

# Recombinant Human Mitogen-Activated Protein Kinase 1

Cat. No. MAPK1-37H    Lot. No. (See product label)

## SPECIFICATION

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| <b>Product Overview</b> | Recombinant ERK2 (extracellular signal-regulated kinase) a Mitogen-Activated Protein Kinase, is a highly active form produced by phosphorylation of the purified ERK2/MAPK1 in vitro with MEK1 is a non-glycosylated polypeptide having a molecular mass of 44.6 kDa. ERK2/MAPK1 is purified by proprietary chromatographic techniques. It is produced in <i>E. Coli</i> . |
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| <b>Species</b> | Human |
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| <b>Source</b> | E.coli |
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| <b>Description</b> | Mitogen-activated protein kinase 1 (MAPK1) is also known as "extracellular signal-regulated kinase 2" (ERK2). Two similar (85% sequence identity) protein kinases were originally called ERK1 and ERK2. They were found during a search for protein kinases that are rapidly phosphorylated after activation of cell surface tyrosine kinases such as the epidermal growth factor receptor. Phosphorylation of ERKs leads to the activation of their kinase activity. The molecular events linking cell surface receptors to activation of ERKs are complex. It was found that Ras GTP-binding proteins are involved in the activation of ERKs. Another protein kinase, Raf-1, was shown to phosphorylate a "MAPK kinase", thus qualifying as a "MAPK kinase kinase". The MAPK kinase was named "MAPK/ERK kinase" (MEK). Receptor-linked tyrosine kinases, Ras, Raf, MEK and MAPK could be fitted into a signaling cascade linking an extracellular signal to MAPK activation. Transgenic gene knockout mice lacking MAPK1 have major defects in early development. |
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| <b>Physical Appearance</b> | Sterile Filtered clear solution.                                                                                                                                               |
| <b>Unit Definition</b>     | 1 U = 1 pmol/min transferred to myelin basic protein at 30°C.                                                                                                                  |
| <b>Purity</b>              | Greater than 95.0% as determined by SDS-PAGE.                                                                                                                                  |
| <b>Formulation</b>         | ERK2 is supplied as 0.56 mg/ml containing 50mM Tris-HCL, 150mM NaCl, 2mM DTT, pH 8.0, 100 Units*/mg.                                                                           |
| <b>Stability</b>           | ERK2/MAPK1 should be stored at 4°C if entire vial will be used within 2-4 weeks. For long term storage it is recommended to store at -20°C. Avoid multiple freeze-thaw cycles. |

## GENE INFORMATION

|                       |                                                                                                                                                                                                                                                                                      |
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| <b>Gene Name</b>      | MAPK1 mitogen-activated protein kinase 1 [ Homo sapiens ]                                                                                                                                                                                                                            |
| <b>Synonyms</b>       | MAPK1; mitogen-activated protein kinase 1; ERK; p38; p40; p41; ERK2; ERT1; MAPK2; PRKM1; PRKM2; P42MAPK; p41mapk;p42-MAPK; MAP kinase 2; Mitogen-activated protein kinase 2; Extracellular signal-regulated kinase 2; OTTHUMP00000174492; MAP kinase 2; protein tyrosine kinase ERK2 |
| <b>Gene ID</b>        | 5594                                                                                                                                                                                                                                                                                 |
| <b>mRNA Refseq</b>    | NM_002745                                                                                                                                                                                                                                                                            |
| <b>Protein Refseq</b> | NP_002736                                                                                                                                                                                                                                                                            |
| <b>UniProt ID</b>     | P28482                                                                                                                                                                                                                                                                               |
| <b>Chromosome</b>     | 22q11.2; 22q11.21                                                                                                                                                                                                                                                                    |

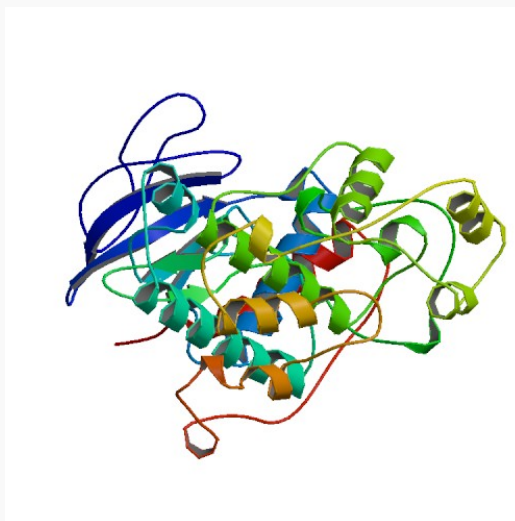
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| <b>Location</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>MIM</b>      | 176948                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Pathway</b>  | Acute myeloid leukemia; Adherens junction; Alzheimer"s disease; Axon guidance; cell receptor signaling pathway; Bladder cancer; Chemokine signaling pathway; Chronic myeloid leukemia; Dorso-ventral axis formation; Colorectal cancer; 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; Insulin signaling pathway; Long-term depression; Long-term potentiation; Melanogenesis; Melanoma; Natural killer cell mediated cytotoxicity; Neurotrophin signaling pathway; Non-small cell lung cancer; Pancreatic cancer; Pathways in cancer; Prion diseases; Prostate cancer; Regulation of actin cytoskeleton; Renal cell carcinoma; T cell receptor signaling pathway; TGF-beta 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; Axon guidance; Signaling by EGFR; Signaling in Immune system; Signalling by NGF |
| <b>Function</b> | ATP binding; MAP kinase 2 activity; mitogen-activated protein kinase kinase kinase binding; nucleotide binding; phosphotyrosine binding; protein binding; protein serine/threonine kinase activity; transferase activity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

PDB rendering based  
on 1erk.



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