SANTA CRUZ BIOTECHNOLOGY, INC.

4E-BP1 (R-113): sc-6936

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The translation of proteins from eukaryotic mRNA is initiated by the multi-subunit complex eIF-4F, which associates with the mRNA 5' cap structure. eIF-4E, a component of eIF-4F, is responsible for binding to the 5' cap structure and for the assembly of the eIF-4F complex. The regulatory protein 4E-BP1, also referred to as PHAS-I, inhibits eIF-4E function. Phosphorylation of 4E-BP1 by S6 kinase p70, MAP kinases or PKCs causes the disassociation of 4E-BP1 from eIF-4E, promoting translation. A protein that is functionally related to 4E-BP1, designated 4E-BP2, also associates with eIF-4E.

REFERENCES

1. Lin, T.A., et al. 1994. PHAS-I as a link between mitogen-activated protein kinase and translation initiation. Science 266: 653-656.
2. Rau, M., et al. 1996. A reevaluation of the cap-binding protein, eIF4E, as a rate-limiting factor for initiation of translation in reticulocyte lysate. J. Biol. Chem. 271: 8983-8990.
3. Diggle, T.A., et al. 1996. Both rapamycin-sensitive and -insensitive pathways are involved in the phosphorylation of the initiation factor-4E-binding protein (4E-BP1) in response to Insulin in rat epididymal fat-cells. Biochem. J. 316: 447-453.

CHROMOSOMAL LOCATION

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

SOURCE

4E-BP1 (R-113) is a rabbit polyclonal antibody raised against amino acids 1-117 of 4E-BP1 of rat origin.

PRODUCT

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

APPLICATIONS

4E-BP1 (R-113) is recommended for detection of 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); may cross-react with 4E-BP2 and 4E-BP3.

4E-BP1 (R-113) is also recommended for detection of 4E-BP1 in additional species, including equine, canine and bovine.

Molecular Weight of 4E-BP1: 21 kDa.

Positive Controls: 4E-BP1 (h): 293T Lysate: sc-116590, 4E-BP1 (m): 293T Lysate: sc-118030 or NIH/3T3 whole cell lysate: sc-2210.

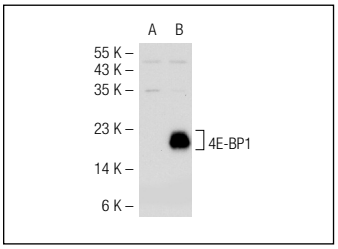
STORAGE

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

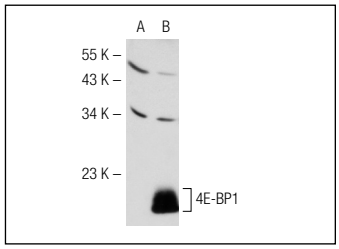
RESEARCH USE

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

DATA



4E-BP1 (R-113): sc-6936. Western blot analysis of 4E-BP1 expression in non-transfected: sc-117752 (**A**) and mouse 4E-BP1 transfected: sc-118030 (**B**) 293T whole cell lysates.



4E-BP1 (R-113): sc-6936. Western blot analysis of 4E-BP1 expression in non-transfected: sc-117752 (**A**) and human 4E-BP1 transfected: sc-116590 (**B**) 293T whole cell lysates.

SELECT PRODUCT CITATIONS

1. Miyamoto, S., et al. 2000. Signal transduction pathways that contribute to increased protein synthesis during T-cell activation. Biochim. Biophys. Acta 1494: 28-42.
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3. Sofer, A., et al. 2005. Regulation of mTOR and cell growth in response to energy stress by REDD1. Mol. Cell. Biol. 25: 5834-5845.
4. Wiesenthal, V., et al. 2006. A translation control reporter system (TCRS) for the analysis of translationally controlled processes in the vertebrate cell. Nucleic Acids Res. 34: e23.
5. Yamaoka, I., et al. 2006. Intravenous administration of amino acids during anesthesia stimulates muscle protein synthesis and heat accumulation in the body. Am. J. Physiol. Endocrinol. Metab. 290: E882-E888.
6. Fernandez, E., et al. 2007. Increased IRS-2 content and activation of IGF-I pathway contribute to enhance β-cell mass in fetuses from undernourished pregnant rats. Am. J. Physiol. Endocrinol. Metab. 292: E187-E195.
7. DeYoung, M.P., et al. 2008. Hypoxia regulates TSC1/2-mTOR signaling and tumor suppression through REDD1-mediated 14-3-3 shuttling. Genes Dev. 22: 239-251.
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