SANTA CRUZ BIOTECHNOLOGY, INC.

14-3-3 σ (C-18): sc-7683

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, denoted 14-3-3 β, γ, ε, ζ, η, θ and σ, comprise this family of signaling intermediates. 14-3-3 σ, also known as SFN, stratifin, HME1 or YWHAS, is a secreted adaptor protein that is involved in regulating both general and specific signaling pathways. Expressed predominately in stratified squamous keratinizing epithelium, 14-3-3 β is able to bind and modify the activity of a large number of proteins, such as KRT17 (Keratin 17), through recognition of a phosphothreonine or phosphoserine motif. When bound to KRT17, for example, 14-3-3 σ acts to stimulate the Akt/mTOR signaling pathway by upregulating protein synthesis and cell growth. 14-3-3 σ also functions to positively mediate IGF-I-induced cell cycle progression and can bind to a variety of translation initiation factors, thus controlling mitotic translation. In response to tumor growth, 14-3-3 σ positively regulates the tumor suppressor p53 and increases the rate of p53-regulated inhibition of G_2/M cell cycle progression. Multiple isoforms of 14-3-3 σ exist due to alternative splicing events.

CHROMOSOMAL LOCATION

Genetic locus: SFN (human) mapping to 1p36.11; Sfn (mouse) mapping to 4 D2.3.

SOURCE

14-3-3 σ (C-18) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the C-terminus of 14-3-3 σ 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-7683 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

14-3-3 σ (C-18) is recommended for detection of 14-3-3 σ 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).

Suitable for use as control antibody for 14-3-3 σ siRNA (h): sc-29590, 14-3-3 σ siRNA (m): sc-29591, 14-3-3 σ shRNA Plasmid (h): sc-29590-SH, 14-3-3 σ shRNA Plasmid (m): sc-29591-SH, 14-3-3 σ shRNA (h) Lentiviral Particles: sc-29590-V and 14-3-3 σ shRNA (m) Lentiviral Particles: sc-29591-V.

Molecular Weight of 14-3-3 σ: 30 kDa.

Positive Controls: 14-3-3 σ (h3): 293T Lysate: sc-110782, A-431 whole cell lysate: sc-2201 or HeLa whole cell lysate: sc-2200.

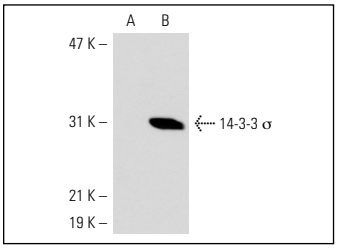
STORAGE

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

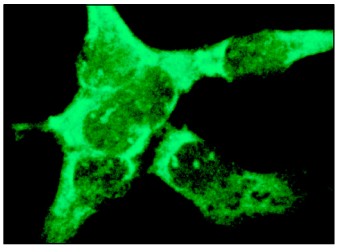
RESEARCH USE

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

DATA



14-3-3 σ (C-18): sc-7683. Western blot analysis of 14-3-3 σ expression in non-transfected: sc-117752 (**A**) and human 14-3-3 σ transfected: sc-110782 (**B**) 293T whole cell lysates.



14-3-3 σ (C-18): sc-7683. Immunofluorescence staining of methanol-fixed A-431 cells showing cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Barbato, G.F. and Wideman, R.F. 1990. Chicken hypotensive peptide: purification and characterization. Biochem. Biophys. Res. Commun. 169: 916-920.
2. Bersano, A., et al. 2006. Detection of CSF 14-3-3 protein in Guillain-Barre syndrome. Neurology 67: 2211-2216.
3. Yang, H., et al. 2006. Negative cell cycle regulator 14-3-3 σ stabilizes $p27^{Kip1}$ by inhibiting the activity of PKB/Akt. Oncogene 25: 4585-4594.
4. Shirakashi, Y., et al. 2006. α-Synuclein is colocalized with 14-3-3 and synphilin-1 in A53T transgenic mice. Acta Neuropathol. 112: 681-689.
5. Dillon, R.L., et al. 2007. An EGR2/CITED1 transcription factor complex and the 14-3-3σ tumor suppressor are involved in regulating ErbB2 expression in a transgenic-mouse model of human breast cancer. Mol. Cell. Biol. 27: 8648-8657.
6. Burgess, D., et al. 2010. Activated Ras alters lens and corneal development through induction of distinct downstream targets. BMC Dev. Biol. 10: 13.
7. Okumura, H., et al. 2010. Nuclear expression of 14-3-3 σ is related to prognosis in patients with esophageal squamous cell carcinoma. Anticancer Res. 30: 5175-5179.
8. Hong, H.Y., et al. 2010. 14-3-3 σ and 14-3-3 ζ plays an opposite role in cell growth inhibition mediated by transforming growth factor-β 1. Mol. Cells 29: 305-309.
9. Xin, Y., et al. 2011. IKK1 control of epidermal differentiation is modulated by notch signaling. Am. J. Pathol. 178: 1568-1577.