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# 4E-BP1 Antibody

Catalog # ASC10320

## Product Information

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| **Application** | WB, ICC, E |
| **Primary Accession** | Q13541 |
| **Other Accession** | NP_004086, 4758258 |
| **Reactivity** | Human, Mouse |
| **Host** | Rabbit |
| **Clonality** | Polyclonal |
| **Isotype** | IgG |
| **Calculated MW** | 12580 |
| **Concentration (mg/ml)** | 1 mg/mL |
| **Conjugate** | Unconjugated |
| **Application Notes** | 4E-BP1 antibody can be used for the detection of 4E-BP1 by Western blot at 2.5 - 10 □g/mL. Antibody can also be used for immunocytochemistry starting at 2 □g/mL. |

## Additional Information

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| **Gene ID** | 1978 |
| **Other Names** | 4E-BP1 Antibody: BP-1, 4EBP1, 4E-BP1, PHAS-I, Eukaryotic translation initiation factor 4E-binding protein 1, Phosphorylated heat- and acid-stable protein regulated by insulin 1, eukaryotic translation initiation factor 4E binding protein 1 |
| **Target/Specificity** | EIF4EBP1; |
| **Reconstitution & Storage** | 4E-BP1 antibody can be stored at 4℃ for three months and -20℃, stable for up to one year. As with all antibodies care should be taken to avoid repeated freeze thaw cycles. Antibodies should not be exposed to prolonged high temperatures. |
| **Precautions** | 4E-BP1 Antibody is for research use only and not for use in diagnostic or therapeutic procedures. |

## Protein Information

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| **Name** | EIF4EBP1 |
| **Function** | Repressor of translation initiation that regulates EIF4E activity by preventing its assembly into the eIF4F complex: hypophosphorylated form competes with EIF4G1/EIF4G3 and strongly binds to EIF4E, leading to repress translation. In contrast, hyperphosphorylated form dissociates from EIF4E, allowing interaction between EIF4G1/EIF4G3 and EIF4E, leading to initiation of translation. Mediates the regulation of protein translation by hormones, growth factors and other stimuli that signal through the MAP kinase and |

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| | mTORC1 pathways. |
| **Cellular Location** | Cytoplasm. Nucleus. Note=Localization to the nucleus is unaffected by phosphorylation status. {ECO:0000250\|UniProtKB:Q60876} |

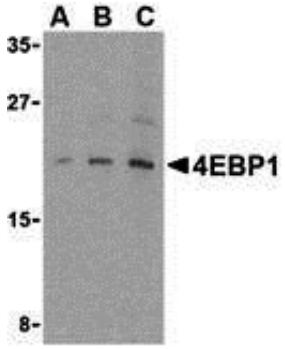
## Background

4E-BP1 Antibody: The translation of mRNA in eukaryotic cells is regulated by the presence of amino acids through multiple mechanisms. One such mechanism involves the evolutionarily conserved serine/threonine kinase TOR (Target of rapamycin, also known as mTOR), which regulates cell growth and cell cycle through its ability to integrate signals from nutrient levels and growth factors. One downstream target of TOR is the eukaryotic initiation factor 4E binding protein 1 (4E-BP1) whose phosphorylation prevents its association with eIF4E, preferentially stimulating translation of mRNAs containing long, highly structured 5'-UTRs. Rapamycin inhibits TOR resulting in reduced cell growth and reduced rates of cell cycle and cell proliferationl, at least in part by inhibiting the activity of TOR towards 4E-BP1.

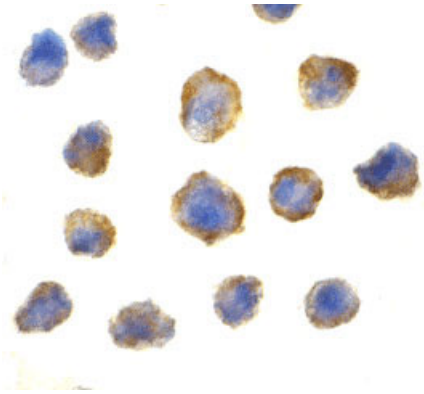
## References

Shah OJ, Anthony JC, Kimball SR, et al. 4E-BP1 and S6K1: translational integration sites for nutritional and hormonal information in muscle. Am. J. Physiol. Endocrinol. Metab. 2000; 279:E715-29.
Shamji AF, Ngheim P, and Schreiber SL. Integration of growth factor and nutrient signaling: implications for cancer biology. Mol. Cell 2003; 12:271-80.

## Images




Western blot analysis of 4E-BP1 in 3T3 cell lysate with 4E-BP1 antibody at (A) 2.5, (B) 5 and (C) 10 µg/mL.



Immunocytochemistry of 4E-BP1 in 3T3 cells with 4E-BP1 antibody at 2 µg/mL.