abcam

ab33766

Anti-eIF4E antibody [Y448]

Recombinant | RabMAb | 20ul selling size

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Preservative: 0.01% Sodium azide Constituents: PBS, 50% Glycerol (glycerin, glycerine), 0.05% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	Y448
Purification technique	Affinity purification Protein A
Specificity	The antibody detects a band on western blot of approximately 28 kDa.
Concentration	0.13 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Tested

Species	Human
Dilution info	1/20
Notes	-

Expected

Species	Mouse, Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

WB

Tested

Species	Mouse
Dilution info	1/1000
Notes	**For unpurified use at 1/500**

Species	Rat
Dilution info	1/1000
Notes	**For unpurified use at 1/500**

Species	Human
Dilution info	1/1000
Notes	**For unpurified use at 1/500**

ICC/IF

Tested

Species	Mouse
Dilution info	1/250 - 1/500
Notes	-

Species	Human
Dilution info	1/250 - 1/500
Notes	-

Expected

Species	Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1 µg for 10^6 Cells
Notes	ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Expected

Species	Mouse, Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

IHC-P

Tested

Species	Mouse
Dilution info	1/100
Notes	-

Species	Rat
Dilution info	1/100
Notes	-

Species	Human
Dilution info	1/100
Notes	-

Target data

See full target information EIF4E

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 NFX1-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).

Storage

Shipped at conditions	Conditional Ambient
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

Patented technology
Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to RabMAb® patents.

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	The eIF4E protein also known as the eukaryotic translation initiation factor 4E functions mainly in the initiation phase of mRNA translation. It plays a role by binding to the 7-methylguanylate cap structure at the 5′ end of mRNA facilitating ribosome assembly on mRNA. The molecular weight of eIF4E is approximately 25 kDa and it is ubiquitously expressed in various tissues across eukaryotic organisms. Additionally phosphorylation of eIF4E affects its activity and is an important post-translational modification.
Biological function summary	EIF4E regulates gene expression at the translational level and is a part of the eIF4F complex which also includes eIF4A and eIF4G. This complex is essential for the

	recruitment of ribosomes to the mRNA impacting the rate of protein synthesis. Changes in eIF4E levels can alter the translational efficiency of specific mRNAs thereby influencing cellular growth and proliferation.
Pathways	EIF4E directly involves in the mTOR signaling pathway which regulates cell growth proliferation and survival. Within this pathway eIF4E interacts with proteins such as 4EBP1 which binds to eIF4E and inhibits its function in the absence of phosphorylation by mTOR. This interaction illustrates the control mechanism of protein synthesis under different cellular conditions connecting it to various signaling cascades.
Associated diseases and disorders	EIF4E has been linked to cancer and neurodegenerative conditions. In cancer overexpression of eIF4E leads to increased translation of oncogenes facilitating tumorigenesis. The mTOR pathway proteins like mTOR and 4EBP1 are often dysregulated in these cases. Conversely its role in neurological disorders involves the aberrant regulation of synaptic proteins like PSD95 impacting neuronal communication and function.

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

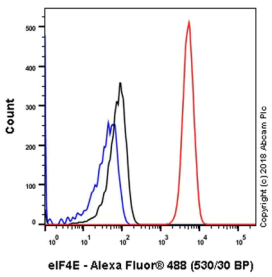
We do not recommend this combination. It is not covered by our product promise.

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.

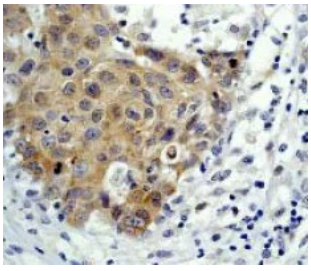
13 product images



Flow Cytometry (Intracellular) - Anti-eIF4E antibody [Y448] (ab33766)

EIF4E Flow Cytometry (Intracellular) staining using rabbit Anti-eIF4E antibody

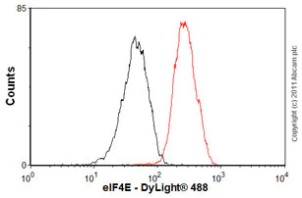
Intracellular Flow Cytometry analysis of HEK-293 (Human embryonic kidney epithelial cell) cells labeling eIF4E with Purified ab33766 at 1/200 dilution (1µg/ml) (red). Cells were fixed with 80% Methanol. A Goat anti rabbit IgG (Alexa Fluorr® 488, ab150077) secondary antibody was used at 1/2000. Isotype control - Rabbit monoclonal IgG (Black). Unlabeled control - Cell without incubation with primary antibody and secondary antibody (Blue).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-eIF4E antibody [Y448] (ab33766)

EIF4E Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-eIF4E antibody

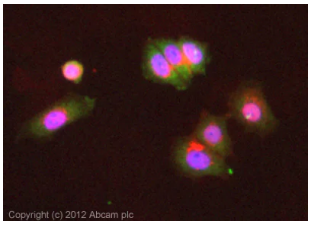
This image shows human breast carcinoma stained with ab33766



