SANTA CRUZ BIOTECHNOLOGY, INC.

14-3-3 θ (3B9): sc-59414

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

14-3-3 proteins regulate many cellular processes relevant to cancer biology, notably apoptosis, mitogenic signaling and cell-cycle checkpoints. Seven isoforms comprise this family of signaling intermediates, denoted 14-3-3 β, γ, ε, ζ, η, θ and σ. 14-3-3 proteins form dimers that present two binding sites for ligand proteins, thereby bringing together two proteins that may not otherwise associate. These ligands largely share a 14-3-3 consensus binding motif and exhibit serine/threonine phosphorylation. 14-3-3 proteins function in broad regulation of these ligand proteins, by cytoplasmic sequestration, occupation of interaction domains and import/export sequences, prevention of degradation, activation/repression of enzymatic activity and facilitation of protein modification, and thus loss of expression contributes to a vast array of pathogenic cellular activities.

CHROMOSOMAL LOCATION

Genetic locus: YWHAQ (human) mapping to 2p25.1; Ywhaq (mouse) mapping to 12 A1.3.

SOURCE

14-3-3 θ (3B9) is a mouse monoclonal antibody raised against full length 14-3-3 θ of human origin.

PRODUCT

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

APPLICATIONS

14-3-3 θ (3B9) is recommended for detection of 14-3-3 θ 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), flow cytometry (1 µg per 1 x 10^6 cells) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000); non cross-reactive with 14-3-3 ζ.

14-3-3 θ (3B9) is also recommended for detection of 14-3-3 θ in additional species, including bovine.

Suitable for use as control antibody for 14-3-3 θ siRNA (h): sc-29586, 14-3-3 θ siRNA (m): sc-29587, 14-3-3 θ siRNA (r): sc-270533, 14-3-3 θ shRNA Plasmid (h): sc-29586-SH, 14-3-3 θ shRNA Plasmid (m): sc-29587-SH, 14-3-3 θ shRNA Plasmid (r): sc-270533-SH, 14-3-3 θ shRNA (h) Lentiviral Particles: sc-29586-V, 14-3-3 θ shRNA (m) Lentiviral Particles: sc-29587-V and 14-3-3 θ shRNA (r) Lentiviral Particles: sc-270533-V.

Molecular Weight of 14-3-3 θ: 30 kDa.

Positive Controls: NIH/3T3 whole cell lysate: sc-2210, 14-3-3 θ (h4): 293T Lysate: sc-127856 or A-431 whole cell lysate: sc-2201.

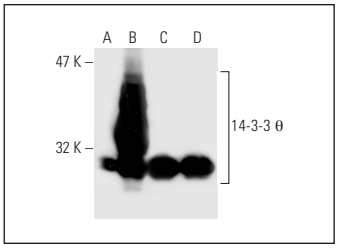
STORAGE

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

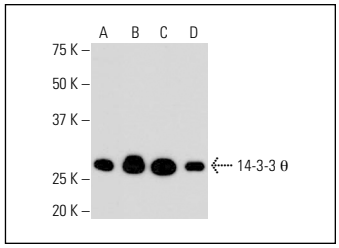
RESEARCH USE

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

DATA



14-3-3 θ (3B9): sc-59414. Western blot analysis of 14-3-3 θ expression in non-transfected 293T: sc-117752 (**A**), human 14-3-3 θ transfected 293T: sc-127856 (**B**) and A-431 (**C**) whole cell lysates and mouse placenta tissue extract (**D**).



14-3-3 θ (3B9): sc-59414. Western blot analysis of 14-3-3 θ expression in NIH-3T3 (**A**), PC-12 (**B**), Madin-Darby bovine kidney (**C**) and human fibroblast (**D**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Han, Z., et al. 2009. 14-3-3σ-dependent resistance to cisplatin. Anticancer Res. 29: 2009-2014.
2. Karasawa, T., et al. 2010. CLIMP-63 is a gentamicin-binding protein that is involved in drug-induced cytotoxicity. Cell Death Dis. 1: e102.
3. Scheibner, K.A., et al. 2012. MiR-27a functions as a tumor suppressor in acute leukemia by regulating 14-3-3θ. PLoS ONE 7: e50895.
4. Moghaddas, F., et al. 2017. A novel pyrin-associated autoinflammation with neutrophilic dermatosis mutation further defines 14-3-3 binding of pyrin and distinction to familial mediterranean fever. Ann. Rheum. Dis. 76: 2085-2094.
5. Song, J., et al. 2019. 14-3-3ζ inhibits Heme Oxygenase-1 (HO-1) degradation and promotes hepatocellular carcinoma proliferation: involvement of Stat3 signaling. J. Exp. Clin. Cancer Res. 38: 3.
6. Gong, S., et al. 2021. Schisandrol A attenuates myocardial ischemia/reperfusion-induced myocardial apoptosis through upregulation of 14-3-3 θ. Oxid. Med. Cell. Longev. 2021: 5541753.
7. Golubiani, G., et al. 2023. Mitochondrial proteome changes in rett syndrome. Biology 12: 956.

PROTOCOLS

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

CONJUGATES

See **pan 14-3-3 (B-8): sc-133233** for pan 14-3-3 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.