



Product Information

MEK1, Active
human, recombinant
expressed in *E. coli*

Product Number **M 7677**
Storage Temperature $-70\text{ }^{\circ}\text{C}$

Product Description

MEK1 (MAP Kinase Kinase 1), a dual specificity protein kinase, is a key enzyme in the MAP Kinase cascade. The MAP Kinase cascade transmits extracellular signals involving activation of receptor tyrosine kinases or G-protein coupled receptors from the cell surface to the nucleus, via sequential phosphorylation dependent stimulation of cytoplasmic protein kinases. MEK1 is activated upon phosphorylation by RAF or MEKK1 and it consequently phosphorylates MAP kinase (ERK1 and ERK2) at Thr¹⁸³ and Tyr¹⁸⁵ (TEY motif) thus activating it. Activated MAP kinase phosphorylates cytoplasmic proteins such as RSK and PLA2 or translocates to the nucleus, where it phosphorylates various transcription factors such as ELK-1 leading to cell proliferation or differentiation.

This product (MEK1, active) is a constitutively active protein kinase in which Ser²¹⁸ and Ser²²² were mutated to glutamic acid and amino acids 32-51 were deleted.

The product is supplied as a solution in 20 mM Tris buffer, pH 7.5, with 50 mM NaCl, 1 mM EGTA, 1 mM EDTA, 1 mM DTT, 5% glycerol, and 0.03% Brij 35.

Purity: minimum 90% (SDS-PAGE)

Specific Activity: minimum 100 units/ml

Unit definition: 1 unit of MEK will activate MAP kinase to transfer 1 nmole of phosphate from ATP to myelin basic protein in 1 minute at pH 7.3 at 30 °C. MEK 1 phosphorylates non-active MAP kinase (ERK 2) and then the active MAP kinase phosphorylates myelin basic protein (MBP). The level of MBP phosphorylation serves as a measure for MEK 1 activity.

Final concentrations in the reaction buffer for the assay are 50 mM β -glycerophosphate, pH 7.3, 200 μ M ATP, 3 mM DTT, 0.1 mM sodium vanadate, and 1.5 mM EGTA. The detailed procedure is available at sigma-aldrich.com or upon request.

Precautions and Disclaimer

This product is for laboratory research use only. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

The product ships on dry ice and it is recommended to store the product at $-70\text{ }^{\circ}\text{C}$. When properly stored the product is stable for 3 years.

References

1. Seger, R., and Krebs, E.G., *FASEB J.*, **9**, 726-735 (1995).
2. Cano, E., and Mehavedan, L.C., *Trends Biol. Sci.*, **20**, 117-122 (1995).
3. Jaaro, H., et al., *Proc. Nat. Acad. Sci. USA*, **94**, 3742-3747 (1997).

NDH/RBG/MAM 10/03

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