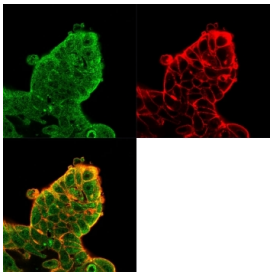
EIF4E Antibody / Eukaryotic Translation Initiation Factor 4E Cap-Binding Protein Marker [clone PCRP-EIF4E-1D3] (V9192)

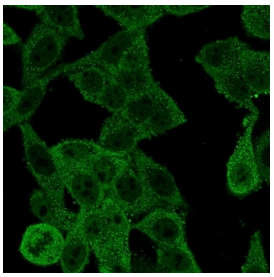
Catalog No.	Formulation	Size
V9192-100UG	0.2 mg/ml in 1X PBS with 0.1 mg/ml BSA (US sourced), 0.05% sodium azide	100 ug
V9192-20UG	0.2 mg/ml in 1X PBS with 0.1 mg/ml BSA (US sourced), 0.05% sodium azide	20 ug
V9192SAF-100UG	1 mg/ml in 1X PBS; BSA free, sodium azide free	100 ug

Bulk quote request

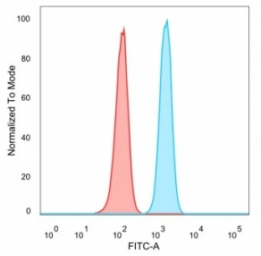
Availability	1-3 business days
Species Reactivity	Human
Format	Purified
Host	Mouse
Clonality	Monoclonal (mouse origin)
Isotype	Mouse IgG2a
Clone Name	PCRP-EIF4E-1D3
Purity	Protein A/G affinity
UniProt	P06730
Localization	Cytoplasm
Applications	Flow cytometry: 1-2ug/million cells Immunofluorescence: 1-2ug/ml Western blot: 1-2ug/ml
Limitations	This EIF4E Antibody / Eukaryotic Translation Initiation Factor 4E Cap-Binding Protein Marker is available for research use only.



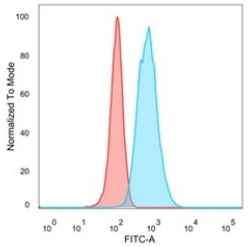
EIF4E Antibody MCF-7 IF. Immunofluorescence analysis of PFA-fixed human MCF-7 cells stained with EIF4E antibody detecting Eukaryotic translation initiation factor 4E (green), clone PCRP-EIF4E-1D3. Predominant cytoplasmic staining with fine granular distribution is observed, consistent with EIF4E localization in mRNA cap-binding translation initiation complexes and active protein synthesis regions. Phalloidin counterstain (red) highlights the actin cytoskeleton, with merged image showing overlap at the cell periphery.



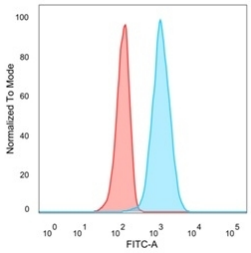
EIF4E Antibody HeLa IF. Immunofluorescence analysis of PFA-fixed human HeLa cells stained with EIF4E antibody detecting Eukaryotic translation initiation factor 4E (green), clone PCRP-EIF4E-1D3. Diffuse cytoplasmic staining with a punctate granular pattern is observed, consistent with EIF4E localization in mRNA cap-binding complexes and regions of active translation initiation. Signal is distributed throughout the cytoplasm with minimal nuclear staining, reflecting its role in cap-dependent protein synthesis.



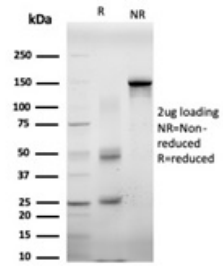
EIF4E Antibody HeLa FACS. Flow cytometry analysis of PFA-fixed human HeLa cells stained with EIF4E antibody detecting Eukaryotic translation initiation factor 4E, clone PCRP-EIF4E-1D3. The antibody signal (blue) shows a clear rightward shift compared to the isotype control (red), indicating positive intracellular detection of EIF4E following fixation and permeabilization. This pattern is consistent with EIF4E as a cytoplasmic mRNA cap-binding protein involved in translation initiation and regulation of protein synthesis.



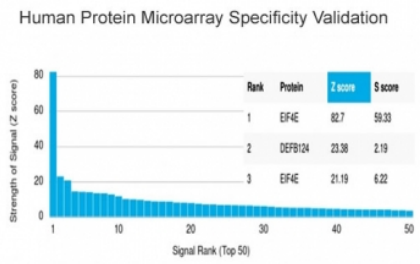
EIF4E Antibody Raji FACS. Flow cytometry analysis of PFA-fixed human Raji cells stained with EIF4E antibody detecting Eukaryotic translation initiation factor 4E, clone PCRP-EIF4E-1D3. The antibody signal (blue) shows a rightward shift compared to the isotype control (red), indicating positive intracellular detection of EIF4E following fixation and permeabilization. This pattern is consistent with EIF4E as a cytoplasmic mRNA cap-binding protein involved in translation initiation and regulation of protein synthesis.



