abcam

## Product datasheet

# Recombinant human MEK1 (mutated S218 + S222) protein ab90031

### Overview

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| **Product name** | Recombinant human MEK1 (mutated S218 + S222) protein |
| **Protein length** | Full length protein |

### Description

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|---|---|
| **Nature** | Recombinant |
| **Source** | Escherichia coli |

**Amino Acid Sequence**

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|---|---|
| **Species** | Human |

### Specifications

Our Abpromise guarantee covers the use of **ab90031** in the following tested applications.

The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

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| **Biological activity** | Activity: > 250.000 U/mg (1 Unit is defined as the amount of MEK1 which activates unactive ERK1 (0.3 mg/ml) by 1 U/min using 100 µM ATP at 30°C. 1 U ERK1 activity is defined as 1 pmol phosphate transferred to myelin basic protein (0.2 mg/ml) per min using 125 µM ATP at 30°C). |
| **Applications** | SDS-PAGE<br>Functional Studies |
| **Purity** | > 90 % SDS-PAGE.<br>ab90031 is purified by gluthatione sepharose and gel filtration. |
| **Form** | Liquid |
| **Additional notes** | MEK1 can be activated by Raf by phosphorylation on serine 218 and serine 222. Mutation of these sites to acidic residues leads to constitutively active MEK1 in some cases. |

### Preparation and Storage

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| **Stability and Storage** | Shipped on dry ice. Upon delivery aliquot and store at -80ºC. Avoid freeze / thaw cycles. |

Preservative: None
Constituents: 50mM Tris HCl, 270mM Sucrose, 150mM Sodium chloride, 1mM DTT, 0.1mM EGTA, pH 7.5

This product is an active protein and may elicit a biological response in vivo, handle with caution.

## General Info

**Function**

Catalyzes the concomitant phosphorylation of a threonine and a tyrosine residue in a Thr-Glu-Tyr sequence located in MAP kinases. Activates ERK1 and ERK2 MAP kinases.

**Tissue specificity**

Widely expressed, with extremely low levels in brain.

**Involvement in disease**

Defects in MAP2K1 are a cause of cardiofaciocutaneous syndrome (CFC syndrome) [MIM:115150]; also known as cardio-facio-cutaneous syndrome. CFC syndrome is characterized by a distinctive facial appearance, heart defects and mental retardation. Heart defects include pulmonic stenosis, atrial septal defects and hypertrophic cardiomyopathy. Some affected individuals present with ectodermal abnormalities such as sparse, friable hair, hyperkeratotic skin lesions and a generalized ichthyosis-like condition. Typical facial features are similar to Noonan syndrome. They include high forehead with bitemporal constriction, hypoplastic supraorbital ridges, downslanting palpebral fissures, a depressed nasal bridge, and posteriorly angulated ears with prominent helices. The inheritance of CFC syndrome is autosomal dominant.

**Sequence similarities**

Belongs to the protein kinase superfamily. STE Ser/Thr protein kinase family. MAP kinase kinase subfamily.
Contains 1 protein kinase domain.

**Post-translational modifications**

Phosphorylation on Ser/Thr by MAP kinase kinase kinases (RAF or MEKK1) regulates positively the kinase activity.
Acetylation by Yersinia yopJ prevents phosphorylation and activation, thus blocking the MAPK signaling pathway.



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