

Recombinant Rat Mitogen Activated Protein Kinase 1, His-tagged

Cat. No. Mapk1-664R Lot. No. (See product label)

SPECIFICATION

Product Overview	Recombinant rat MAP Kinase was tagged with a His tag at the N-terminus. The tagged protein was expressed in <i>Escherichia coli</i> .
Species	Rat
Source	E.coli
Description	MAPK1, also known as ERK(extracellular signal-regulated kinase), acts as an integration point for multiple biochemical signals, and is involved in a wide variety of cellular processes such as proliferation, differentiation, transcription regulation and development. The activation of this kinase requires its phosphorylation by upstream kinases. Upon activation, this kinase translocates to the nucleus of the stimulated cells, where it phosphorylates nuclear targets.
Biochem/physiol Actions	MAP kinase is a serine/threonine kinase that is activated by MEK through a phosphorylation cascade. The cascade starts with extracellular signals transmitted by growth factor-regulated receptor tyrosine kinases or G-protein coupled receptors. Dually phosphorylated (Thr and Tyr) MAP kinase translocates from the cytoplasm to the nucleus, where it phosphorylates protein transcription factors, transducing extracellular signals into genomic responses, proliferation or differentiation.
Unit Definition	One unit of activated MAP kinase will transfer 1 nmol of phosphate from ATP to myelin basic protein per min at 30 °C.

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Physical Form	Lyophilized powder containing Tris, pH 7.5, NaCl, and EGTA, with DTT and trehalose as stabilizers.
Assay	≥95% (SDS-PAGE).
Form	lyophilized powder.
Mol Wt	mol wt 42 kDa.
Storage Temp	-20°C.

GENE INFORMATION

Gene Name	Mapk1 mitogen activated protein kinase 1 [Rattus norvegicus]
Synonyms	mitogen activated protein kinase 1; Erk2; Mapk1; mitogen-activated protein kinase 1; ERT1; ERK-2; MAPK 1; MAPK 2; p42-MAPK; MAP kinase 1; MAP kinase 2; MAP kinase isoform p42; mitogen-activated protein kinase 2; extracellular signal-regulated kinase 2; extracellular-signal-regulated kinase 2
Gene ID	116590
mRNA Refseq	NM_053842
Protein Refseq	NP_446294
UniProt ID	P63086
Chromosome Location	11q23

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Pathway

Acute myeloid leukemia; Adherens junction; Aldosterone-regulated sodium reabsorption; Alzheimer's disease; Axon guidance; B cell receptor signaling pathway; Bladder cancer; Chagas disease; Chemokine signaling pathway; Chronic myeloid leukemia; Colorectal cancer; Dorso-ventral axis formation; Endometrial cancer; ErbB signaling pathway; Fc epsilon RI signaling pathway; Fc gamma R-mediated phagocytosis; Focal adhesion; Gap junction; Glioma; GnRH signaling pathway; Insulin signaling pathway; Leishmaniasis; Long-term depression; Long-term potentiation; MAPK signaling pathway; Melanogenesis; Melanoma; NOD-like receptor signaling pathway; Natural killer cell mediated cytotoxicity; Neurotrophin signaling pathway; Non-small cell lung cancer; Oocyte meiosis; Pancreatic cancer; Pathways in cancer; Prion diseases; Progesterone-mediated oocyte maturation; Prostate cancer; Regulation of actin cytoskeleton; Renal cell carcinoma; T cell receptor signaling pathway; TGF-beta signaling pathway; Thyroid cancer; Toll-like receptor signaling pathway; Type II diabetes mellitus; VEGF signaling pathway; Vascular smooth muscle contraction; mTOR signaling pathway

Function

ATP binding; MAP kinase 2 activity; MAP kinase activity; kinase activity; mitogen-activated protein kinase kinase kinase binding; nucleotide binding; phosphotyrosine binding; protein binding; protein serine/threonine kinase activity; transcription factor binding; transferase activity

PDB rendering based on 1erk.