EIF4E Antibody U-87 MG FACS. Flow cytometry analysis of PFA-fixed human U-87 MG cells stained with EIF4E antibody detecting Eukaryotic translation initiation factor 4E, clone PCRP-EIF4E-1D3. The antibody signal (blue) shows a clear rightward shift compared to the isotype control (red), indicating positive intracellular detection of EIF4E following fixation and permeabilization. This pattern is consistent with EIF4E as a cytoplasmic mRNA cap-binding protein involved in translation initiation and regulation of protein synthesis.



SDS-PAGE analysis of purified, BSA-free Eukaryotic translation initiation factor 4E antibody (clone PCRP-EIF4E-1D3) as confirmation of integrity and purity.



EIF4E Antibody HuProt Microarray. Analysis of a HuProt(TM) microarray containing more than 19,000 full-length human proteins using EIF4E antibody detecting Eukaryotic translation initiation factor 4E, clone PCRP-EIF4E-1D3. The antibody shows a strong and specific signal for EIF4E with a high Z-score and clear separation from lower-ranked proteins, resulting in an S-score consistent with target specificity. Z-score represents signal intensity in standard deviations above the array mean, while S-score reflects the difference between the top-ranked target and subsequent signals, indicating relative binding specificity of the monoclonal antibody.

Description

Eukaryotic translation initiation factor 4E (EIF4E), commonly referred to as eIF4E, is a central cap-binding protein that regulates translation initiation and controls protein synthesis at the level of mRNA recruitment. EIF4E Antibody, clone PCRP-EIF4E-1D3, is designed to detect this critical factor, enabling analysis of translational regulation and mRNA cap-dependent protein synthesis. EIF4E plays a key role in recognizing the 7-methylguanosine cap structure at the 5Ã¢Â€Â² end of mRNAs, a step that is essential for efficient ribosome recruitment and translation initiation. This antibody is part of a collection of Human Protein Microarray validated antibodies that have been screened for specificity across thousands of proteins.

EIF4E functions as a core component of the eIF4F complex, which also includes scaffold protein EIF4G and RNA helicase EIF4A. Through this complex, EIF4E facilitates the assembly of the translation initiation machinery and promotes ribosome binding to mRNA. Because cap recognition is often a rate-limiting step in translation, EIF4E activity directly influences global protein synthesis as well as selective translation of specific mRNAs, particularly those with complex 5Ã¢Â€Â² untranslated regions.

Regulation of EIF4E activity is tightly controlled by phosphorylation and interactions with binding proteins such as 4E-BPs. Under conditions where 4E-BPs are active, EIF4E is sequestered and prevented from forming the eIF4F complex, leading to reduced translation initiation. Conversely, signaling pathways such as the mTOR pathway promote phosphorylation of 4E-BPs, releasing EIF4E and enhancing translation. In addition, EIF4E itself can be phosphorylated, further modulating its activity and contribution to translational control.

Subcellularly, EIF4E is predominantly localized in the cytoplasm, where it associates with mRNA and translation initiation complexes. It may also be detected in the nucleus, where it participates in mRNA export and regulation of transcript availability. Immunofluorescence studies often show diffuse cytoplasmic staining with occasional enrichment in regions of active translation, reflecting its central role in protein synthesis.

EIF4E is widely expressed across tissues and is particularly important in rapidly proliferating cells, where high rates of protein synthesis are required. Dysregulation of EIF4E activity has been strongly linked to cancer, where increased cap-dependent translation promotes expression of oncogenic proteins involved in cell growth, survival, and angiogenesis. Elevated EIF4E levels or activity are associated with tumor progression and resistance to therapy, making it a key target in studies of translational control and cancer biology.

Unlike other translation initiation factors such as EIF2S1, which regulate delivery of initiator tRNA, EIF4E specifically controls mRNA cap recognition and recruitment of the translation machinery. This distinct role makes EIF4E a critical determinant of translational efficiency and selective protein synthesis. Detection of EIF4E provides insight into cap-dependent translation and the regulatory pathways that control protein production.

Microarray-based specificity validation demonstrates strong and selective binding of clone PCRP-EIF4E-1D3 to EIF4E, with a high Z-score and clear separation from non-target proteins. This supports reliable detection of EIF4E in complex biological samples and reinforces its utility for studying translation initiation, mRNA regulation, and disease-associated changes in protein synthesis.

This antibody is part of a broader antibody panel offered by NSJ Bioreagents.

Application Notes

Optimal dilution of the EIF4E Antibody / Eukaryotic Translation Initiation Factor 4E Cap-Binding Protein Marker should be determined by the researcher.

Immunogen

Recombinant full-length human Eukaryotic translation initiation factor 4E protein was used as the immunogen for the Eukaryotic translation initiation factor 4E / EIF4E antibody.

Storage

Aliquot the Eukaryotic translation initiation factor 4E / EIF4E antibody and store frozen at -20oC or colder. Avoid repeated freeze-thaw cycles.

Alternate Names

EIF4E antibody, eIF4E antibody, Eukaryotic translation initiation factor 4E antibody, EIF4E cap-binding protein antibody, mRNA cap-binding protein antibody, EIF4E translation initiation factor antibody, clone PCRP-EIF4E-1D3 antibody

Copyright © NSJ Bioreagents. All rights reserved.