abcam

ab278564

Anti-MEK1 (phospho S222) + MEK2 (phospho S222) antibody [MEK12S221-D3]

Recombinant | 20ul selling size

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	Preservative: 0.02% Sodium azide Constituents: PBS, 50% Glycerol (glycerin, glycerine), 0.1% BSA
Form	Liquid
Clonality	Monoclonal
Immunogens	Synthetic Peptide within Human MAP2K2 phospho S222. The exact immunogen used to generate this antibody is proprietary information. Database link P36507
Clone number	MEK12S221-D3
Purification technique	Affinity purification Protein A/G
Light chain type	kappa
Concentration	0.5 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

Flow Cyt

Tested

Species	Mouse

Dilution info	0.001-1 µg/mL
Notes	-

Species	Human
Dilution info	0.001-1 µg/mL
Notes	-

WB

Tested

Species	Mouse
Dilution info	0.1 µg/mL
Notes	-

Species	Human
Dilution info	0.1 µg/mL
Notes	-

Target data

See full target information MAP2K1 pS222

Function

Dual specificity protein kinase which acts as an essential component of the MAP kinase signal transduction pathway. Binding of extracellular ligands such as growth factors, cytokines and hormones to their cell-surface receptors activates RAS and this initiates RAF1 activation. RAF1 then further activates the dual-specificity protein kinases MAP2K1/MEK1 and MAP2K2/MEK2. Both MAP2K1/MEK1 and MAP2K2/MEK2 function specifically in the MAPK/ERK cascade, and catalyze the concomitant phosphorylation of a threonine and a tyrosine residue in a Thr-Glu-Tyr sequence located in the extracellular signal-regulated kinases MAPK3/ERK1 and MAPK1/ERK2, leading to their activation and further transduction of the signal within the MAPK/ERK cascade. Activates BRAF in a KSR1 or KSR2-dependent manner; by binding to KSR1 or KSR2 releases the inhibitory intramolecular interaction between KSR1 or KSR2 protein kinase and N-terminal domains which promotes KSR1 or KSR2-BRAF dimerization and BRAF activation (PubMed:29433126). Depending on the cellular context, this pathway mediates diverse biological functions such as cell growth, adhesion, survival and differentiation, predominantly through the regulation of transcription, metabolism and cytoskeletal rearrangements. One target of the MAPK/ERK cascade is peroxisome proliferator-activated receptor gamma (PPARG), a nuclear receptor that promotes differentiation and apoptosis. MAP2K1/MEK1 has been shown to export PPARG from the nucleus. The MAPK/ERK cascade is also involved in the regulation of endosomal dynamics, including lysosome processing and endosome

cycling through the perinuclear recycling compartment (PNRC), as well as in the fragmentation of the Golgi apparatus during mitosis.

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage duration	1-2 weeks
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle

Notes

What are the advantages of a recombinant monoclonal antibody?
This product is a recombinant monoclonal antibody, which offers several advantages including:

- High batch-to-batch consistency and reproducibility
- Improved sensitivity and specificity
- Long-term security of supply
- Animal-free batch production

For more information, read more on recombinant antibodies.

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	MEK1 and MEK2 also known as MAP2K1 and MAP2K2 are protein kinases with molecular weights approximately 43 kDa and 45 kDa respectively. These proteins belong to the MAPKK family and function as dual-specificity kinases phosphorylating both serine/threonine and tyrosine residues. MEK1 and MEK2 are expressed ubiquitously in human tissues indicating their widespread role in cellular processes. Their main mechanical role is to activate ERK1/2 which is important in various signal transduction pathways. As part of the MAPK/ERK cascade MEK proteins serve as a conduit for signals from the membrane to the nucleus.

Biological function summary	MEK1 and MEK2 participate in transmitting signals that regulate cell proliferation differentiation and survival. Their role in these processes involves forming part of a signaling complex that includes RAF kinases and ERK1/2. This assembly ensures precise regulation of cell cycle events and growth responses to extracellular signals. The activity of MEK proteins allows cells to modulate responses to external growth factors and stress maintaining cellular homoeostasis. Given their involvement in key biological processes MEK1 and MEK2 are essential for normal cellular function.
Pathways	MEK1 and MEK2 play significant roles in the MAPK/ERK and PI3K/Akt pathways. Their activation by upstream kinases like RAF enables downstream phosphorylation and activation of ERK1/2 key regulators of gene expression and cellular activities. The MAPK/ERK pathway interconnects with other pathways such as the PI3K/Akt pathway creating a network of signals important for cell fate decisions. Through these pathways MEK1 and MEK2 interact with a variety of proteins including PI3K and Akt linking growth factor signaling to broader cellular outcomes.
Associated diseases and disorders	MEK1 and MEK2 exhibit distinct connections to cancers and RASopathies. Aberrant activation of the MAPK/ERK pathway often through mutations in MEK1/2 contributes to oncogenesis in several cancer types including melanoma and colorectal cancer. Additionally changes in these proteins are implicated in RASopathies such as Noonan syndrome a series of genetic disorders caused by dysregulation of the RAS-MAPK pathway. In these conditions MEK proteins often show altered interactions with other proteins like RAF and RAS correlating with disease pathogenesis and progression.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

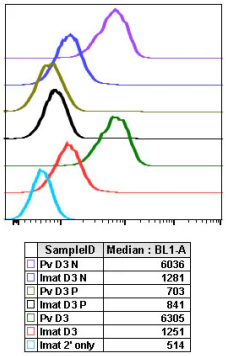
We do not recommend this combination. It is not covered by our product promise.

