10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

# EIF2S1 Antibody (N-term)

Affinity Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP13469a

## Product Information

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| **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

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| **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

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| **Name** | EIF2S1 ( HGNC:3265) |
| **Synonyms** | EIF2A |

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| **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 QRICH1, and hence allowing ATF4- and QRICH1-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

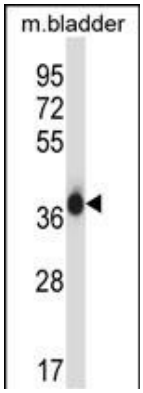
The translation initiation factor EIF2 catalyzes the first regulated step of protein synthesis initiation, promoting the binding of the initiator tRNA to 40S ribosomal subunits. Binding occurs as a ternary complex of methionyl-tRNA, EIF2, and GTP. EIF2 is composed of 3 nonidentical subunits, the 36-kD 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]).

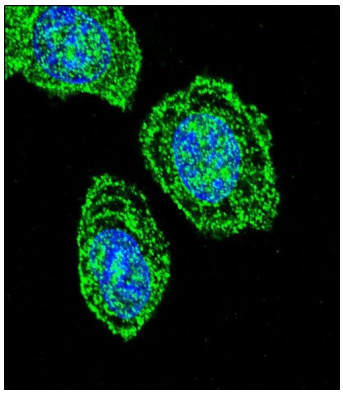
## References


Shiota, M., et al. Int. J. Oncol. 36(6):1521-1531(2010)
Kulkarni, A.P., et al. Indian J. Biochem. Biophys. 47(2):67-74(2010)
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)

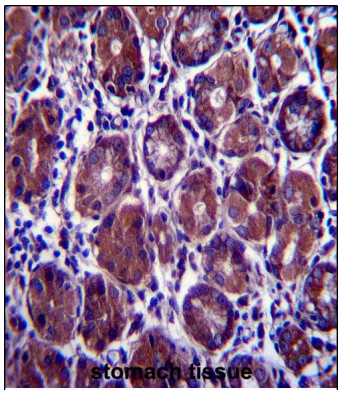

## Images

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 lgG (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

- 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.
- Midazolam regulated caspase pathway, endoplasmic reticulum stress, autophagy, and cell cycle to induce apoptosis in MA-10 mouse Leydig tumor cells.
- The spliceosome is a therapeutic vulnerability in MYC-driven cancer.