

**Phospho-eIF2 alpha (Ser51) Antibody**  
Rabbit mAb  
Catalog # AP90103

**Specification**

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**Phospho-eIF2 alpha (Ser51) Antibody - Product Information**

Application	WB, IHC, FC, ICC
Primary Accession	<a href="#">P05198</a>
Reactivity	Rat
Clonality	Monoclonal
<b>Other Names</b>	
EIF-2; eIF-2-alpha; eIF-2A; eIF-2alpha; EIF2; EIF2A; EIF2S1; IF2A;	
Isotype	Rabbit IgG
Host	Rabbit
Calculated MW	36112 Da

**Phospho-eIF2 alpha (Ser51) Antibody - Additional Information**

Purification	<b>Affinity-chromatography</b>
Immunogen	<b>A synthesized peptide derived from human Phospho-eIF2 alpha (Ser51)</b>
Description	<b>eIF2A a translation initiation factor that 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 preinitiation complex.</b>
Storage Condition and Buffer	<b>Rabbit IgG in phosphate buffered saline , pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol. Store at +4°C short term. Store at -20°C long term. Avoid freeze / thaw cycle.</b>

**Phospho-eIF2 alpha (Ser51) 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:<a href="http://www.uniprot.org/citations/16289705" target="\_blank">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="http://www.uniprot.org/citations/16289705" target="\_blank">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 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

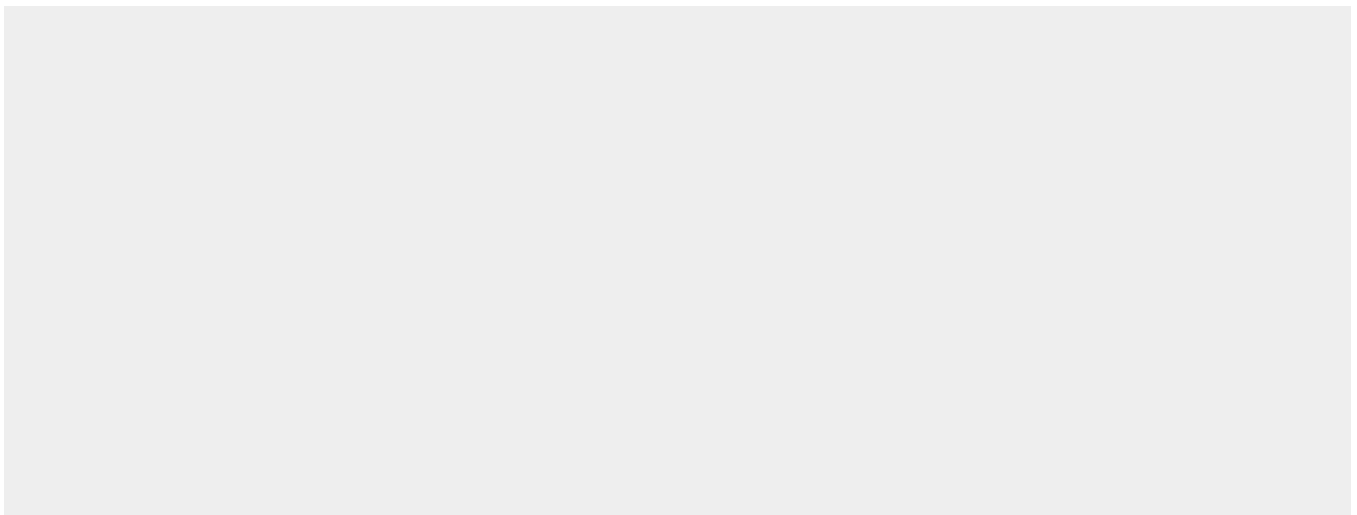
Cytoplasm, Stress granule {ECO:0000250|UniProtKB:Q6ZWX6}. Cytoplasm, cytosol {ECO:0000250|UniProtKB:P56286}. Mitochondrion. Note=Colocalizes with NANOS3 in the stress granules (By similarity). Relocalizes to the surface of mitochondria in response to mitochondrial damage and phosphorylation by EIF2AK1/HRI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

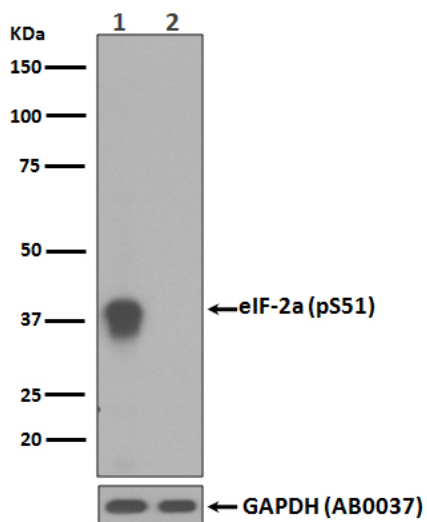
#### Phospho-eIF2 alpha (Ser51) Antibody - Protocols

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](#)

#### Phospho-eIF2 alpha (Ser51) Antibody - Images





Western blot analysis of Phospho-eIF2 alpha (Ser51) expression in (1) HeLa cell lysates treated with Calyculin A; (2) Untreated HeLa cell lysates.