Flow Cytometry (Intracellular) - Anti-eIF4E antibody [Y448] (ab33766)

EIF4E Flow Cytometry (Intracellular) staining using rabbit Anti-eIF4E antibody

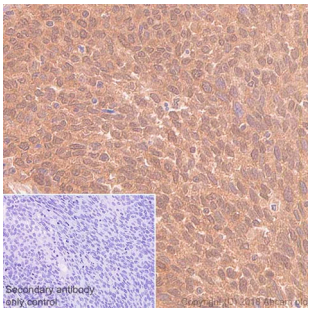
Overlay histogram showing HEK293 cells stained with ab33766 (red line). The cells were fixed with 80% methanol (5 min) and then permeabilized with 0.1% PBS-Tween for 20 min. The cells were then incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions. The cells were then incubated with the antibody (ab33766, 1µg/1x10^6 cells) for 30 min at 22°C. The secondary antibody used was DyLight® 488 goat anti-rabbit IgG (H+L) (ab96899) at 1/500 dilution for 30 min at 22°C. Isotype control antibody (black line) was rabbit IgG (1µg/1x10^6 cells) used under the same conditions. Acquisition of >5,000 events was performed.



Immunocytochemistry/ Immunofluorescence - Anti-eIF4E antibody [Y448] (ab33766)

EIF4E Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-eIF4E antibody

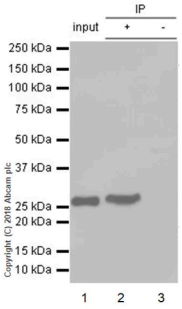
ICC/IF image of ab33766 stained MCF7 cells. The cells were 4% formaldehyde (10 min) and then incubated in 1%BSA / 10% normal goat serum / 0.3M glycine in 0.1% PBS-Tween for 1h to permeabilise the cells and block non-specific protein-protein interactions. The cells were then incubated with the antibody (ab33766, 10µg/ml) overnight at +4°C. The secondary antibody (green) was ab96899 Dylight 488 goat anti-rabbit IgG (H+L) used at a 1/250 dilution for 1h. Alexa Fluor® 594 WGA was used to label plasma membranes (red) at a 1/200 dilution for 1h. DAPI was used to stain the cell nuclei (blue) at a concentration of 1.43µM.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-eIF4E antibody [Y448] (ab33766)

EIF4E Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-eIF4E antibody

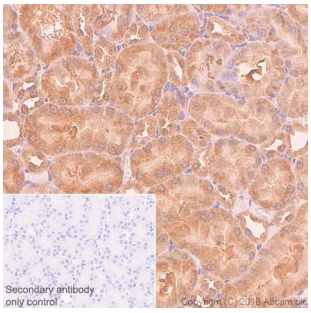
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of Human cervical carcinoma tissue sections labeling eIF4E with Purified ab33766 at 1:100 dilution (1.33 µg/ml). Heat mediated antigen retrieval was performed Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution 2) for 10mins. Rabbit specific IHC polymer detection kit HRP/DAB (ab209101)was used as the secondary antibody. Negative control:PBS instead of the primary antibody. Hematoxylin was used as a counterstain.



Immunoprecipitation - Anti-eIF4E antibody [Y448] (ab33766)

ab33766 (purified) at 1:20 dilution (0.6µg) immunoprecipitating eIF4E in HEK-293 whole cell lysate.
Lane 1 (input): HEK-293 (Human embryonic kidney epithelial cell) whole cell lysate 10µg
Lane 2 (+): ab33766 & HEK-293 whole cell lysate
Lane 3 (-): Rabbit monoclonal IgG (ab172730) instead of ab33766 in HEK-293 whole cell lysate
For western blotting, VeriBlot for IP Detection Reagent (HRP) (ab131366) was used for detection at 1:10,000 dilution.
Blocking and diluting buffer: 5% NFDM/TBST.
All lanes:
Immunoprecipitation - Anti-eIF4E antibody [Y448] (ab33766)

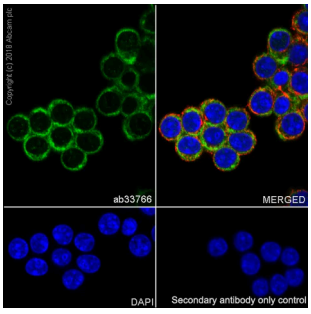
Predicted band size: 25 kDa



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-eIF4E antibody [Y448] (ab33766)

EIF4E Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-eIF4E antibody

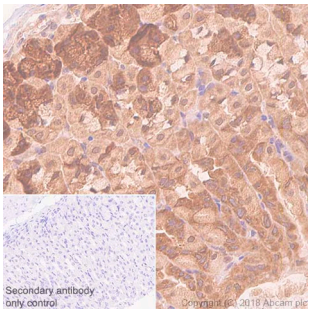
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of Rat kidney tissue sections labeling eIF4E with Purified ab33766 at 1:100 dilution (1.33 µg/ml). Heat mediated antigen retrieval was performed Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution 2) for 10mins. Rabbit specific IHC polymer detection kit HRP/DAB (ab209101)was used as the secondary antibody. Negative control:PBS instead of the primary antibody. Hematoxylin was used as a counterstain.



