

# p-4E-BP1 (Ser 65/Thr 70): sc-12884

## BACKGROUND

The multisubunit eukaryotic translation initiation factor (eIF) 4F recruits 40S ribosomal subunits to the 5' end of mRNA. The eIF4F subunit eIF4E interacts directly with the mRNA 5' cap structure. Assembly of the eIF4F complex is inhibited by a family of repressor polypeptides, the eIF4E-binding proteins (4E-BPs). 4E-BP1 (also known as PHAS-1) normally binds eIF4E, inhibiting cap-dependent translation. Hyper-phosphorylation of 4E-BP1 disrupts this binding, activating cap-dependent translation. The PI 3-kinase/Akt pathway and the FRAP/mTOR kinase regulate 4E-BP1. 4E-BP1 is phosphorylated *in vivo* on multiple residues and phosphorylation by FRAP/mTOR on Threonine 37 and Threonine 46 of human 4E-BP1 may prime it for subsequent phosphorylation at sites including Serine 65 and Threonine 70. The corresponding rat residues include Threonine 36, Threonine 45, Serine 64 and Threonine 69. *In vitro*, 4E-BP1 is also phosphorylated by ataxia telangiectasia (ATM) at human Serine 112 (rat Serine 111) in response to an increase in Insulin levels.

## CHROMOSOMAL LOCATION

Genetic locus: EIF4EBP1 (human) mapping to 8p12; Eif4ebp1 (mouse) mapping to 8 A2.

## SOURCE

p-4E-BP1 (Ser 65/Thr 70) is available as either goat (sc-12884) or rabbit (sc-12884-R) polyclonal affinity purified antibody raised against a short amino acid sequence containing phosphorylated Ser 65 and Thr 70 of 4E-BP1 of human origin.

## PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-12884 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

p-4E-BP1 (Ser 65/Thr 70) is recommended for detection of Ser 65 and Thr 70 dually phosphorylated 4E-BP1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

p-4E-BP1 (Ser 65/Thr 70) is also recommended for detection of correspondingly phosphorylated Ser and Thr on 4E-BP1 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for 4E-BP1 siRNA (h): sc-29594, 4E-BP1 siRNA (m): sc-29595, 4E-BP1 shRNA Plasmid (h): sc-29594-SH, 4E-BP1 shRNA Plasmid (m): sc-29595-SH, 4E-BP1 shRNA (h) Lentiviral Particles: sc-29594-V and 4E-BP1 shRNA (m) Lentiviral Particles: sc-29595-V.

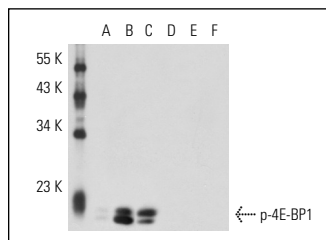
Molecular Weight of p-4E-BP1: 21 kDa.

Positive Controls: 4E-BP1 (m): 293T Lysate: sc-118030, Insulin-treated NIH/3T3 whole cell lysate or serum starved + serum NIH/3T3 whole cell lysate.

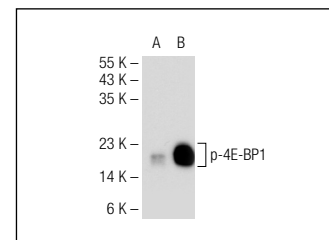
## STORAGE

Store at 4° C, \*\*DO NOT FREEZE\*\*. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## DATA



Western blot analysis of phosphorylated 4E-BP1 expression in untreated (A,D), insulin-treated (B,E) and serum starved + serum (C,F) NIH/3T3 whole cell lysates. Blots were probed with p-4E-BP1 (Ser 65/Thr 70): sc-12884 (A,B,C) and p-4E-BP1 (Ser 65/Thr 70): sc-12884 preincubated with its cognate phosphorylated peptide (D,E,F).



p-4E-BP1 (Ser 65/Thr 70): sc-12884. Western blot analysis of 4E-BP1 phosphorylation in non-transfected: sc-117752 (A) and mouse 4E-BP1 transfected: sc-118030 (B) 293T whole cell lysates.

## SELECT PRODUCT CITATIONS

- Włodarski, P., et al. 2006. Activation of Akt and Erk pathways in medulloblastoma. *Folia Neuropathol.* 44: 214-220.
- Zhang, Q., et al. 2007. Nicotine induces hypoxia-inducible factor-1 $\alpha$  expression in human lung cancer cells via nicotinic acetylcholine receptor-mediated signaling pathways. *Clin. Cancer Res.* 13: 4686-4694.
- Legrier, M.E., et al. 2007. Targeting protein translation in human non small cell lung cancer via combined MEK and mammalian target of rapamycin suppression. *Cancer Res.* 67: 11300-11308.
- Mita, M.M., et al. 2008. Phase I trial of the novel mammalian target of rapamycin inhibitor deforolimus (AP23573; MK-8669) administered intravenously daily for 5 days every 2 weeks to patients with advanced malignancies. *J. Clin. Oncol.* 26: 361-367.
- Rizzieri, D.A., et al. 2008. A phase 2 clinical trial of deforolimus (AP23573, MK-8669), a novel mammalian target of rapamycin inhibitor, in patients with relapsed or refractory hematologic malignancies. *Clin. Cancer Res.* 14: 2756-2762.
- Gong, J., et al. 2009. Serine/threonine kinase Pim-2 promotes liver tumorigenesis induction through mediating survival and preventing apoptosis of liver cell. *J. Surg. Res.* 153: 17-22.

## RESEARCH USE

For research use only, not for use in diagnostic procedures.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.