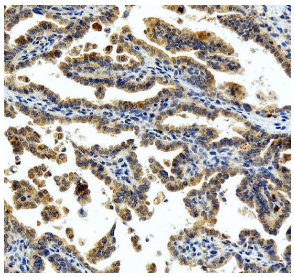
MEK1 Antibody / MAP Kinase Kinase Antibody (R30445)

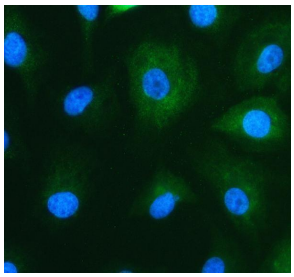
Catalog No.	Formulation	Size
R30445	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

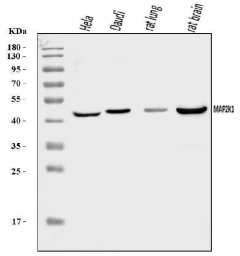
Availability	1-3 business days
Species Reactivity	Human, Mouse, Rat
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Antigen affinity
Buffer	Lyophilized from 1X PBS with 2% Trehalose
UniProt	Q02750
Applications	Western blot: 0.5-1ug/ml Immunohistochemistry (FFPE): 2-5ug/ml Immunofluorescence: 5ug/ml
Limitations	This MEK1 Antibody / MAP Kinase Kinase Antibody is available for research use only.



MEK1 Antibody / MAP Kinase Kinase Antibody Human Ovarian Cancer IHC. Immunohistochemical staining of FFPE human ovarian cancer tissue using MEK1 Antibody / MAP Kinase Kinase Antibody. MEK1 expression is detected predominantly within the cytoplasm of tumor cells, consistent with its role as a dual-specificity kinase that phosphorylates ERK1 and ERK2 within the RAF-MEK-ERK signaling pathway. Heat-induced epitope retrieval was performed in pH 8.0 EDTA buffer prior to staining. Tissue sections were blocked with 10% goat serum and incubated with the primary antibody (2 ug/ml) overnight at 4Â°C, followed by a peroxidase-conjugated goat anti-rabbit IgG secondary antibody. Immunoreactivity was visualized using an HRP Super Vision detection system with DAB as the chromogen.



MEK1 Antibody / MAP Kinase Kinase Antibody A549 Immunofluorescence. Immunofluorescent staining of A549 cells using MEK1 Antibody / MAP Kinase Kinase Antibody (green) with DAPI nuclear counterstain (blue). Enzymatic antigen retrieval was performed for 15 minutes prior to staining. Cells were blocked with 10% goat serum and incubated with the primary antibody (5 ug/ml) overnight at 4Â°C, followed by a Fluoro488-conjugated goat anti-rabbit IgG secondary antibody. MEK1 displays predominantly cytoplasmic staining, consistent with its role as a dual-specificity kinase that activates ERK1 and ERK2 within the RAF-MEK-ERK signaling pathway to regulate cell proliferation, differentiation, and survival.



MEK1 Antibody / MAP Kinase Kinase Antibody Multi-Species WB. Western blot analysis of 1) human HeLa, 2) human Daudi, 3) rat lung, and 4) rat brain lysates using MEK1 Antibody / MAP Kinase Kinase Antibody. A specific immunoreactive band is detected at approximately 45 kDa in all tested samples, consistent with MEK1 expression. The predicted molecular weight of MEK1 is approximately 43 kDa. These results demonstrate reliable detection of MEK1, a dual-specificity protein kinase that phosphorylates ERK1 and ERK2 within the RAF-MEK-ERK signaling pathway to regulate cell proliferation, differentiation, survival, and cellular responses to extracellular stimuli.

Description

MEK1 Antibody / MAP Kinase Kinase Antibody recognizes mitogen-activated protein kinase kinase 1 (MEK1/MAP2K1), a dual-specificity protein kinase that occupies a central position within the RAF-MEK-ERK signaling cascade. Activated downstream of RAS and RAF family proteins, MEK1 phosphorylates ERK1 and ERK2, transmitting extracellular signals that regulate cell proliferation, differentiation, survival, migration, metabolism, and gene expression. Because the MEK-ERK pathway integrates numerous growth factor, cytokine, and stress-induced signals, MEK1 Antibody / MAP Kinase Kinase Antibody is widely used to investigate cell signaling, developmental biology, oncology, regenerative medicine, and therapeutic drug response.

MEK1 belongs to the mitogen-activated protein kinase kinase family and is distinguished by its remarkable substrate specificity, primarily phosphorylating ERK1 and ERK2 on both threonine and tyrosine residues required for activation. Once activated, ERK proteins translocate to the nucleus where they regulate numerous transcription factors controlling cell cycle progression, proliferation, differentiation, apoptosis, and cellular adaptation. Through this signaling network, MEK1 functions as an essential molecular switch that converts extracellular stimuli into coordinated cellular responses. Tight regulation of MEK1 activity is therefore critical for maintaining tissue homeostasis, embryonic development, wound healing, and normal organ function.

The biological importance of MEK1 extends well beyond growth signaling. The MAPK pathway participates in angiogenesis, immune responses, neuronal plasticity, stem cell maintenance, and cytoskeletal remodeling. MEK1 signaling also influences epithelial-to-mesenchymal transition, cell motility, and invasion, making it an important regulator of both normal physiology and disease progression. Because MEK1 integrates signals from receptor tyrosine kinases, G protein-coupled receptors, and other upstream pathways, it serves as one of the principal convergence points within cellular signaling networks.

Aberrant activation of the RAF-MEK-ERK pathway is a hallmark of numerous human cancers. Activating mutations in MAP2K1, as well as upstream alterations in RAS and BRAF, promote sustained MEK1 signaling that drives uncontrolled proliferation, resistance to apoptosis, and tumor progression. Consequently, MEK1 has become a major therapeutic target, with several clinically approved MEK inhibitors now used to treat melanoma, lung cancer, colorectal cancer, and other malignancies harboring MAPK pathway alterations. Beyond oncology, dysregulated MEK1 activity has also been implicated in developmental disorders, inflammatory diseases, cardiovascular pathology, and neurological conditions, further expanding its importance in biomedical research.

NSJ Bioreagents' MEK1 Antibody / MAP Kinase Kinase Antibody supports investigations into MAPK signaling, ERK activation, cell proliferation, differentiation, oncogenic signaling, developmental biology, pharmacology, and targeted cancer therapeutics. Reliable detection of MEK1 enables researchers to study one of the central signaling kinases responsible for coordinating extracellular cues with transcriptional regulation and cellular behavior.

Explore additional antibodies involved in MAPK signaling, oncogenic kinase pathways, and targeted cancer research on our Cancer Antibodies page.

Application Notes

The stated application concentrations are suggested starting amounts. Titration of the MEK1 Antibody / MAP Kinase Kinase Antibody may be required due to differences in protocols and secondary/substrate sensitivity.

Immunogen

An amino acid sequence from the C-terminus of human MEK1 (KQLMVHAFIKRSDAE) was used as the immunogen for this MEK1 antibody (100% homologous in human, mouse and rat).

Storage

After reconstitution, the MEK1 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.

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