

Product Information

MAPKAPK2, human, recombinant expressed in human embryonic kidney cells

Product Number **M0195**
Storage Temperature $-70\text{ }^{\circ}\text{C}$

Synonyms: MAP kinase activated protein kinase 2;
MAPKAP kinase 2

Product Description

MAP kinase activated protein kinase 2 (MAPKAPK2, MAPKAP kinase 2) is a serine/threonine protein kinase¹ activated by the p38 MAP kinase in response to various signals including mitogenic and stress stimuli.^{2,3,4} MAPKAPK2 is distinguished from the RSK family of ribosomal protein S6 kinases (also termed MAPKAPK1), which are activated by the MAP kinases, ERK1 and ERK2, based on its substrate specificity and amino acid sequence.^{1,5} Upon activation, p38 MAP kinase activates the downstream MAPKAPK2 by phosphorylation of the threonine residue in the Pro-Thr motif in response to heat shock or mitogenic stimuli. Activated MAPKAPK2, in turn, phosphorylates the small heat shock protein HSP 25/HSP 27, both *in vitro* and *in vivo*, at serine residues. Thus, HSP 25/HSP 27 seems to be the physiological substrate of MAPKAPK2.^{6,7}

The catalytic domain of MAPKAPK2 shows similarity (35-40% identity) to several calmodulin-dependent protein kinases and the C-terminal domain of MAPKAPK1. It is preceded by a proline rich domain in the N-terminal region that may interact with SH3 domain containing proteins.^{5,8} Two isoforms of MAPKAPK2 (45 and 50 kDa) have been identified that may be generated by alternative splicing of a common precursor mRNA. They differ in their C-terminals, the longer form containing a putative nuclear localization signal KK(X)₁₀KRRKK. The MAPKAPK2 mRNA transcript appears to be widely distributed in mammalian tissues.^{5,9} In contrast, MAPKAPK2 from different species have been reported to have characteristic molecular masses (45-60 kDa range).^{1,3,4} Antibodies that react specifically with MAPKAPK2 are useful for the study of the differential tissue expression, intracellular localization of MAPKAPK2 in normal and neoplastic tissue.

This product is recombinant human MAPKAPK2 (Accession No: NM_004759, 69 kDa) with an N-terminal GST-tag, expressed in human embryonic kidney (HEK) cells.

pH Optimum: 7.4

Specific Activity: ≥ 60 units/mg protein

Unit Definition: One unit will incorporate 1 nmole of phosphate into HSP 25 per minute at $30\text{ }^{\circ}\text{C}$ at pH 7.4

Components

MAPKAPK2 is supplied as a solution in 50 mM Tris-HCl, pH 7.4, 100 mM NaCl, 0.05 mM EDTA, 2 mM DTT, and 10% Glycerol.

Precautions and Disclaimer

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

Storage/Stability

The product ships on dry ice and storage at $-70\text{ }^{\circ}\text{C}$ is recommended. It is stable for 1 year at $-70\text{ }^{\circ}\text{C}$. (Avoid repeated freezing and thawing)

References

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3. Cuenda, A., *et al.*, FEBS Lett., **364**, 229-233 (1995).
4. Cano, E., *et al.*, Oncogene, **12**, 805-812 (1996).
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6. Stokoe, D., *et al.*, FEBS Lett., **313**, 307-313 (1992).
7. Zhou, M., *et al.*, J. Biol. Chem., **268**, 35-43 (1993).
8. Engel, K., *et al.*, FEBS Lett., **336**, 143-147 (1993).
9. Zu, Y.-L., *et al.*, Biochem. Biophys. Res. Commun., **200**, 1118-1124 (1994).

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