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KD-Validated Anti-Phospho-eIF2 alpha (Ser51) Rabbit Monoclonal Antibody

Rabbit monoclonal antibody
Catalog # AGI1795

Specification

KD-Validated Anti-Phospho-eIF2 alpha (Ser51) Rabbit Monoclonal Antibody - Product Information

Application	**WB, FC, ICC**
Primary Accession	P05198
Reactivity	**Rat, Human, Mouse**
Clonality	**Monoclonal**
Isotype	**Rabbit IgG**
Calculated MW	**Predicted, 36 kDa, observed, 36 kDa KDa**
Gene Name	**EIF2S1**
Aliases	**EIF2S1; Eukaryotic Translation Initiation Factor 2 Subunit Alpha; EIF-2alpha; EIF2A; Eukaryotic Translation Initiation Factor 2, Subunit 1 Alpha, 35kDa; Eukaryotic Translation Initiation Factor 2 Subunit 1; EIF-2-Alpha; EIF2-Alpha; EIF-2A; EIF2; Eukaryotic Translation Initiation Factor 2, Subunit 1 (Alpha, 35kD); EIF-2**
Immunogen	**A synthesized peptide derived from human Phospho-eIF2 alpha (Ser51)**

KD-Validated Anti-Phospho-eIF2 alpha (Ser51) Rabbit Monoclonal Antibody - 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, eIF2-alpha, EIF2S1 (HGNC:3265), EIF2A

KD-Validated Anti-Phospho-eIF2 alpha (Ser51) Rabbit Monoclonal 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, 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}

KD-Validated Anti-Phospho-eIF2 alpha (Ser51) Rabbit Monoclonal 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 Cytomety
- Cell Culture

KD-Validated Anti-Phospho-eIF2 alpha (Ser51) Rabbit Monoclonal Antibody - Images

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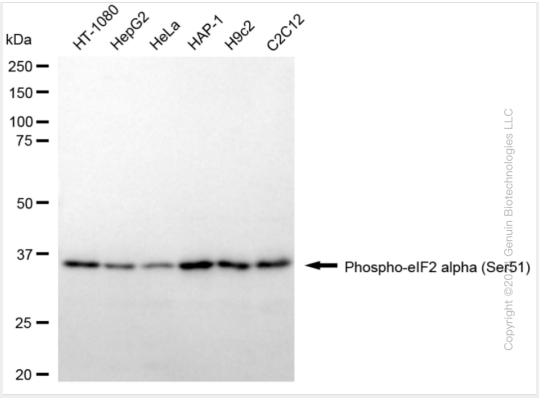
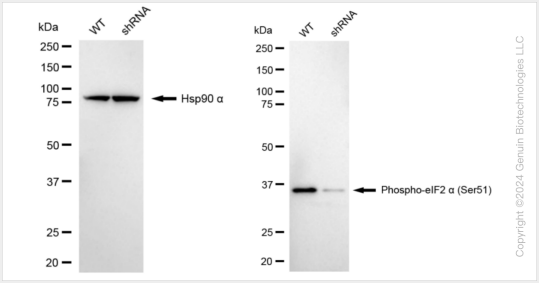
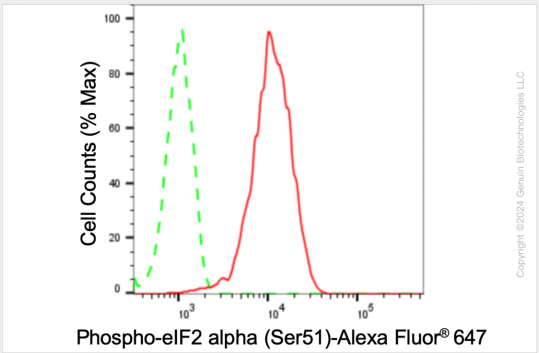


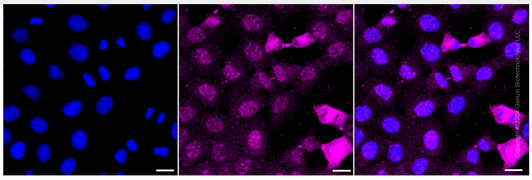
Western blotting analysis using anti-phospho-eIF2 alpha (Ser51) antibody (Cat#AGI1795). Total cell lysates (30 µg) from various cell lines were loaded and separated by SDS-PAGE. The blot was incubated with anti-phospho-eIF2 alpha (Ser51) antibody (Cat#AGI1795, 1:5,000) and HRP-conjugated goat anti-rabbit secondary antibody respectively.



Western blotting analysis using anti-phospho-eIF2 alpha (Ser51) antibody (Cat#AGI1795). Phospho-eIF2 alpha (Ser51) expression in wild-type (WT) and EIF2S1 shRNA knockdown (KD) HeLa cells with 20 µg of total cell lysates. Hsp90 α serves as a loading control. The blot was incubated with anti-phospho-eIF2 alpha (Ser51) antibody (Cat#AGI1795, 1:5,000) and HRP-conjugated goat anti-rabbit secondary antibody respectively.



Flow cytometric analysis of mTOR expression in HepG2 cells using anti-mTOR antibody (Cat #63038, 1:2,000). Green, isotype control; red, mTOR.



Immunocytochemical staining of HT-1080 cells with anti-Phospho-eIF2 alpha (Ser51) antibody (Cat#AGI1795, 1:1,000). Nuclei were stained blue with DAPI; Phospho-eIF2 alpha (Ser51) was stained magenta with Alexa Fluor® 647. Images were taken using Leica stellaris 5. Protein

abundance based on laser Intensity and smart gain: Medium. Scale bar: 20 µm.