3050 Spruce Street, St. Louis, MO 63103 USA
Tel: (800) 521-8956 (314) 771-5765 Fax: (800) 325-5052 (314) 771-5757
email: techservice@sial.com sigma-aldrich.com

Product Information

SILu™Prot MAPK1,
Mitogen activated protein kinase 1, human recombinant, expressed in HEK cells
SIL MS Protein Standard, ^{13}C- and ^{15}N-labeled

Catalog Number **MSST0009**
Storage Temperature –20 °C

Synonym: Extracellular signal-regulated kinase 2 (Erk2)

Product Description

SILu™Prot MAPK1 is a recombinant, stable isotope-labeled human MAPK1 which incorporates [$^{13}C_6$, $^{15}N_4$]-Arginine and [$^{13}C_6$, $^{15}N_2$]-Lysine. Expressed in human 293 cells, it is designed to be used as an internal standard for bioanalysis of MAPK1 in mass spectrometry. SILu™Prot MAPK1 is a monomer of 380 amino acids (including N-terminal polyhistidine and FLAG® tags), with a calculated molecular mass of 44.2 kDa.

MAPK1 is a cytoplasmic protein that following activation is capable of translocating to the nucleus where it phosphorylates and regulates nuclear proteins (e.g., Elk-1, c-Myc, c-Jun, c-Fos, and C/EBP beta).[1] It is a protein serine/threonine kinase that is a member of the extracellular signal-regulated kinases (ERKs) which are activated in response to numerous growth factors and cytokines.[2] Aberrations in the RAS-MAPK complex (of which MAPK1 is a downstream effector) are implicated in several human cancers, and this renders the pathway an attractive therapeutic target.[3]

Each vial contains 10–13 µg of SILu™Prot MAPK1 standard, in a 0.1 mg/mL solution of 20 mM sodium phosphate, pH 8.0, 1 M NaCl, 1 mM EDTA, and 25% glycerol. Vial content was determined by the Bradford method using BSA as a calibrator. The correction factor from the Bradford method to Amino Acid Analysis is 90% for this protein.

Identity: Confirmed by peptide mapping

Purity: ≥95% (SDS-PAGE)

Heavy amino acid incorporation efficiency: ≥98% (MS)

UniProt: P28482

Sequence Information
The N-terminal polyhistidine and FLAG tags are italicized.

*MDYKDDDDKGHHHHHHHHGGQ*AAAAAAGAGPEMV
RGQVFDVGPRYTNLSYIGEGAYGMVCSAYDNVNKVR
VAIKKISPFEHQTYCQRTLREIKILLRFRHENIIGINDIIR
APTIEQMKDVYIVQDLMETDLYKLLKTQHLSNDHICYF
LYQILRGLKYIHSANVLHRDLKPSNLLLNTTCDLKICDF
GLARVADPDHDHTGFLTEYVATRWYRAPEIMLNSKG
YTKSIDIWSVGCILAEMLSNRPIFPGKHYLDQLNHILGI
LGSPSQEDLNCIINLKARNYLLSLPHKNKVPWNRLFP
NADSKALDLLDKMLTFNPHKRIEVEQALAHPYLEQYY
DPSDEPIAEAPFKFDMELDDLPKEKLKELIFEETARFQ
PGYRS

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

Store the product at –20 °C. The product is stable for at least 2 years as supplied. After initial thawing it is recommended to store the protein in working aliquots at –20 °C.

References

1. Levin-Salomon, V. et al., Isolation of Intrinsically Active (MEK-independent) Variants of the ERK Family of Mitogen-activated Protein (MAP) Kinases. *J. Biol. Chem.,* **283**, 34500-34510 (2008).
2. Boulton, T.G. et al., Purification and properties of extracellular signal-regulated kinase 1, and insulin-stimulated microtubule-associated protein 2 kinase. *Biochemistry*, **30**, 278-286 (1991).
3. Santarpia, L. et al., Targeting the MAPK-RAS-RAF signaling pathway in cancer therapy. *Expert Opin. Ther. Targets,* **16(1)**,103-119 (2012).

Legal Information

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