

## MKK6 Protein, Human (S207D, T211D, sf9)

Cat. No.:	HY-P74748
Synonyms:	Dual specificity mitogen-activated protein kinase kinase 6; MAPKK 6; MEK 6; SAPKK3; MAP2K6
Species:	Human
Source:	Sf9 insect cells
Accession:	P52564 (N-G&P, M1-D334, S207D, T211D)
Gene ID:	5608
Molecular Weight:	Approximately 38 kDa

### PROPERTIES

Biological Activity	The enzyme activity of this recombinant protein is testing in progress, we cannot offer a guarantee yet.
Appearance	Solution.
Formulation	Supplied as a 0.2 µm filtered solution of 20 mM Tris, 500 mM NaCl, 10% glycerol, pH 8.0.
Endotoxin Level	<1 EU/µg, determined by LAL method.
Reconstitution	N/A.
Storage & Stability	Stored at -80°C for 1 year. It is stable at -20°C for 3 months after opening. It is recommended to freeze aliquots at -80°C for extended storage. Avoid repeated freeze-thaw cycles.
Shipping	Shipping with dry ice.

### DESCRIPTION

#### Background

MKK6, a dual specificity protein kinase, serves as an integral component of the MAP kinase signal transduction pathway. In collaboration with MAP3K3/MKK3, MKK6 catalyzes the simultaneous phosphorylation of a threonine and a tyrosine residue in the MAP kinases p38 MAPK11, MAPK12, MAPK13, and MAPK14, playing a pivotal role in regulating cellular responses to cytokines and various stress stimuli. Both MKK3 and MKK6 are essential for activating MAPK11 and MAPK13 in response to environmental stress, with MKK6 emerging as the principal activator of MAPK11 upon TNF stimulation. Additionally, MKK6 phosphorylates and activates PAK6. The downstream effects of the p38 MAP kinase signal transduction pathway include the direct activation of transcription factors such as ATF2 and ELK1. Within this pathway, MKK6 mediates the phosphorylation of STAT4 through MAPK14 activation, leading to the activation of STAT4 and its regulation of gene expression in response to IL-12 stimulation. Furthermore, the pathway is crucial for IL-6-induced SOCS3 expression and down-regulation of IL-6-mediated gene induction, as well as IFNG-dependent gene transcription. MKK6 plays a role in osteoclast differentiation through NF-kappa-B transactivation by TNFSF11, contributes to endochondral ossification, and likely influences SOX9 as a downstream target of the p38 MAPK pathway. Moreover, MKK6 is involved in mediating apoptotic cell death in thymocytes and serves as a regulator for melanocyte dendricity by modulating Rho family GTPases.

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**Caution: Product has not been fully validated for medical applications. For research use only.**

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