MAPK8 (JNK1) [6His-tagged]

Kinase

Alternate Names: Mitogen-Activated Protein Kinase 8, PRKM8, C-Jun Kinase 1, SAPK1, SAPK1c, JNK-46

Cat. No.	**66-0028-050**	Quantity:	50 µg
Lot. No.	**30307**	Storage:	-70˚C

FOR RESEARCH USE ONLY

NOT FOR USE IN HUMANS

Background

Protein ubiquitylation and protein phosphorylation are the two major mechanisms that regulate the functions of proteins in eukaryotic cells. However, these different posttranslational modifications do not operate independently of one another, but are frequently interlinked to enable biological processes to be controlled in a more complex and sophisticated manner. Studying how protein phosphorylation events control the ubiquitin system and how ubiquitylation regulates protein phosphorylation has become a focal point of the study of cell regulation and human disease. MAP kinases are serine, threonine, and tyrosine specific protein kinases that regulate proliferation, gene expression, differentiation, mitosis, cell survival, and apoptosis in response to stimuli, such as mitogens, osmotic stress, heat shock and pro-inflammatory cytokines. Cloning of human Mitogen Activated Protein kinase 8 (MAPK8 or JNK1) was first described by Derijard *et al.* (1994). An example of such interplay between the phosphorylation and ubiquitylation systems has been highlighted in a recent study uncovering a link between the deubiquitylating enzyme CYLD and the oncogene c-MYC, via MAPK8, offering a mechanistic insight into the role of CYLD deficiency in tumour initiation and progression (Pannem *et al.*, 2014).

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Physical Characteristics

Species: human

Source: baculovirus expression vector system

Quantity: 50 µg

Concentration: 1.27 mg/ml

Formulation: 50 mM Tris/HCl pH7.5, 0.1 mM EGTA, 150 mM NaCl, 0.1% ß-Mercaptoethanol, 270 mM sucrose, 0.03% Brij-35, 1 mM Benzamidine, 0.2 mM PMSF

Molecular Weight: ~45.1 kDa

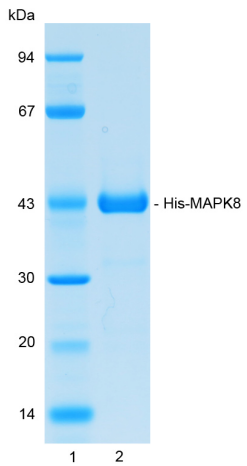
Purity: >95% by InstantBlue™ SDS-PAGE

Stability/Storage: 12 months at -70˚C; aliquot as required

Protein Sequence: Please see page 2

Quality Assurance

Purity:
4-12% gradient SDS-PAGE
InstantBlue™ staining
Lane 1: MW markers
Lane 2: 2.5 µg His-MAPK8



Protein Identification:
Confirmed by mass spectrometry.

Activity Assay:
The specific activity of His-MAPK8 was determined using the method described by Hastie *et al.* (2006) with the enzyme being assayed at several concentrations. His-MAPK8 was incubated for 10 minutes at 30˚C in kinase reaction buffer in the presence of GST-ATF2 [19-96] substrate (0.2 mg/ml) and [γ-32P]ATP (100 µM). Duplicate reactions were stopped by spotting the assay mixture onto Whatman P81 paper – capturing the phosphorylated substrate.The radioactivity incorporated was measured on a scintillation counter and the enzyme's mean specific activity was calculated.

His-MAPK8 specific activity:
148.2 Units/mg (188.2 Units/ml)

1 Unit = 1 nmole of phosphate incorporated into the substrate in 1 minute

Substrate: GST-ATF2 [residues 19-96]

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Email **services@ubiquigent.com** for enquiries regarding compound profiling and/or custom assay development services.

Lot-specific COA version tracker: v1.0.0

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Background

Continued from page 1

References:

Derijard B, Hibi M, Wu IH, Barrett T, Su B, Deng T *et al.* (1994) JNK1: a protein kinase stimulated by UV light and Ha-Ras that binds and phosphorylates the c-Jun activation domain. *Cell* **76**, 1025-1037.

Hastie CJ, McLauchlan HJ, Cohen P (2006) Assay of protein kinases using radiolabeled ATP: a protocol. *Nat Protoc* **1**, 968-71.

Pannem RR, Dorn C, Ahlqvist K, Bosserhoff AK, Hellerbrand C and Massoumi R (2014) CYLD controls c-MYC expression through the JNK-dependent signaling pathway in hepatocellular carcinoma. *Carcinogenesis* **35**, 461-468.

Physical Characteristics

Continued from page 1

Protein Sequence:

MHHHHHH*M*SRSKRDNNFYSVEIGDSTFTV
LKRYQNLKPIGSGAQGIVCAAYDAILERN
VAIKKLSRPFQNQTHAKRAYRELVLMKCVN
HKNIIGLLNVFTPQKSLEEFQDVYIVMELM
DANLCQVIQMELDHERMSYLLYQMLCGIKHLH
SAGIIHRDLKPSNIVVKSDCTLKILDF
GLARTAGTSFMMTPYVVTRYYRAPEVIL
GMGYKENVDLWSVGCIMGEMVCHKILF
PGRDYIDQWNKVIEQLGTPCPEFMKKLQPT
VRTYVENRPKYAGYSFEKLFPDVLFPAD
SEHNKLKASQARDLLSKMLVIDASKRIS
VDEALQHPYINVWYDPSEAEAPPPKIPDKQL
DEREHTIEEWKELIYKEVMDLEERTKNGVIR
GQPSPLAQVQQ

Tag (**bold text**): N-terminal 6His
MAPK8 (regular text): Start ***bold italics*** (amino acid residues 1-384).
Accession number: AAA36131.1

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