SANTA CRUZ BIOTECHNOLOGY, INC.

p-GSK-3β (3A8): sc-81495

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Glycogen synthase kinase-3α (GSK-3α) and GSK-3β are highly similar isoforms of serine/threonine kinases that regulate metabolic enzymes and transcription factors, which are responsible for coordinating processes such as glycogen synthesis and cell adhesion. GSK-3β activity is also required for nuclear activity of Rel dimers, which mediate an anti-apoptotic response to TNFα in mice. GSK-3 catalytic kinase activity is controlled through differential phosphorylation of serine/threonine residues, which have an inhibitory effect, and tyrosine residues, which have an activating effect. Growth factor stimulation of mammalian cells expressing GSK-3α and GSK-3β induces phosphorylation of Ser 21 and Ser 9, respectively, through a phosphatidylinositol 3-kinase (PI 3-K)-protein kinase B (PKB)-dependent pathway, thereby enhancing proliferative signals. Additionally, GSK-3 physically associates with cAMP-dependent protein kinase A (PKA), which phosphorylates Ser 21 of GSK-3α or Ser 9 of GSK-3β and inactivates both forms. GSK-3α/β is positively regulated by phosphorylation on Tyr 279 and Tyr 216, respectively. Activated GSK-3α/β participates in energy metabolism, neuronal cell development, and body pattern formation. Tyrosine dephosphorylation of GSK-3 is involved in its extracellular signal-dependent inactivation.

CHROMOSOMAL LOCATION

Genetic locus: GSK3B (human) mapping to 3q13.33; Gsk3b (mouse) mapping to 16 B3.

SOURCE

p-GSK-3β (3A8) is a mouse monoclonal antibody raised against a phosphopeptide corresponding to amino acid residues surrounding Ser 9 of GSK-3β of human origin.

PRODUCT

Each vial contains 50 µg IgG_1 in 0.5 ml of PBS with < 0.1% sodium azide, 0.1% gelatin, PEG and sucrose.

APPLICATIONS

p-GSK-3β (3A8) is recommended for detection of Ser 9 phosphorylated GSK-3β of mouse, rat, human and canine origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

Suitable for use as control antibody for GSK-3β siRNA (h): sc-35527, GSK-3β siRNA (m): sc-35525, GSK-3β shRNA Plasmid (h): sc-35527-SH, GSK-3β shRNA Plasmid (m): sc-35525-SH, GSK-3β shRNA (h) Lentiviral Particles: sc-35527-V and GSK-3β shRNA (m) Lentiviral Particles: sc-35525-V.

Molecular Weight of p-GSK-3β: 47 kDa.

Positive Controls: GSK-3β (m): 293T Lysate: sc-120654, NIH/3T3 whole cell lysate: sc-2210 or A-431 whole cell lysate: sc-2201.

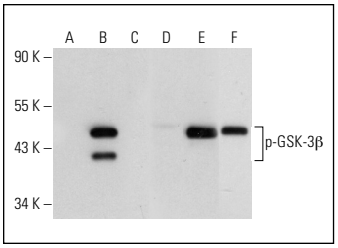
STORAGE

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

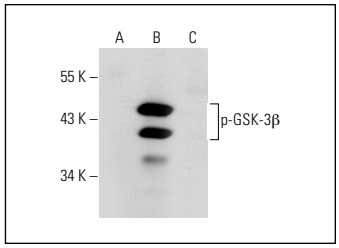
RESEARCH USE

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

DATA



Western blot analysis of GSK-3β phosphorylation in non-transfected: sc-117752 (**A**,**D**), untreated mouse GSK-3β transfected: sc-120654 (**B**,**E**) and lambda protein phosphatase treated mouse GSK-3β transfected: sc-120654 (**C**,**F**) 293T whole cell lysates. Antibodies tested include p-GSK-3β (3A8): sc-81495 (**A**,**B**,**C**) and GSK-3β (1F7): sc-53931 (**D**,**E**,**F**).



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SELECT PRODUCT CITATIONS

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2. Siejka, A., et al. 2011. GHRH antagonist MZ-5-156 increases the expression of AMPK in A549 lung cancer cells. Cell Cycle 10: 3714-3718.
3. Zeng, W., et al. 2017. Targeting to the non-genomic activity of retinoic acid receptor-γ by acacetin in hepatocellular carcinoma. Sci. Rep. 7: 348.
4. Chang, B., et al. 2018. *Tripterygium wilfordii* mitigates hyperglycemia-induced upregulated Wnt/β-catenin expression and kidney injury in diabetic rats. Exp. Ther. Med. 15: 3874-3882.
5. Luo, A.J., et al. 2019. Suppression of Tescalcin inhibits growth and metastasis in renal cell carcinoma via downregulating NHE1 and NFκB signaling. Exp. Mol. Pathol. 107: 110-117.
6. Mehdinejadiani, S., et al. 2019. Effects of letrozole and clomiphene citrate on Wnt signaling pathway in endometrium of polycystic ovarian syndrome and healthy women. Biol. Reprod. 100: 641-648.
7. Liao, Y.J., et al. 2019. PRC1 gene silencing inhibits proliferation, invasion, and angiogenesis of retinoblastoma cells through the inhibition of the Wnt/β-catenin signaling pathway. J. Cell. Biochem. 120: 16840-16852.
8. Moon, S.Y., et al. 2021. Inhibition of STAT3 enhances sensitivity to tamoxifen in tamoxifen-resistant breast cancer cells. BMC Cancer 21: 931.
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PROTOCOLS

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