SANTA CRUZ BIOTECHNOLOGY, INC.

mTOR (30): sc-517464

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The PIK-related kinases include Atm, DNA-PK_{CS} and mTOR. The Atm gene is mutated in the autosomal recessive disorder ataxia telangiectasia (AT) that is characterized by cerebellar degeneration and the appearance of dilated blood vessels in the conjunctivae of the eyes. AT cells are hypersensitive to ionizing radiation, impaired in mediating the inhibition of DNA synthesis and they display delays in p53 induction. DNA-PK is a heterotrimeric DNA binding enzyme that is composed of a large subunit, DNA-PK_{CS}, and two smaller subunits collectively known as Ku. The loss of DNA-PK leads to defects in DSB repair and V(D)J recombination. mTOR, also known as FRAP, can autophosphorylate on serine and bind to rapamycin/FKBP. mTOR is also an upstream regulator of S6 kinase and has been implicated in the regulation of p27 and p21 expression. mTOR autophosphorylates at Ser 2481 under translationally repressive conditions. Phosphorylation of mTOR at Ser 2448 is mediated by p70S6 kinase.

CHROMOSOMAL LOCATION

Genetic locus: MTOR (human) mapping to 1p36.22; Mtor (mouse) mapping to 4 E2.

SOURCE

mTOR (30) is a mouse monoclonal antibody raised against amino acids 185-290 of mTOR of rat origin.

PRODUCT

Each vial contains 200 µg IgG_1 lambda light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

mTOR (30) is available conjugated to agarose (sc-517464 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; and to HRP (sc-517464 HRP), 200 µg/ml, for WB, IHC(P) and ELISA.

APPLICATIONS

mTOR (30) is recommended for detection of mTOR 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)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for mTOR siRNA (h): sc-35409, mTOR siRNA (m): sc-35410, mTOR shRNA Plasmid (h): sc-35409-SH, mTOR shRNA Plasmid (m): sc-35410-SH, mTOR shRNA (h) Lentiviral Particles: sc-35409-V and mTOR shRNA (m) Lentiviral Particles: sc-35410-V.

Molecular Weight (predicted) of mTOR: 289 kDa.

Molecular Weight (observed) of mTOR: 211-245 kDa.

Positive Controls: CCRF-CEM cell lysate: sc-2225, Jurkat whole cell lysate: sc-2204 or HeLa whole cell lysate: sc-2200.

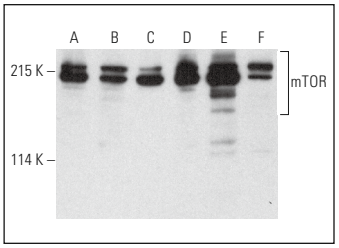
STORAGE

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

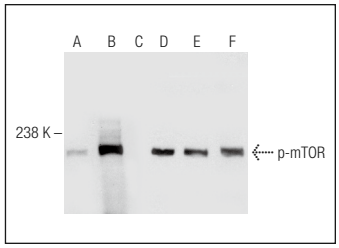
RESEARCH USE

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

DATA



mTOR (30) HRP: sc-517464 HRP. Direct western blot analysis of mTOR expression in HeLa (**A**), HeLa + Calculin A (**B**), Jurkat (**C**), Jurkat + Calculin A (**D**), CCRF-CEM (**E**) and TK-1 (**F**) whole cell lysates.



Western blot analysis of mTOR phosphorylation in untreated (**A**,**D**), Calyculin A treated (B,E) and Calyculin A and lambda protein phosphatase (sc-200312A) treated (**C**,**F**) Jurkat whole cell lysates. Antibodies tested include p-mTOR (Ser 2448): sc-101738 (**A**,**B**,**C**) and mTOR (30): sc-517464 (**D**,**E**,**F**).

SELECT PRODUCT CITATIONS

1. González, I.M., et al. 2012. Leucine and arginine regulate trophoblast motility through mTOR-dependent and independent pathways in the preimplantation mouse embryo. Dev. Biol. 361: 286-300.
2. Sengupta, S., et al. 2013. Regulation of OSR1 and the sodium, potassium, two chloride cotransporter by convergent signals. Proc. Natl. Acad. Sci. USA 110: 18826-18831.
3. Wang, X.J., et al. 2016. Dibutyl phthalate inhibits the effects of follicle-stimulating hormone on rat granulosa cells through down-regulation of follicle-stimulating hormone receptor. Biol. Reprod. 94: 144.
4. Mitrović, N., et al. 2017. 17β-estradiol-induced synaptic rearrangements are accompanied by altered ectonucleotidase activities in male rat hippocampal synaptosomes. J. Mol. Neurosci. 61: 412-422.
5. Wandee, J., et al. 2018. Metformin enhances cisplatin induced inhibition of cholangiocarcinoma cells via AMPK-mTOR pathway. Life Sci. 207: 172-183.
6. Hsu, C.F., et al. 2019. IGF-axis confers transformation and regeneration of fallopian tube fimbria epithelium upon ovulation. EBioMedicine 41: 597-609.
7. Qi, W., et al. 2020. Inhibitory mechanism of muscone in liver cancer involves the induction of apoptosis and autophagy. Oncol. Rep. 43: 839-850.
8. Guo, Y., et al. 2021. Night-restricted feeding improves locomotor activity rhythm and modulates nutrient utilization to accelerate growth in rabbits. FASEB J. 35: e21166.
9. Pyun, D.H., et al. 2021. Endogenous metabolite, kynurenic acid, attenuates nonalcoholic fatty liver disease via AMPK/autophagy- and AMPK/ORP150-mediated signaling. J. Cell. Physiol. 236: 4902-4912.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.