We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

Full details and terms and conditions can be found here:
Terms & Conditions.

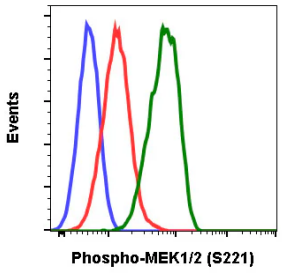
6 product images



Flow Cytometry - Anti-MEK1 (phospho S222) + MEK2 (phospho S222) antibody [MEK12S221-D3] (ab278564)

MEK1 (phospho S222) + MEK2 (phospho S222) Flow Cytometry staining using rabbit Anti-MEK1 (phospho S222) + MEK2 (phospho S222) antibody

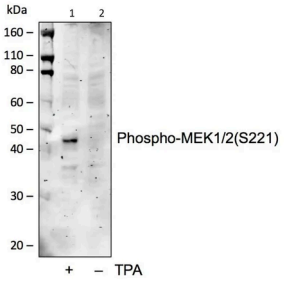
Peptide blocking flow cytometric analysis of HeLa cells secondary antibody only negative control (light blue) or treated with imatinib (red) or pervanadate (green) or imatinib and blocked with phospho peptide (gold) or pervanadate and blocked with phospho peptide (black) or imatinib and blocked with non-phospho peptide (dark blue) or pervanadate and blocked with non-phospho peptide (purple) using ab278564 at 0.1 µg/mL.



Flow Cytometry - Anti-MEK1 (phospho S222) + MEK2 (phospho S222) antibody [MEK12S221-D3] (ab278564)

MEK1 (phospho S222) + MEK2 (phospho S222) Flow Cytometry staining using rabbit Anti-MEK1 (phospho S222) + MEK2 (phospho S222) antibody

Flow cytometric analysis of HeLa cells secondary antibody only negative control (blue) or treated with imatinib (red) or with pervanadate (green) using ab278564 at 0.1 µg/mL.



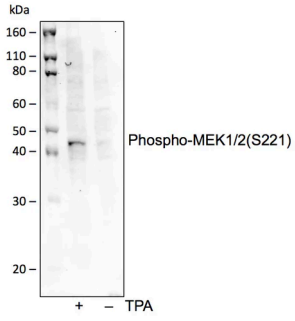
Western blot - Anti-MEK1 (phospho S222) + MEK2 (phospho S222) antibody [MEK12S221-D3] (ab278564)

MEK1 (phospho S222) + MEK2 (phospho S222) Western blot staining using rabbit Anti-MEK1 (phospho S222) + MEK2 (phospho S222) antibody

All lanes:
Western blot - Anti-MEK1 (phospho S222) + MEK2 (phospho S222) antibody [MEK12S221-D3] (ab278564) at 0.1 µg/mL

Lane 1:
HT1080 cell extract treated with TPA

Lane 2:
HT1080 cell extract untreated with TPA

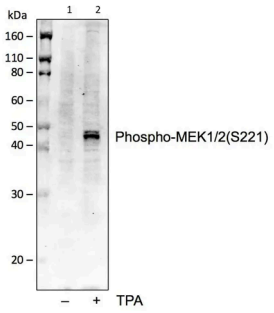


Western blot - Anti-MEK1 (phospho S222) + MEK2 (phospho S222) antibody [MEK12S221-D3] (ab278564)

MEK1 (phospho S222) + MEK2 (phospho S222) Western blot staining using rabbit Anti-MEK1 (phospho S222) + MEK2 (phospho S222) antibody

Western blot analysis of C2C12 cell extract untreated or treated with TPA using 0.1 µg/mL ab278564.

All lanes:
Western blot - Anti-MEK1 (phospho S222) + MEK2 (phospho S222) antibody [MEK12S221-D3] (ab278564)



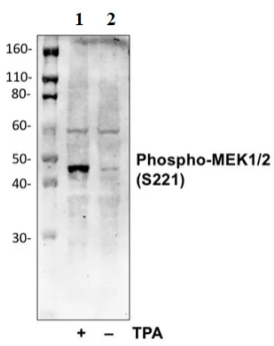
Western blot - Anti-MEK1 (phospho S222) + MEK2 (phospho S222) antibody [MEK12S221-D3] (ab278564)

MEK1 (phospho S222) + MEK2 (phospho S222) Western blot staining using rabbit Anti-MEK1 (phospho S222) + MEK2 (phospho S222) antibody

All lanes:
Western blot - Anti-MEK1 (phospho S222) + MEK2 (phospho S222) antibody [MEK12S221-D3] (ab278564) at 0.1 µg/mL

Lane 1:
NIH3T3 cell extract untreated with TPA

Lane 2:
NIH3T3 cell extract treated with TPA



Western blot - Anti-MEK1 (phospho S222) + MEK2 (phospho S222) antibody [MEK12S221-D3] (ab278564)

MEK1 (phospho S222) + MEK2 (phospho S222) Western blot staining using rabbit Anti-MEK1 (phospho S222) + MEK2 (phospho S222) antibody

All lanes:
Western blot - Anti-MEK1 (phospho S222) + MEK2 (phospho S222) antibody [MEK12S221-D3] (ab278564) at 0.1 µg/mL

Lane 1:
A549 cell extract treated with TPA

Lane 2:
A549 cell extract untreated with TPA

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.