications	WB, IHC, ICC, IF
Specificity	Detects ~44Kda and ~42kDa bands corresponding to the molecular weights of Erk1 and Erk2
Species cross-reactivity	Human, Mouse, Rat, Cow, Sheep, Chicken, <i>Drosophila</i> , <i>Xenopus</i>
Format	Whole Rabbit Serum
Working Dilution	WB 1:5000 (ECL) IHC 1:50 Flow cytometry 10µg/mL
Storage and stability	-20°C; 1 year+; shipped on cold packs or ambient

Scientific Background

The extracellular signal-regulated kinases 1 and 2 (ERK1 and ERK2), also called p44 and p42 MAP kinases, are members of the Mitogen Activated Protein Kinase (MAPK) family of proteins found in all eukaryotes. Because the 44 kDa ERK1 and the 42 kDa ERK2 are highly homologous and both function in the same protein kinase cascade, the two proteins are often referred to collectively as ERK1/2 or p44/p42 MAP kinase (1). They are both located in the cytosol and mitochondria (2).

While the role of cytosol ERK1/2 is well studied and involved in multiple cellular functions (2), the role of mitochondrial ERK1/2 remains poorly understood.

Both ERK 1 and 2 are activated by MEK1 or MEK2, by dual phosphorylation of a threonine and tyrosine residue in the activation loop (TEY motif) (1, 3). Either phosphorylation alone can induce an electrophoretic mobility shift, but both are required for activation of the kinase. This dual phosphorylation is efficiently detected by phosphorylation state-specific antibody directed to the pTEpY motif. Once activated, MAP kinases phosphorylate a broad spectrum of substrates, including cytoskeletal proteins, translation regulators, transcription factors, and the Rsk family of protein kinases (4). ERK1/2 activation is generally thought to confer a survival advantage to cells (5); however there is increasing evidence that suggests that the activation of ERK1/2 also contributes to cell death under certain conditions (5). ERK1/2 also is activated in neuronal and renal epithelial cells upon exposure to oxidative stress and toxicants or deprivation of growth factors, and inhibition of the ERK pathway blocks apoptosis (5).

Selected References

1. Boulton TG. *et al.* (1991) *Biochemistry*. 30(1):278-86.
2. Yoon S., and Seger R. (2006) *Growth Factors* 24:21-44.
3. Wolf G. (2005) *Antioxid Redox Signal* 7:1337-1345.
4. Chuerland D., Marmor G., Shainskaya A. and Seger R. (2008) *J Biol Chem*. Epub: <http://www.jbc.org/cgi/doi/10.1074/jbc.M709030200>
5. Zhuang S., and Schnellmann R.G. (2006) *J Pharmacol Exp Ther* 319:991-997.

Certificate of Analysis

A 1:5000 dilution of SPC-120 was sufficient for detection of ERK1/2 in 20µg of HeLa cell lysate by ECL immunoblot analysis.

Material Safety Data Sheet

Anti-ERK1/2 (Polyclonal Antibody) SPC-120

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The below information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. StressMarq shall not be held liable for any damage resulting from handling or from contact with the above product. See the Technical Specification, Packing Slip, Invoice, and Product Catalogue for additional terms and conditions of sale.

Hazardous Ingredients

The physical, chemical and toxicological properties of these components have not been fully investigated. It is recommended that all laboratory personnel follow standard laboratory safety procedures when handling this product. Safety procedures should include wearing OSHA approved safety glasses, gloves and protective clothing. Direct physical contact with this product should be avoided.

<u>Known Hazardous Components</u>	<u>CAS Number</u>	<u>Percent</u>
None		

Physical Data

This product consists of whole rabbit serum shipped on gel packs. The physical properties of this product have not been investigated thoroughly.

Fire and Explosion Hazard and Reactivity Data

NOT APPLICABLE

Toxicological Properties

May be harmful by inhalation, ingestion, or skin absorption. The toxicological properties of this product have not been investigated thoroughly. Exercise due caution.

Preventative Measures

Wear chemical safety goggles and compatible chemical-resistant gloves. Avoid inhalation, contact with eyes, skin or clothing.

Spill and Leak Procedures

Observe all federal, state and local environmental regulations.

- Wear protective equipment.
- Absorb on sand or vermiculite and place in closed containers for disposal.
- Dispose or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

First Aid Measures

- If swallowed, wash out mouth with water, provided person is conscious. Call a physician.
- In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. If a rash or other irritation develops, call a physician.
- If inhaled, remove to fresh air. If breathing becomes difficult, call a physician.
- In case of eye contact, flush with copious amounts of water for at least 15 minutes while separating the eyelids with fingers. Call a physician.

Authorized: StressMarq Biosciences Inc.
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