

Phospho-EIF4E-S209 Antibody
Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AE1011b

Specification

Phospho-EIF4E-S209 Antibody - Product Information

Application	WB, IHC
Primary Accession	P06730
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Concentration	1mg/ml
Isotype	Rabbit IgG
Calculated MW	25097

Phospho-EIF4E-S209 Antibody - Additional Information

Gene ID 1977

Other Names

Eukaryotic translation initiation factor 4E, eIF-4E, eIF4E, eIF-4F 25 kDa subunit, mRNA cap-binding protein, EIF4E, EIF4EL1, EIF4F

Target/Specificity

The antibody was affinity-purified from rabbit antiserum using epitope-specific phosphopeptide column, and the antibody against non-phosphopeptide was removed using non-phosphopeptide column corresponding to the phosphorylation site.

Dilution

WB~~1:500~1:1000
IHC~~1:50~1:100

Format

affinity Purified IgG, in PBS, 0.02% sodium azide and 50% glycerol.

Storage

Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.

Precautions

Phospho-EIF4E-S209 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Phospho-EIF4E-S209 Antibody - Protein Information

Name EIF4E ([HGNC:3287](#))

Synonyms EIF4EL1, EIF4F

Function

Acts in the cytoplasm to initiate and regulate protein synthesis and is required in the nucleus for export of a subset of mRNAs from the nucleus to the cytoplasm which promotes processes such as RNA capping, processing and splicing (PubMed:11606200, PubMed:22578813, PubMed:22684010, PubMed:24335285, PubMed:29987188). Component of the protein complex eIF4F, which is involved in the recognition of the mRNA cap, ATP-dependent unwinding of 5'-terminal secondary structure and recruitment of mRNA to the ribosome (By similarity). This protein recognizes and binds the 7-methylguanosine (m7G)-containing mRNA cap during an early step in the initiation of protein synthesis and facilitates ribosome binding by inducing the unwinding of the mRNAs secondary structures (PubMed:16271312, PubMed:22578813). Together with EIF4G1, antagonizes the scanning promoted by EIF1-EIF4G1 and is required for TISU translation, a process where the TISU element recognition makes scanning unnecessary (PubMed:29987188). In addition to its role in translation initiation, also acts as a regulator of translation and stability in the cytoplasm (PubMed:24335285). Component of the CYFIP1-EIF4E-FMR1 complex which binds to the mRNA cap and mediates translational repression: in the complex, EIF4E mediates the binding to the mRNA cap (By similarity). Component of a multiprotein complex that sequesters and represses translation of proneurogenic factors during neurogenesis (By similarity). In P-bodies, component of a complex that mediates the storage of translationally inactive mRNAs in the cytoplasm and prevents their degradation (PubMed:24335285). May play an important role in spermatogenesis through translational regulation of stage-specific mRNAs during germ cell development (By similarity). As well as its roles in translation, also involved in mRNA nucleocytoplasmic transport (By similarity). Its role in mRNA export from the nucleus to the cytoplasm relies on its ability to bind the m7G cap of RNAs and on the presence of the 50-nucleotide EIF4E sensitivity element (4ESE) in the 3'UTR of sensitive transcripts (By similarity). Interaction with the 4ESE is mediated by LRPPRC which binds simultaneously to both EIF4E and the 4ESE, thereby acting as a platform for assembly for the RNA export complex (By similarity). EIF4E-dependent mRNA export is independent of ongoing protein or RNA synthesis and is also NXF1-independent but is XPO1-dependent with LRPPRC interacting with XPO1 to form an EIF4E-dependent mRNA export complex (By similarity). Alters the composition of the cytoplasmic face of the nuclear pore to promote RNA export by reducing RANBP2 expression, relocalizing nucleoporin NUP214 and increasing expression of RANBP1 and RNA export factors DDX19 and GLE1 (By similarity). Promotes the nuclear export of cyclin CCND1 mRNA (By similarity). Promotes the nuclear export of NOS2/iNOS mRNA (PubMed:23471078). Promotes the nuclear export of MDM2 mRNA (PubMed:22684010). Promotes the export of additional mRNAs, including others involved in the cell cycle (By similarity). In the nucleus, binds to capped splice factor-encoding mRNAs and stimulates their nuclear export to enhance splice factor production by increasing their cytoplasmic availability to the translation machinery (By similarity). May also regulate splicing through interaction with the spliceosome in an RNA and m7G cap-dependent manner (By similarity). Also binds to some pre-mRNAs and may play a role in their recruitment to the spliceosome (By similarity). Promotes steady-state capping of a subset of coding and non-coding RNAs by mediating nuclear export of capping machinery mRNAs including RNMT, RNGTT and RAMAC to enhance their translation (By similarity). Stimulates mRNA 3'-end processing by promoting the expression of several core cleavage complex factors required for mRNA cleavage and polyadenylation, and may also have a direct effect through its interaction with the CPSF3

cleavage enzyme (By similarity). Rescues cells from apoptosis by promoting activation of serine/threonine- protein kinase AKT1 through mRNA export of NBS1 which potentiates AKT1 phosphorylation and also through mRNA export of AKT1 effectors, allowing for increased production of these proteins (By similarity).

