

# Phospho-4E-BP1 (Thr37/46) Antibody

- Small 100 µl (10 Western mini-blot)
- Large 300 µl (30 Western mini-blot)

**Orders** ■ 877-616-CELL (2355)  
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This product is for *in vitro* research use only and is not intended for use in humans or animals. This product is not intended for use as a therapeutic or in diagnostic procedures.

Applications	Species Cross-Reactivity*	Molecular Wt.	Source**
W	H, M, R, Mk	15-20 kDa	Rabbit

**Background:** When bound to eIF4E, 4E-BP1 (also known as PHAS-1) inhibits cap-dependent translation. Upon hyperphosphorylation of 4E-BP1 this interaction is disrupted and cap-dependent translation is activated (1). Both the PI3 kinase/Akt pathway and FRAP/mTOR kinase regulate 4E-BP1 activity (2,3). Multiple 4E-BP1 residues are phosphorylated *in vivo* (4); while phosphorylation by FRAP/mTOR on Thr37 and Thr46 does not prevent the binding of 4E-BP1 to eIF4E, it is thought to prime 4E-BP1 for subsequent phosphorylation at Ser65 and Thr70 (5).

**Specificity/Sensitivity:** Phospho-4E-BP1 (Thr37/46) Antibody detects endogenous levels of 4E-BP1 only when phosphorylated at Thr37 and/or Thr46. This antibody may cross-react with 4E-BP2 and 4E-BP3 when phosphorylated at equivalent sites.

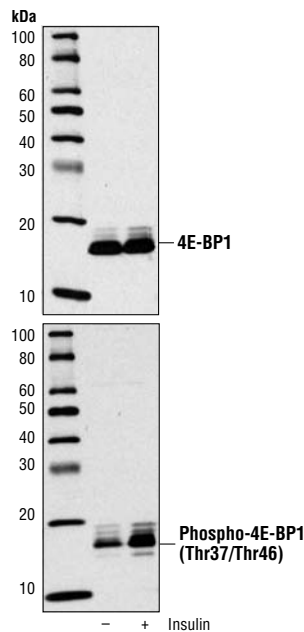
**Source/Purification:** Polyclonal antibodies are produced by immunizing animals with a synthetic phospho-peptide (KLH-coupled) corresponding to residues surrounding Thr37 of mouse 4E-BP1 and Thr46 of mouse 4E-BP1. Antibodies are purified by protein A and peptide affinity chromatography.

**Selected Application References:**

Jiang, Y. P. et al. (2001) Rapamycin-insensitive regulation of 4e-BP1 in regenerating rat liver. *J. Biol. Chem.* 276, 10943-10951. Application: W.

Kwiatkowski, D.J. et al. (2002) A mouse model of TSC1 reveals sex-dependent lethality from liver hemangiomas, and up-regulation of p70S6 kinase activity in Tsc1 null cells. *Hum. Mol. Genet.* 11, 525-534. Application: W.

Yu, K. et al. (2001) mTOR, a novel target in breast cancer: the effect of CCI-779, an mTOR inhibitor, in preclinical models of breast cancer. *Endocr. Relat. Cancer* 8, 249-258. Application: W.



Western blot analysis of extracts from 293T cells using 4E-BP1 Antibody #9452 (upper) and Phospho-4E-BP1 (Thr37/46) Antibody (lower). The cells were starved for 24 hours in serum-free medium and underwent a 1 hour amino acid deprivation. Amino acids were replenished for 1 hour. Cells were then either untreated (-) or treated with 100 nM insulin (+) for 30 minutes.

**Background References:**

- (1) Pause, A. et al. (1994) *Nature* 371, 762-767.
- (2) Brunn, G.J. et al. (1997) *Science* 277, 99-101.
- (3) Gingras, A.C. et al. (1998) *Genes Dev.* 12, 502-513.
- (4) Fadden, P. et al. (1997) *J. Biol. Chem.* 272, 10240-10247.
- (5) Gingras, A.C. et al. (1999) *Genes Dev.* 13, 1422-1437.

**Storage:** Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA and 50% glycerol. Store at -20°C. Do not aliquot the antibody.

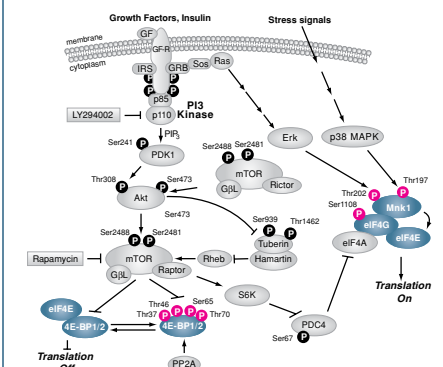
\*Species cross-reactivity is determined by Western blot.  
\*\*Anti-rabbit secondary antibodies must be used to detect this antibody.

**Recommended Antibody Dilutions:**  
Western blotting 1:1000

For application specific protocols please see the web page for this product at [www.cellsignal.com](http://www.cellsignal.com).

**Companion Products:**

- Phospho-4E-BP1 (Thr37/46) (236B4) Rabbit mAb #2855
- 4E-BP1 (53H11) Rabbit mAb #9644
- Phospho-4E-BP1 (Ser65) Antibody #9451
- Phospho-4E-BP1 (Ser65) (174A9) Rabbit mAb #9456
- Phospho-4E-BP1 (Thr70) Antibody #9455
- Nonphospho-4E-BP1 (Thr46) (87D12) Rabbit mAb #4923
- 4E-BP2 Antibody #2845
- Phospho-eIF4E (Ser209) Antibody #9741
- eIF4E Antibody #9742
- PathScan® Phospho-4E-BP1 (Thr37/Thr46) Sandwich ELISA Kit #7216
- SignalSilence® eIF4E siRNA Kit (Human Specific) #6310
- Phototope®-HRP Western Blot Detection System, Anti-rabbit IgG, HRP-linked Antibody #7071
- Anti-rabbit IgG, HRP-linked Antibody #7074
- Prestained Protein Marker, Broad Range (Premixed Format) #7720
- Biotinylated Protein Ladder Detection Pack #7727
- 20X LumiGLO® Reagent and 20X Peroxide #7003



**IMPORTANT: For Western blots, incubate membrane with diluted antibody in 5% w/v BSA, 1X TBS, 0.1% Tween-20 at 4°C with gentle shaking, overnight.**

**Applications Key:** W—Western IP—Immunoprecipitation IHC—Immunohistochemistry ChIP—Chromatin Immunoprecipitation IF—Immunofluorescence F—Flow cytometry E—ELISA E-P—ELISA Peptide  
**Species Cross-Reactivity Key:** H—human M—mouse R—rat Hm—hamster Mk—monkey Mi—mink C—chicken Dm—D. melanogaster X—Xenopus Z—zebra fish B—bovine  
Dg—dog Pg—pig Sc—S. cerevisiae All—all species expected Species enclosed in parentheses are predicted to react based on 100% sequence homology.