

# eIF2 $\alpha$ (phospho Ser51) Polyclonal Antibody

Catalog # AP67025

## Product Information

Application	IF, ICC, WB, IHC-P, E
Primary Accession	<a href="#">P05198</a>
Reactivity	Human, Mouse, Rat, Dog, Pig, Fish
Host	Rabbit
Clonality	Polyclonal
Calculated MW	36112

## Additional Information

Gene ID	1965
Other Names	EIF2S1; EIF2A; Eukaryotic translation initiation factor 2 subunit 1; Eukaryotic translation initiation factor 2 subunit alpha; eIF-2-alpha; eIF-2A; eIF-2alpha
Dilution	IF~~IF: 1:50-200 Western Blot: 1/500 - 1/2000. Immunohistochemistry: 1/100 - 1/300. ELISA: 1/10000. Not yet tested in other applications. ICC~~N/A WB~~IF: 1:50-200 Western Blot: 1/500 - 1/2000. Immunohistochemistry: 1/100 - 1/300. ELISA: 1/10000. Not yet tested in other applications. IHC-P~~IF: 1:50-200 Western Blot: 1/500 - 1/2000. Immunohistochemistry: 1/100 - 1/300. ELISA: 1/10000. Not yet tested in other applications. E~~N/A
Format	Liquid in PBS containing 50% glycerol, 0.5% BSA and 0.09% (W/V) sodium azide.
Storage Conditions	-20°C

## Protein Information

Name	EIF2S1 ( <a href="#">HGNC:3265</a> )
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: <a href="#">16289705</a> , PubMed: <a href="#">38340717</a> ). This complex binds to a 40S ribosomal subunit, followed by mRNA binding to form a 43S pre- initiation complex (43S PIC) (PubMed: <a href="#">16289705</a> ). 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: <a href="#">16289705</a> ). 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: <a href="#">16289705</a> ). 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 QRIH1, and hence allowing ATF4- and QRIH1-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](#)).

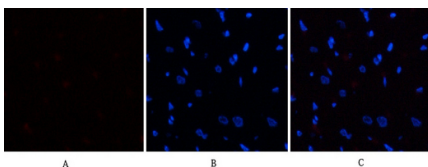
## Cellular Location

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](#)}

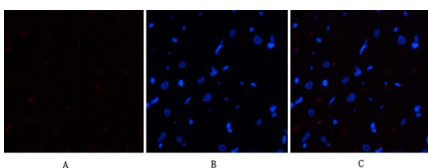
## Background

Functions in the early steps of protein synthesis by forming a ternary complex with GTP and initiator tRNA. This complex binds to a 40S ribosomal subunit, followed by mRNA binding to form a 43S pre-initiation complex. Junction of the 60S ribosomal subunit to form the 80S initiation complex is preceded by hydrolysis of the GTP bound to eIF-2 and release of an eIF-2- GDP binary complex. In order for eIF-2 to recycle and catalyze another round of initiation, the GDP bound to eIF-2 must exchange with GTP by way of a reaction catalyzed by eIF-2B.

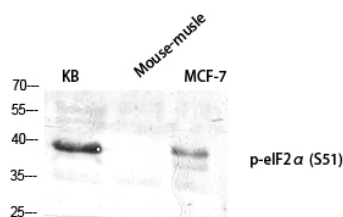
## Images



Immunofluorescence analysis of rat-heart tissue. 1,eIF2 $\alpha$  (phospho Ser51) Polyclonal Antibody(red) was diluted at 1:200(4°C,overnight). 2, Cy3 labeled Secondary antibody was diluted at 1:300(room temperature, 50min).3, Picture B: DAPI(blue) 10min. Picture A:Target. Picture B: DAPI. Picture C: merge of A+B

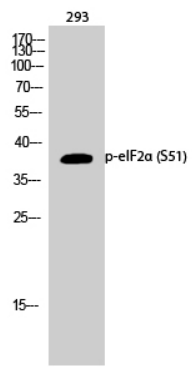


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Western Blot analysis of various cells using Phospho-eIF2 $\alpha$  (S51) Polyclonal Antibody diluted at 1 : 2000

Western Blot analysis of 293 cells using Phospho-eIF2 $\alpha$  (S51) Polyclonal Antibody diluted at 1 : 2000



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