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ProductInformation

Anti-eIF4E
produced in rabbit, affinity isolated antibody

Catalog Number **E5906**

Product Description

Anti-eIF4E (eukaryotic initiation factor 4E) is produced in rabbit using as immunogen a synthetic peptide corresponding to amino acids 21-37 of human eIF4E (GeneID: 1977), conjugated to KLH via a C-terminal added cysteine residue. The sequence is conserved in human, rat, and mouse. The antibody is affinity-purified using the immunizing peptide immobiliezed on agarose.

Anti-eIF4E specifically recognizes eIF4E. Applications include immunoblotting (25 kDa), immunoprecipitation, and immunocytochemistry. Staining of the eIF4E band in immunoblotting is specifically inhibited by the immunizing peptide.

The translational factor eIF4E (also known as CBP or EIF4E1) is a central component of translation initiation and regulation in eukaryotic cells. It regulates the recruitment of mRNAs to the ribosome.[1, 2] Three different eIF4E-family members exist in mammals termed eIF4E-1 (eIF4E), eIF4E-2 and eIF4E-3, which differ in their functional characteristics and expression patterns.[3] eIF4E exists as both a free form and as part of a multiprotein complex termed eIF4F. In its free form, it interacts with the cap structure of mRNA. This interaction enhances its binding to eIF4G, another subunit of the eIF4F complex, and the formation of the whole complex, and subsequently the binding of the mRNA to the 40S ribosomal subunit. Among the eIF4F factors, eIF4E is the rate limiting component.[4] It plays a role in diverse biological processes including embryonic development, cell cycle progression, synaptic plasticity, and cancer. eIF4E activity has a fundamental role in determining global translation rates, but it also affects the rates of translation of poorly translated mRNA (weak mRNAs), many of which encode oncogenes or growth factors.[5] Consistent with this role, eIF4E is required for cell cycle progression, exhibits anti-apoptotic activity, and when overexpressed, transforms cells. Elevated levels of eIF4E were found in a broad spectrum of solid tumors.[5] eIF4E is subjected to tight regulation both at the level of its expression and by control of its activity. This is done mainly by phosphorylation (by the Mnk kinase) or by interaction with inhibitory proteins (4E binding proteins).[6] Human P bodies contain the cap-binding protein eIF4E and the related factor eIF4E-transporter (eIF4E-T; eIF4ENIF1), suggesting novel roles for these proteins in targeting mRNAs for 5' --> 3' degradation.[7] Although mainly expressed in the cytoplasm, a fraction of eIF4E localizes to the nucleus, and some of the biological effects of eIF4E might be effected by a nuclear function.[8, 9] In the nucleus, eIF4E forms nuclear bodies and promotes the nucleo-cytoplasmic export of a subset of growth promoting mRNAs including cyclin D1.

Reagent

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

Antibody concentration: ~1 mg/mL

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material 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 concentration of 0.5-1 µg/mL is recommended using HeLa cell lysates.

Immunoprecipitation: a working amount of 2- 5 µL is recommended using HeLa cell lysates.

Indirect immunofluorescence: a working concentration of 5-10 µg/mL is recommended using paraformaldehyde-fixed 3T3 cells.

Note: In order to obtain the best results using various techniques and preparations, we recommend determining the optimal working dilutions by titration.

References

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EK,YK,KAA,PHC 03/07-1