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Phospho-eIF2 alpha (Ser51) Antibody

Rabbit mAb
Catalog # AP90103

Product Information

Application	WB, IHC, IF, FC, ICC, IHF
Primary Accession	P05198
Reactivity	Rat, Human, Mouse
Clonality	Monoclonal
Other Names	EIF-2; eIF-2-alpha; eIF-2A; eIF-2alpha; EIF2; EIF2A; EIF2S1; IF2A;
Isotype	Rabbit IgG
Host	Rabbit
Calculated MW	36112

Additional Information

Dilution	WB 1:500~1:2000 IHC 1:50~1:200 ICC/IF 1:50~1:200 FC 1:40
Purification	Affinity-chromatography
Immunogen	A synthesized peptide derived from human Phospho-eIF2 alpha (Ser51)
Description	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.
Storage Condition and Buffer	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.

Protein Information

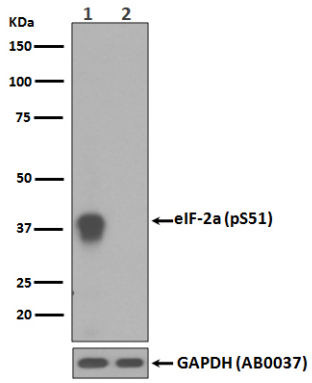
Name	EIF2S1 (HGNC:3265)
Synonyms	EIF2A
Function	Member of the eIF2 complex that functions in the early steps of protein synthesis by forming a ternary complex with GTP and initiator tRNA (PubMed:16289705, PubMed:38340717). This complex binds to a 40S ribosomal subunit, followed by mRNA binding to form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

Images



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

Image not found : 202311/AP90103-IHC.jpg

Immunohistochemical analysis of paraffin-embedded human colon cancer, using Phospho-eIF2 alpha (Ser51) Antibody.