

# KD-Validated Anti-EIF2AK4 Rabbit Monoclonal Antibody

Rabbit monoclonal antibody

Catalog # AGI1515

## Product Information

|                   |                                                                                                                                                                                                                                                                                            |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Application       | WB, FC                                                                                                                                                                                                                                                                                     |
| Primary Accession | <a href="#">Q9P2K8</a>                                                                                                                                                                                                                                                                     |
| Reactivity        | Rat, Human                                                                                                                                                                                                                                                                                 |
| Clonality         | Monoclonal                                                                                                                                                                                                                                                                                 |
| Isotype           | Rabbit IgG                                                                                                                                                                                                                                                                                 |
| Clone Names       | 23GB5295                                                                                                                                                                                                                                                                                   |
| Calculated MW     | 186911                                                                                                                                                                                                                                                                                     |
| Gene Name         | EIF2AK4                                                                                                                                                                                                                                                                                    |
| Aliases           | EIF2AK4; Eukaryotic Translation Initiation Factor 2 Alpha Kinase 4; GCN2; KIAA1338; EIF-2-Alpha Kinase GCN2; GCN2-Like Protein; Eukaryotic Translation Initiation Factor 2-Alpha Kinase 4; General Control Nonderepressible; GCN2 EIF2alpha Kinase; EIF-2-Alpha Kinase; EC 2.7.11.1; PVOD2 |
| Immunogen         | A synthesized peptide derived from human GCN2                                                                                                                                                                                                                                              |

## Additional Information

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|-------------|----------------------------------------------------------------------------------------------------|
| Gene ID     | 440275                                                                                             |
| Other Names | eIF-2-alpha kinase GCN2, GCN2-like protein, EIF2AK4 ( <a href="#">HGNC:19687</a> ), GCN2, KIAA1338 |

## Protein Information

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| Name     | EIF2AK4 ( <a href="#">HGNC:19687</a> )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Synonyms | GCN2, KIAA1338                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Function | Metabolic-stress sensing protein kinase that phosphorylates the alpha subunit of eukaryotic translation initiation factor 2 (EIF2S1/eIF-2-alpha) in response to low amino acid availability (PubMed: <a href="#">25329545</a> , PubMed: <a href="#">32610081</a> ). Plays a role as an activator of the integrated stress response (ISR) required for adaptation to amino acid starvation (By similarity). EIF2S1/eIF-2-alpha phosphorylation in response to stress converts EIF2S1/eIF-2-alpha into a global protein synthesis inhibitor, leading to a global attenuation of cap-dependent translation, and thus to a reduced overall utilization of amino acids, while concomitantly initiating the preferential translation of ISR- specific mRNAs, such as the transcriptional activator ATF4, and hence allowing ATF4-mediated reprogramming of amino acid biosynthetic gene expression to alleviate nutrient depletion (PubMed: <a href="#">32610081</a> ). Binds uncharged tRNAs (By similarity). Required for the translational induction of protein kinase PRKCH following amino acid |

starvation (By similarity). Involved in cell cycle arrest by promoting cyclin D1 mRNA translation repression after the unfolded protein response pathway (UPR) activation or cell cycle inhibitor CDKN1A/p21 mRNA translation activation in response to amino acid deprivation (PubMed:[26102367](#)). Plays a role in the consolidation of synaptic plasticity, learning as well as formation of long-term memory (By similarity). Plays a role in neurite outgrowth inhibition (By similarity). Plays a proapoptotic role in response to glucose deprivation (By similarity). Promotes global cellular protein synthesis repression in response to UV irradiation independently of the stress-activated protein kinase/c-Jun N-terminal kinase (SAPK/JNK) and p38 MAPK signaling pathways (By similarity). Plays a role in the antiviral response against alphavirus infection; impairs early viral mRNA translation of the incoming genomic virus RNA, thus preventing alphavirus replication (By similarity).

**Cellular Location**

Cytoplasm {ECO:0000250|UniProtKB:Q9QZ05}.

**Tissue Location**

Widely expressed (PubMed:10504407). Expressed in lung, smooth muscle cells and macrophages (PubMed:24292273)

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