

**EIF2 $\alpha$  (phospho Ser51) Polyclonal Antibody**  
Catalog # AP67025**Specification****EIF2 $\alpha$  (phospho Ser51) Polyclonal Antibody - Product Information**

Application	IF
Primary Accession	<a href="#">P05198</a>
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal

**EIF2 $\alpha$  (phospho Ser51) Polyclonal Antibody - 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.

**Format**

Liquid in PBS containing 50% glycerol, 0.5% BSA and 0.09% (W/V) sodium azide.

**Storage Conditions**

-20°C

**EIF2 $\alpha$  (phospho Ser51) Polyclonal Antibody - 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](http://www.uniprot.org/citations/16289705)), PubMed: [38340717](http://www.uniprot.org/citations/38340717)). This complex binds to a 40S ribosomal subunit, followed by mRNA binding to form a 43S pre- initiation complex (43S PIC) (PubMed: [16289705](http://www.uniprot.org/citations/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](http://www.uniprot.org/citations/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](http://www.uniprot.org/citations/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:<a href="http://www.uniprot.org/citations/19131336" target="\_blank">19131336</a>, PubMed:<a href="http://www.uniprot.org/citations/33384352" target="\_blank">33384352</a>, PubMed:<a href="http://www.uniprot.org/citations/38340717" target="\_blank">38340717</a>). 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:<a href="http://www.uniprot.org/citations/38340717" target="\_blank">38340717</a>).

### Cellular Location

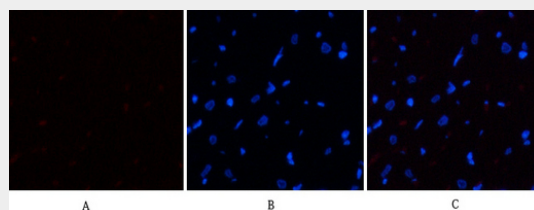
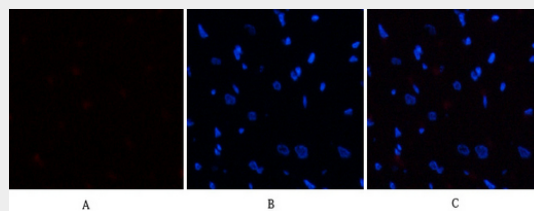
Cytoplasm, Stress granule {ECO:0000250|UniProtKB:Q6ZWX6}. Cytoplasm, cytosol {ECO:0000250|UniProtKB:P56286}. Mitochondrion. Note=Colocalizes with NANOS3 in the stress granules (By similarity). Relocalizes to the surface of mitochondria in response to mitochondrial damage and phosphorylation by EIF2AK1/HRI (PubMed:38340717). {ECO:0000250|UniProtKB:Q6ZWX6, ECO:0000269|PubMed:38340717}

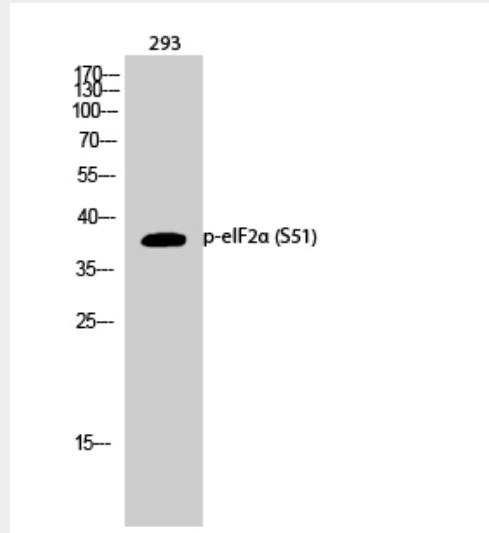
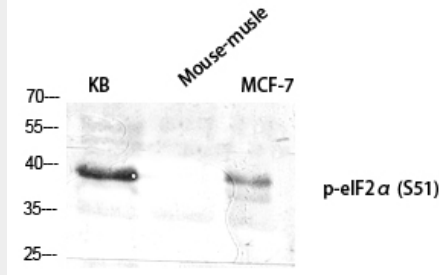
### eIF2 $\alpha$ (phospho Ser51) Polyclonal Antibody - Protocols

Provided below are standard protocols that you may find useful for product applications.

- [Western Blot](#)
- [Blocking Peptides](#)
- [Dot Blot](#)
- [Immunohistochemistry](#)
- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

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





**eIF2α (phospho Ser51) Polyclonal Antibody - 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.