Cellular Location

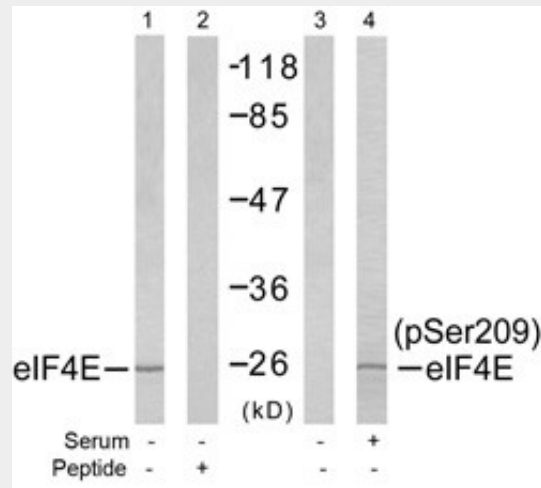
Cytoplasm, P-body. Cytoplasm. Cytoplasm, Stress granule. Nucleus. Nucleus speckle. Nucleus, nuclear body Note=Interaction with EIF4ENIF1/4E-T is required for localization to processing bodies (P-bodies) (PubMed:16157702, PubMed:24335285, PubMed:25923732). Imported in the nucleus via interaction with EIF4ENIF1/4E-T via a piggy-back mechanism (PubMed:10856257) Sequestered in the nucleus by EIF4EBP1 and EIF4EBP2 (By similarity) {ECO:0000250|UniProtKB:P63073, ECO:0000269|PubMed:10856257, ECO:0000269|PubMed:16157702, ECO:0000269|PubMed:24335285, ECO:0000269|PubMed:25923732}

Phospho-EIF4E-S209 Antibody - Protocols

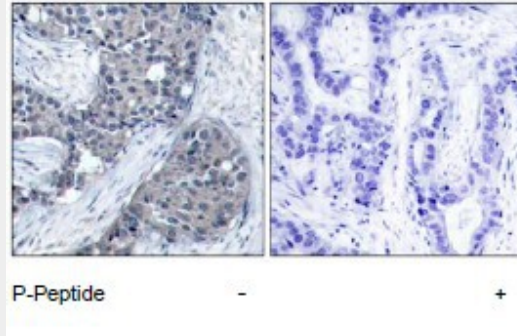
Provided below are standard protocols that you may find useful for product applications.

- [Western Blot](#)
- [Blocking Peptides](#)
- [Dot Blot](#)
- [Immunohistochemistry](#)
- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

Phospho-EIF4E-S209 Antibody - Images



Western blot analysis of extract from NIH/3T3 cells untreated or treated with 10% serum (15min), using EIF4E Antibody (S209) (#AE1011a, Line 1 and 2) and Phospho-EIF4E-S209 Antibody (#AE1011b, Line 3 and 4).



Immunohistochemical analysis of paraffin-embedded human breast carcinoma tissue, using Phospho-EIF4E-S209 Antibody (#AE1011b).

Phospho-EIF4E-S209 Antibody - Background

All eukaryotic cellular mRNAs are blocked at their 5-prime ends with the 7-methylguanosine cap structure, m⁷GpppX (where X is any nucleotide). This structure is involved in several cellular processes including enhanced translational efficiency, splicing, mRNA stability, and RNA nuclear export. EIF4E is a eukaryotic translation initiation factor involved in directing ribosomes to the cap structure of mRNAs. It is a 24-kD polypeptide that exists as both a free form and as part of a multiprotein complex termed EIF4F. The EIF4E polypeptide is the rate-limiting component of the eukaryotic translation apparatus and is involved in the mRNA-ribosome binding step of eukaryotic protein synthesis. The other subunits of EIF4F are a 50-kD polypeptide, termed EIF4A (see MIM 601102), that possesses ATPase and RNA helicase activities, and a 220-kD polypeptide, EIF4G (MIM 600495) (Rychlik et al., 1987 [PubMed 3469651]).

Phospho-EIF4E-S209 Antibody - References

Sox2 is translationally activated by eukaryotic initiation factor 4E in human glioma-initiating cells. Ge Y, et al. *Biochem Biophys Res Commun*, 2010 Jul 9. PMID 20537983.
The virion host shutoff endonuclease (UL41) of herpes simplex virus interacts with the cellular cap-binding complex eIF4F. Page HG, et al. *J Virol*, 2010 Jul. PMID 20427534.
HDAC2 promotes eIF4E sumoylation and activates mRNA translation gene specifically. Xu X, et al. *J Biol Chem*, 2010 Jun 11. PMID 20421305.
Personalized smoking cessation: interactions between nicotine dose, dependence and quit-success genotype score. Rose JE, et al. *Mol Med*, 2010 Jul-Aug. PMID 20379614.
Interaction of Pdc4 with eIF4E inhibits the metastatic potential of hepatocellular carcinoma. Jiang Y, et al. *Biomed Pharmacother*, 2010 Jul. PMID 20359850.