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

Anti-EIF2S1 Antibody

Catalog # ABO11336

Product Information

Application	WB, IHC-P
Primary Accession	P05198
Host	Rabbit
Reactivity	Human
Clonality	Polyclonal
Format	Lyophilized
Description	Rabbit IgG polyclonal antibody for Eukaryotic translation initiation factor 2 subunit 1(EIF2S1) detection. Tested with WB, IHC-P in Human.
Reconstitution	Add 0.2ml of distilled water will yield a concentration of 500ug/ml.

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
Calculated MW	36112
Application Details	Immunohistochemistry(Paraffin-embedded Section), 0.5-1 □g/ml, Human, By Heat Western blot, 0.1-0.5 □g/ml, Human
Subcellular Localization	Cytoplasmic granule . The cytoplasmic granules are stress granules which are a dense aggregation in the cytosol composed of proteins and RNAs that appear when the cell is under stress. Colocalizes with NANOS3 in the stress granules (By similarity). .
Source	Eukaryota
Protein Name	Eukaryotic translation initiation factor 2 subunit 1
Contents	Each vial contains 5mg BSA, 0.9mg NaCl, 0.2mg Na2HPO4, 0.05mg Thimerosal, 0.05mg NaN3.
Immunogen	A synthetic peptide corresponding to a sequence in the middle region of human EIF2S1(123-137aa KDEQLESLFQRTAWV).
Purification	Immunogen affinity purified.
Cross Reactivity	No cross reactivity with other proteins

Storage	At -20˚C for one year. After r˚Constitution, at 4˚C for one month. It˚Can also be aliquotted and stored frozen at -20˚C for a longer time.Avoid repeated freezing and thawing.
Sequence Similarities	Belongs to the eIF-2-alpha family.

Protein Information

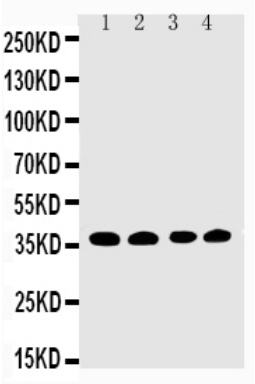
Name	EIF2S1 (HGNC:3265)
Synonyms	EIF2A
Function	Member of the eIF2 complex that functions in the early steps of protein synthesis by forming a ternary complex with GTP and initiator tRNA (PubMed:16289705, PubMed:38340717). This complex binds to a 40S ribosomal subunit, followed by mRNA binding to form 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 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

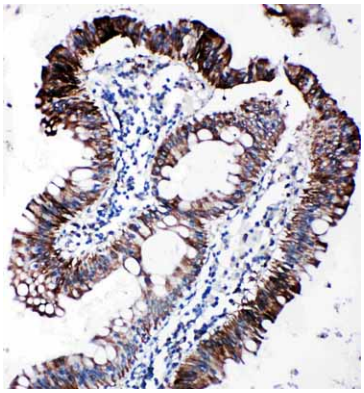
EIF2S1(Eukaryotic Translation Initiation Factor 2, Subunit 1), also called EIF2-alpha, is a protein that in humans is encoded by the EIF2S1 gene. Hartz(2010) mapped the EIF2S1 gene to chromosome 14q23.3 based on an alignment of the EIF2S1 sequence with the genomic sequence(GRCh37). Ernst et al.(1987) stated that protein synthesis is inhibited due to phosphorylation of Eif2-alpha in hemin-deprived rabbit reticulocyte lysates. HeLa cells subjected to heat shock, serum deprivation, or interferon treatment followed by virus infection also show a correlation between EIF2-alpha phosphorylation and translational repression. Jacob et al.(1989) found that the alpha-Pal transcription factor bound to 2 palindromic sites within the EIF2-alpha promoter and was essential for transcription of the EIF2-alpha gene.

Images

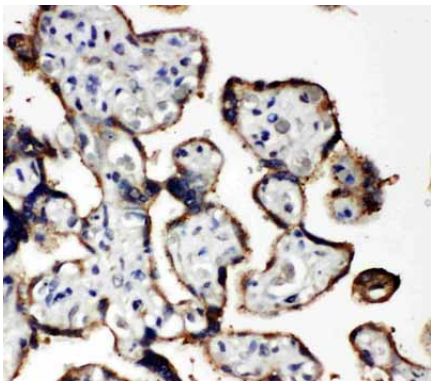
Anti-EIF2S1 antibody, ABO11336, Western blottingLane 1:



COLO320 Cell LysateLane 2: CEM Cell LysateLane 3: RAJI Cell LysateLane 4: HT1080 Cell Lysate



Anti-EIF2S1 antibody, ABO11336, IHC(P)IHC(P): Human Intestinal Cancer Tissue



Anti-EIF2S1 antibody, ABO11336, IHC(P)IHC(P): Human Placenta Tissue

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