

EIF2S1 Antibody (N-term)

Affinity Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP13469a

Product Information

Application	WB, IHC-P, IF, E
Primary Accession	P05198
Other Accession	P20459 , P68101 , Q6ZWX6 , P41374 , Q5ZLX2 , P68102 , NP_004085.1
Reactivity	Mouse
Predicted	Rat, Chicken, Bovine, Drosophila, Yeast
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Clone Names	RB33288
Calculated MW	36112
Antigen Region	60-89

Additional Information

Gene ID	1965
Other Names	Eukaryotic translation initiation factor 2 subunit 1, Eukaryotic translation initiation factor 2 subunit alpha, eIF-2-alpha, eIF-2A, eIF-2alpha, EIF2S1, EIF2A
Target/Specificity	This EIF2S1 antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 60-89 amino acids from the N-terminal region of human EIF2S1.
Dilution	WB~~1:1000 IHC-P~~1:100~500 IF~~1:10~50 E~~Use at an assay dependent concentration.
Format	Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is purified through a protein A column, followed by peptide affinity purification.
Storage	Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	EIF2S1 Antibody (N-term) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	EIF2S1 (HGNC:3265)
Synonyms	EIF2A

Function	Member of the eIF2 complex that functions in the early steps of protein synthesis by forming a ternary complex with GTP and initiator tRNA (PubMed: 16289705 , PubMed: 38340717). This complex binds to a 40S ribosomal subunit, followed by mRNA binding to form a 43S pre- initiation complex (43S PIC) (PubMed: 16289705). Junction of the 60S ribosomal subunit to form the 80S initiation complex is preceded by hydrolysis of the GTP bound to eIF2 and release of an eIF2-GDP binary complex (PubMed: 16289705). In order for eIF2 to recycle and catalyze another round of initiation, the GDP bound to eIF2 must exchange with GTP by way of a reaction catalyzed by eIF2B (PubMed: 16289705). EIF2S1/eIF2-alpha is a key component of the integrated stress response (ISR), required for adaptation to various stress: phosphorylation by metabolic-stress sensing protein kinases (EIF2AK1/HRI, EIF2AK2/PKR, EIF2AK3/PERK and EIF2AK4/GCN2) in response to stress converts EIF2S1/eIF2-alpha in a global protein synthesis inhibitor, leading to an attenuation of cap-dependent translation, while concomitantly initiating the preferential translation of ISR-specific mRNAs, such as the transcriptional activators ATF4 and QRI1, and hence allowing ATF4- and QRI1-mediated reprogramming (PubMed: 19131336 , PubMed: 33384352 , PubMed: 38340717). EIF2S1/eIF2-alpha also acts as an activator of mitophagy in response to mitochondrial damage: phosphorylation by EIF2AK1/HRI promotes relocalization to the mitochondrial surface, thereby triggering PRKN-independent mitophagy (PubMed: 38340717).
Cellular Location	Cytoplasm, Stress granule {ECO:0000250 UniProtKB:Q6ZWX6}. Cytoplasm, cytosol {ECO:0000250 UniProtKB:P56286}. Mitochondrion. Note=Colocalizes with NANOS3 in the stress granules (By similarity). Relocalizes to the surface of mitochondria in response to mitochondrial damage and phosphorylation by EIF2AK1/HRI (PubMed: 38340717). {ECO:0000250 UniProtKB:Q6ZWX6, ECO:0000269 PubMed: 38340717 }

Background

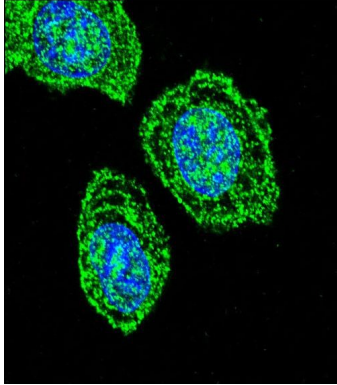
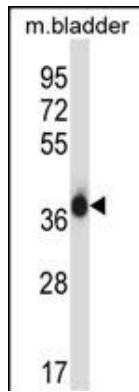
The translation initiation factor EIF2 catalyzes the first regulated step of protein synthesis initiation, promoting the binding of the initiator tRNA to 40S ribosomal subunits. Binding occurs as a ternary complex of methionyl-tRNA, EIF2, and GTP. EIF2 is composed of 3 nonidentical subunits, the 36-kD EIF2-alpha subunit (EIF2S1), the 38-kD EIF2-beta subunit (EIF2S2; MIM 603908), and the 52-kD EIF2-gamma subunit (EIF2S3; MIM 300161). The rate of formation of the ternary complex is modulated by the phosphorylation state of EIF2-alpha (Ernst et al., 1987 [PubMed 2948954]).

References

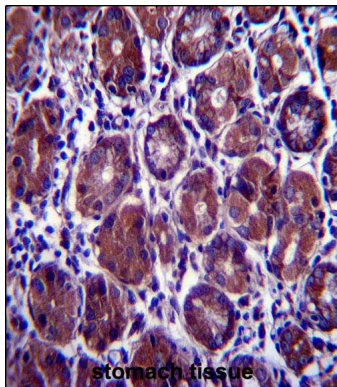
- Shiota, M., et al. *Int. J. Oncol.* 36(6):1521-1531(2010)
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Wehner, K.A., et al. *Mol. Cell. Biol.* 30(8):2006-2016(2010)
Backes, S., et al. *J. Gen. Virol.* 91 (PT 2), 470-482 (2010) :
Sreejith, R.K., et al. *Biochem. Biophys. Res. Commun.* 390(2):273-279(2009)

Images

EIF2S1 Antibody (N-term) (Cat. #AP13469a) western blot analysis in mouse bladder tissue lysates (35ug/lane). This demonstrates the EIF2S1 antibody detected the EIF2S1 protein (arrow).



Confocal immunofluorescent analysis of EIF2S1 Antibody (N-term) (Cat#AP13469a) with HeLa cell followed by Alexa Fluor 488-conjugated goat anti-rabbit IgG (green). DAPI was used to stain the cell nuclear (blue).



EIF2S1 Antibody (N-term) (Cat. #AP13469a) immunohistochemistry analysis in formalin fixed and paraffin embedded human stomach tissue followed by peroxidase conjugation of the secondary antibody and DAB staining. This data demonstrates the use of EIF2S1 Antibody (N-term) for immunohistochemistry. Clinical relevance has not been evaluated.

Citations

- [The spliceosome is a therapeutic vulnerability in MYC-driven cancer.](#)
- [Midazolam regulated caspase pathway, endoplasmic reticulum stress, autophagy, and cell cycle to induce apoptosis in MA-10 mouse Leydig tumor cells.](#)
- [Combination of the novel histone deacetylase inhibitor YCW1 and radiation induces autophagic cell death through the downregulation of BNIP3 in triple-negative breast cancer cells in vitro and in an orthotopic mouse model.](#)

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