SANTA CRUZ BIOTECHNOLOGY, INC.

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

SANTA CRUZ BIOTECHNOLOGY
The Power to Question

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 8p11.23; Eif4ebp1 (mouse) mapping to 8 A2.

SOURCE

p-4E-BP1 (Ser 65/Thr 70) is avaliable as either goat (sc-12884) or rabbit (sc-12884-R) polyclonal antibody raised against a short amino acid sequence containing dually Ser 65 and Thr 70 phosphorylated 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), immunohistochemistry (including paraffin-embedded sections) (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 dually phosphorylated 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.

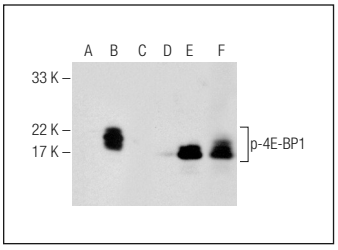
Molecular Weight of p-4E-BP1: 21 kDa.

Positive Controls: A-431 whole cell lysate: sc-2201.

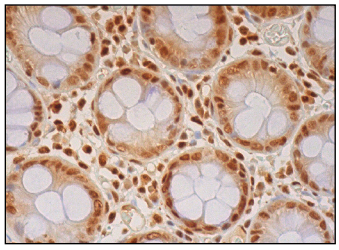
STORAGE

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 4E-BP1 phosphorylation in non-transfected: sc-117752 (**A**,**D**), untreated human 4E-BP1 transfected: sc-116590 (**B**,**E**) and lambda protein phosphatase (sc-200312A) treated human 4E-BP1 transfected: sc-116590 (**C**,**F**) 293T whole cell lysates. Antibodies tested include p-4E-BP1 (Ser 65/Thr 70)-R: sc-12884-R (**A**,**B**,**C**) and 4E-BP1 (11G12C11): sc-81149 (**D**,**E**,**F**).



p-4E-BP1 (Ser 65/Thr 70)-R: sc-12884-R. Immunoperoxidase staining of formalin fixed, paraffin-embedded human colon tissue showing nuclear and cytoplasmic staining of glandular cells and endothelial cells.

SELECT PRODUCT CITATIONS

1. Włodarski, P., et al. 2006. Activation of Akt and Erk pathways in medulloblastoma. Folia Neuropathol. 44: 214-220.
2. 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.
3. 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.
4. 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.
5. 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.
6. Wang, K., et al. 2011. Quercetin induces protective autophagy in gastric cancer cells: involvement of Akt-mTOR- and hypoxia-induced factor 1α-mediated signaling. Autophagy 7: 966-978.

RESEARCH USE

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