Immunocytochemistry/ Immunofluorescence - Anti-eIF4E antibody [Y448] (ab33766)

EIF4E Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-eIF4E antibody

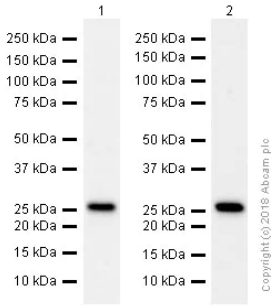
Immunocytochemistry/ Immunofluorescence analysis of RAW 264.7 (Mouse Abelson murine leukemia virus-induced tumor macrophage) cells labeling eIF4E with Purified ab33766 at 1:500 dilution (0.3 µg/ml). Cells were fixed in 100% Methanol and permeabilized with None. Cells were counterstained with ab195889 Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) 1:200 (2.5 µg/ml). Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) was used as the secondary antibody at 1:1000 (2 µg/ml) dilution. DAPI nuclear counterstain. PBS instead of the primary antibody was used as the secondary antibody only control.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-eIF4E antibody [Y448] (ab33766)

EIF4E Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-eIF4E antibody

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of Mouse stomach tissue sections labeling eIF4E with Purified ab33766 at 1:100 dilution (1.33 µg/ml). Heat mediated antigen retrieval was performed Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution 2) for 10mins. Rabbit specific IHC polymer detection kit HRP/DAB (ab209101)was used as the secondary antibody. Negative control:PBS instead of the primary antibody. Hematoxylin was used as a counterstain.



Western blot - Anti-eIF4E antibody [Y448] (ab33766)

Blocking and dilutin buffer and concentration: 5% NFDM/TBST
All lanes:
Western blot - Anti-eIF4E antibody [Y448] (ab33766) at 1/5000 dilution

Lane 1:
HEK-293 (Human embryonic kidney epithelial cell) whole cell lysates at 15 µg

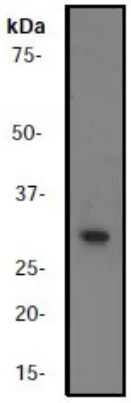
Lane 2:
MCF7 (Human breast adenocarcinoma epithelial cell) whole cell lysates at 15 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/20000 dilution

Predicted band size: 25 kDa

Observed band size: 25 kDa



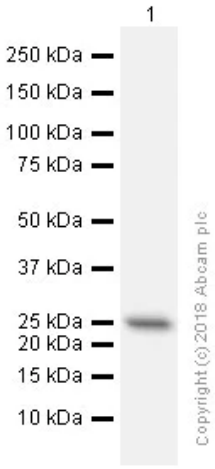
Western blot - Anti-eIF4E antibody [Y448] (ab33766)

All lanes:
Western blot - Anti-eIF4E antibody [Y448] (ab33766) at 1/500 dilution

All lanes:
293 cell lysate

Predicted band size: 25 kDa

Observed band size: 30 kDa



Western blot - Anti-eIF4E antibody [Y448] (ab33766)

EIF4E Western blot staining of Human brain lysates using rabbit Anti-eIF4E antibody

Blocking and dilutin buffer and concentration: 5% NFDM/TBST
All lanes:
Western blot - Anti-eIF4E antibody [Y448] (ab33766) at 1/1000 dilution

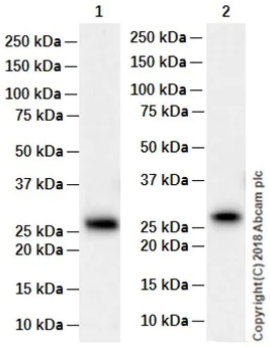
All lanes:
Human brain lysates at 15 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG (HRP) with minimal cross-reactivity with human IgG at 1/2000 dilution

Predicted band size: 25 kDa

Observed band size: 25 kDa



Western blot - Anti-eIF4E antibody [Y448] (ab33766)

Blocking and diluting buffer: 5% NFDM/TBST.
Exposure time - Lane 1: 160 seconds
Lane 2: 70 seconds

All lanes:
Western blot - Anti-eIF4E antibody [Y448] (ab33766) at 0.025 µg/mL

Lane 1:
Raw264.7 (Mouse abelson murine leukemia virus-induced tumor) whole cell lysate at 20 µg

Lane 2:
C6 (Rat glioma) whole cell lysate at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/20000 dilution

Predicted band size: 25 kDa

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