

## MKK4 Protein, Mouse, Recombinant (His &amp; GST)

## General Information

Synonyms:	MKK4;MEK4;PRKMK4;Sek1;JNKK1;Serk1;mitogen-activated protein kinase kinase 4
Protein Construction:	A DNA sequence encoding the mouse MAP2K4 (P47809) (Ala 2-Asp 397) was fused with the N-terminal polyhistidine-tagged GST tag at the N-terminus. Predicted N terminal: Met
Species:	Mouse
Expression Host:	Baculovirus Insect Cells
Accession:	P47809
Molecular Weight:	72 kDa (predicted); 65 kDa (reducing conditions)

## QC Testing

Biological Activity:	No Kinase Activity
Purity:	> 90 % as determined by SDS-PAGE
Endotoxin:	< 1.0 EU/μg of the protein as determined by the LAL method.
Formulation:	Lyophilized from a solution filtered through a 0.22 μm filter, containing 20 mM Tris, 500 mM NaCl, pH 8.5. Typically, a mixture containing 5% to 8% trehalose, mannitol, and 0.01% Tween 80 is incorporated as a protective agent before lyophilization.

## Preparation and Storage

**Reconstitution:**  
A Certificate of Analysis (CoA) containing reconstitution instructions is included with the products. Please refer to the CoA for detailed information.

**Stability & Storage:**

It is recommended to store recombinant proteins at -20°C to -80°C for future use. Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots.

*Actual storage temperature shall be subject to the COA.*

**Shipping:**

In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

## Protein Background

Dual specificity mitogen-activated protein kinase kinase 4, also known as MAP kinase kinase 4, MAPKK4, JNK-activating kinase 1, MAPK/ERK kinase 4, SAPK/ERK kinase 1, c-Jun N-terminal kinase kinase 1, JNKK, and MAP2K4, is a protein that belongs to the protein kinase superfamily, STE Ser/Thr protein kinase family and MAP kinase kinase subfamily. MAP2K4 / JNKK1 is a protein kinase that is a direct activator of MAP kinases in response to various environmental stresses or mitogenic stimuli. MAP2K4 / JNKK1 has been shown to activate MAPK8 / JNK1,

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MAPK9 / JNK2, and MAPK14 / p38, but not MAPK1 / ERK2 or MAPK3 / ERK1. MAP2K4 / JNKK1 is phosphorylated, and thus activated by MAP3K1 / MEKK. The stress-activated protein kinase (SAPK) pathways represent phosphorylation cascades that convey pro-apoptotic signals. The mitogen-activated protein kinase kinase (MAPKK) homolog MAP2K4 ( MKK4, SEK, JNKK1 ) is a centrally-placed mediator of the SAPK pathways.

### Reference

- Lin A, et al., 1995, Science 268 (5208): 286-90.  
Su, G.H. et al., 2002, Hum Mutat. 19 (1):81.  
Lee, et al., 2002, Proc. Natl. Acad. Sci. USA. 99 (22): 14189-94.  
Bouzakri, K. et al., 2007, J Biol Chem. 282 (11):7783-9.

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