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Product Information

Anti-eIF2α
produced in rabbit, IgG fraction of antiserum

Product Number **E0157**

Product Description

Anti-eIF2α is produced in rabbit using as immunogen a synthetic peptide corresponding to a fragment of human eIF2α (GeneID: 1965), conjugated to KLH. Whole antiserum is fractionated and then further purified by ion-exchange chromatography to provide the IgG fraction of antiserum that is essentially free of other rabbit serum proteins.

Anti-eIF2α (also known as eIF-2A) recognizes human eIF2α by immunoblotting (~35 kDa). Detection of the eIF2-α band by immunoblotting is specifically inhibited by the immunizing peptide.

eIF2, a multimeric protein composed of three subunits termed α, β, and γ, plays a central role in the process of mRNA translation and regulation. The main role of eIF2 complex is to transfer Met-tRNAi in the presence of GTP to the 40S ribosomal subunit during the initiation of translation.

Following start codon recognition, the GTP is hydrolyzed to GDP, a process which requires eIF5.[1,2] To return to the active state, GDP-bound eIF2 has to be converted to become GTP-bound. This guanine exchange reaction preformed by eIF2B, is an important factor in the regulation of protein synthesis.[3] Regulation of the initiation of translation at the level of eIF2 involves the phosphorylation of eIF2α at a conserved Ser^{51} residue, which leads to inhibition of eIF2B activity, thus reducing guanine nucleotide exchange and as a result, the translation rate.[4,5]

Protein synthesis inhibition at the level of eIF2α phosphorylation is linked to a variety of cell stress signaling pathways via specific kinases: DAI and PKR are sensors of viral infection, HRI is a sensor of heme-deficiency, PERK is a sensor of ER stress, and GCN2 is a sensor of amino acid deficiency.[6-7] Phosphorylation of eIF2α reduces but does not completely shut down global translation. Reducing general translation gives the cell time to correct the stress damage, and selectively enhance the translation of genes important for stress remedy.[7]

Reagent

Supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide as a preservative.

Precautions and Disclaimer

For R&D use only. Not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

For continuous use, store at 2–8 °C for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing, or storage in "frost-free" freezers, is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilutions should be discarded if not used within 12 hours.

Product Profile

Immunoblotting: a working dilution of 1:250**–**1:500 is recommended using PC-12 cell lysate.

Note: In order to obtain best results in various techniques and preparations, it is recommended to determine optimal working dilutions by titration.

References

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VS,SG,KAA,PHC,MAM 01/19-1