

Product Information

ANTI-MAP KINASE (ERK-1, 351-368)

Developed in Rabbit, IgG Fraction of Antiserum

Product Number **M 7927**

Product Description

Anti-MAP Kinase (ERK-1, 351-368) is developed in rabbit using a synthetic peptide K-ELDDLPKERLKL-IFQET corresponding to the C-terminus of ERK-1 of human origin (amino acids 351-368 with N-terminally added lysine) conjugated to KLH as immunogen. This sequence is identical in ERK-1 across species (e.g. mouse, rat and *Aplysia*) and is highly conserved in ERK-2 (e.g. human, mouse, bovine, two amino acid substitutions). Whole antiserum is fractionated and then further purified by ion-exchange chromatography to provide the IgG fraction of antiserum that is essentially free of other rabbit serum proteins.

Anti-MAP Kinase (ERK-1, 351-368) reacts specifically with ERK-1 and ERK-2 (44 and 42 kDa) derived from rat brain and mouse fibroblast cell extract. By immunoprecipitation, the antibody binds ERK-1 and ERK-2 from a lysate of NIH 3T3 cultured cells. By immunoblotting, the antibody detects ERK-1 and ERK-2 from rat brain extract and NIH 3T3 cell lysates. Staining of the ERK-1 and ERK-2 bands (44 and 42 kDa) is specifically inhibited with MAP Kinase peptide (human, amino acids 351-368 with N-terminally added lysine).

Mitogen-activated protein kinases (MAP kinases, MAPKs) consist of a family of protein kinases, which are considered to play a crucial role in signal transduction pathways in mammalian cells leading mitogenic signals to their intracellular targets.^{1,2} MAP kinases regulate several cellular processes among them proliferation, differentiation, response to stress and oncogenesis. Several MAP kinase subgroups have been identified in mammalian cells, based on their dual phosphorylation motifs Thr-Glu-Tyr (TEY), Thr-Pro-Tyr (TPY) and Thr-Gly-Tyr (TGY). The TEY MAP kinase subgroup includes the extracellular signal-regulated kinases (ERKs) isoforms ERK-1 and ERK-2 (p44 and p42 MAPK)^{1,3} and ERK5 (also termed big-MAP kinase 1 or BMK1)^{4,5}; the TPY group includes the c-Jun

N-terminal kinases isoforms (JNK1, JNK2 also termed SAPKs)⁶; the TGY group includes the p38 MAP kinase (also termed RK, Hog1 and CSBP)^{1,7-10}, and ERK6 (also termed as SAPK3).¹¹ Each of these subgroups seems to operate in separate MAP kinase signaling cascades. ERK-1 (p44 MAPK) shares 85% homology with ERK-2 (p42 MAPK). ERK-1 and ERK-2 are present in almost every cell and are activated by a wide range of hormones and growth factors. Elevated levels of ERK activity have been associated with cancer. Cell stimulation induces the activation of the MAP kinase signaling cascade that leads to the phosphorylation of MAP Kinase Kinase 1 (MEK1). MEK1, a dual specificity protein kinase, in turn directly activates ERKs by threonine and tyrosine phosphorylation in the kinase regulatory domain. Downstream targets of ERKs include a wide range of effectors involved in the control of cell proliferation, differentiation (i.e. transcription factors) and in the regulation of the cytoskeleton.¹ Activation of ERKs in response to cell stimulation is transient resulting in translocation to the nucleus.¹² The inactivation of ERK-1 and ERK-2 appears to involve a battery of phosphatases. These include serine/threonine phosphatases like PP2A and MAP Kinase phosphatase MKP-1, a dual specificity Thr/Tyr phosphatase specific for MAPK.¹³ Antibodies that react specifically with ERK-1 and ERK-2 are useful tools to study the expression and function of these ERK isoforms in a variety cell types and tissues, and to correlate their expression pattern with physiological functions or pathological conditions.

Reagents

The product is supplied as IgG fraction in 0.01M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide as a preservative.

Precautions and Disclaimer

Due to the sodium azide content a material safety data sheet (MSDS) for this product has been sent to the attention of the safety officer of your institution. Consult the MSDS for information regarding hazardous and safe handling practices.

Storage/Stability

For continuous use, store at 2-8 °C for up to one month. For extended storage freeze in working aliquots. Repeated freezing and thawing is not recommended. Storage in "frost-free" freezers is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use.

Product Profile

A minimum working dilution of 1: 5,000 is determined by immunoblotting using a rat brain cytosolic extract or a lysate of cultured NIH 3T3 mouse fibroblasts.

The antibody may be used in immunoprecipitation at a concentration of 5 µg with protein A-agarose and 25 µg of a lysate of cultured NIH 3T3 mouse fibroblasts.

Note: In order to obtain best results and assay sensitivity in different techniques and preparations we recommend determining optimal working dilutions by titration test.

References

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