

## p38 gamma/MAPK12 Protein, Human, Recombinant

### General Information

Synonyms:	mitogen-activated protein kinase 12;SAPK-3;P38 $\gamma$ /MAPK12;SAPK3;PRKM12;ERK3;MAPK12;ERK-6;P38GAMMA;ERK6;P38 $\gamma$
Protein Construction:	A DNA sequence encoding the human MAPK12 (P53778) (Met1-Leu367) was fused with two additional amino acids (Gly & Pro) at the N-terminus. Predicted N terminal: Gly
Species:	Human
Expression Host:	Baculovirus Insect Cells
Accession:	P53778
Molecular Weight:	42.1 kDa (predicted); 43 kDa (reducing conditions)

### QC Testing

Biological Activity:	Kinase activity untested
Purity:	> 95 % as determined by SDS-PAGE
Endotoxin:	< 1.0 EU/ $\mu$ g of the protein as determined by the LAL method.
Formulation:	Supplied as sterile 20 mM Tris, 500 mM NaCl, 10% glycerol, pH 8.0.

### 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 the product under sterile conditions at  $-20^{\circ}\text{C}$  to  $-80^{\circ}\text{C}$ . Samples are stable for up to 12 months. Please avoid multiple freeze-thaw cycles and store products in aliquots.

Actual storage temperature shall be subject to the COA.

#### Shipping:

Proteins are shipped with blue ice.

### Protein Background

ERK3, also known as MAPK12 and p38-gamma, belongs to the protein kinase superfamily, CMGC Ser/Thr protein kinase family, and MAP kinase subfamily. ERK3 is highly expressed in skeletal muscle and heart. ERK3 is a serine/threonine kinase that acts as an essential component of the MAP kinase signal transduction pathway. MAPK12 is one of the four p38 MAPKs which play an important role in the cascades of cellular responses evoked by extracellular stimuli such as proinflammatory cytokines or physical stress leading to direct activation of transcription factors such as ELK1 and ATF2. Accordingly, p38 MAPKs phosphorylate a broad range of proteins and it has been estimated that they may have approximately 2 to 3 substrates each. MAPK12 is required for the normal kinetochore localization of PLK1, prevents chromosomal instability, and supports mitotic cell viability. MAPK12-

signaling is also positively regulating the expansion of transient amplifying myogenic precursor cells during muscle growth and regeneration.

### Reference

Stiffler MA. et al., 2006, J Am Chem Soc. 128 (17): 5913-22.

Joneson T. et al., 1997, J Mol Med. 75 (8): 587-93.

Hou SW. et al., 2010, Cancer Res. 70 (7): 2901-10.

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