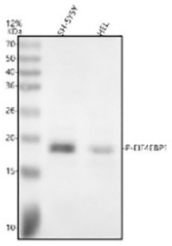
Phospho-4EBP1 (pThr70) Antibody / Translation Regulation Marker [clone 32E48] (FY13152)

Catalog No.	Formulation	Size
FY13152	Rabbit IgG in phosphate buffered saline, pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol, 0.4-0.5mg/ml BSA	100 ul

Recombinant RABBIT MONOCLONAL

Bulk quote request

Availability	2-3 weeks
Species Reactivity	Human
Format	Liquid
Host	Rabbit
Clonality	Recombinant Rabbit Monoclonal
Isotype	Rabbit IgG
Clone Name	32E48
Purity	Affinity chromatography
Buffer	Rabbit IgG in phosphate buffered saline, pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol, 0.4-0.5mg/ml BSA.
UniProt	Q13541
Applications	Western Blot : 1:500-1:2000
Limitations	This Phospho-4EBP1 (pThr70) Antibody / Translation Regulation Marker is available for research use only.



Phospho-4EBP1 (pThr70) Antibody Multi-Cell WB. Western blot analysis of human SH-SY5Y and HEL cell lysates using phospho-4EBP1 antibody detecting 4EBP1 phosphorylated at Thr70, clone 32E48. A band is observed at approximately 15-20 kDa, consistent with the predicted molecular weight of 4EBP1. Signal in both cell lines reflects basal phosphorylation of 4EBP1 and supports its role in regulation of cap-dependent translation.

Description

Eukaryotic translation initiation factor 4E-binding protein 1 (EIF4EBP1), commonly referred to as 4EBP1, is a central

regulator of cap-dependent translation that functions downstream of the PI3K-AKT-mTOR signaling pathway. 4EBP1 binds to EIF4E and inhibits assembly of the eIF4F complex, thereby preventing recruitment of ribosomes to mRNA and suppressing protein synthesis. Phospho-4EBP1 (pThr70) Antibody, clone 32E48, is designed to detect 4EBP1 phosphorylated at threonine 70, a key regulatory site associated with release of EIF4E and activation of translation.

Phosphorylation of 4EBP1 occurs in a hierarchical manner, with initial phosphorylation events at Thr37 and Thr46 priming the protein for subsequent phosphorylation at additional residues including Thr70 and Ser65. Modification at Thr70 reflects progression through this phosphorylation cascade and is associated with reduced binding affinity between 4EBP1 and EIF4E. As a result, EIF4E is released to participate in formation of the eIF4F complex, promoting translation initiation and increased protein synthesis. Detection of Thr70 phosphorylation therefore provides insight into functional regulation of translation downstream of mTOR signaling.

Unlike total 4EBP1 detection, which reflects overall protein abundance, phospho-specific detection at Thr70 provides a readout of the regulatory state of translation initiation. Increased phosphorylation is generally associated with enhanced protein synthesis, while reduced phosphorylation corresponds to translational repression. Monitoring Thr70 phosphorylation is therefore useful for assessing pathway activity in studies of growth signaling, metabolism, and cellular stress responses.

Phosphorylation of 4EBP1 is influenced by multiple cellular inputs, including nutrient availability, growth factor stimulation, and energy status. Although Thr70 phosphorylation is commonly associated with mTOR pathway activity, it represents one component of a multi-site regulatory system that collectively determines the functional state of the protein. Detection of this site provides a focused view of translation regulation within the broader signaling network.

Subcellularly, phosphorylated 4EBP1 is localized primarily in the cytoplasm, where it interacts with translation initiation factors and ribosomal machinery. Immunodetection typically reveals cytoplasmic staining patterns consistent with its role in regulating protein synthesis. This localization reflects the functional role of 4EBP1 in controlling mRNA translation at the level of ribosome recruitment.

Dysregulation of 4EBP1 phosphorylation is commonly observed in cancer and other diseases characterized by altered mTOR signaling. Increased phosphorylation leads to enhanced protein synthesis and contributes to uncontrolled cell growth and proliferation. Phospho-4EBP1 (pThr70) Antibody, clone 32E48, enables selective detection of this regulatory phosphorylation event, supporting studies of translation control, signaling pathway activity, and cellular growth regulation. This antibody is part of our full phospho antibody collection which can be explored for additional phosphorylation-specific targets and pathway markers.

Application Notes

Optimal dilution of the Phospho-4EBP1 (pThr70) Antibody / Translation Regulation Marker should be determined by the researcher.

Immunogen

A synthesized peptide derived from human Phospho-eIF4EBP1 (pT70) was used as the immunogen for the Phospho-4EBP1 (pThr70) Antibody.

Storage

Store the Phospho-4EBP1 (pThr70) Antibody at -20oC.

Alternate Names

Phospho 4EBP1 antibody, 4EBP1 pThr70 antibody, 4EBP1 Thr70 antibody, EIF4EBP1 phospho antibody, EIF4EBP1 Thr70 antibody, eIF4E binding protein 1 phospho antibody, phosphorylated 4EBP1 antibody, 4EBP1 translation marker antibody, mTOR pathway phospho 4EBP1 antibody, clone 32E48 antibody