SANTA CRUZ BIOTECHNOLOGY, INC.

GSK-3β (1F7): sc-53931

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Glycogen synthase kinase-3, or GSK-3, is a serine/threonine, proline-directed kinase involved in a diverse array of signaling pathways, including glycogen synthesis and cellular adhesion, and has been implicated in Alzheimer's disease. Two forms of GSK-3, designated GSK-3α and GSK-3β, have been identified and differ in their subcellular localization. Tau, a microtubule-binding protein which serves to stabilize microtubules in growing axons, is found to be hyperphosphorylated in paired helical filaments (PHF), the major fibrous component of neurofibrillary lesions associated with Alzheimer's disease. Hyperphosphorylation of Tau is thought to be the critical event leading to the assembly of PHF. Six Tau protein isoforms have been identified, all of which are phosphorylated by GSK-3. This presents the possibility that miscues in GSK-3 signaling contribute to the onset of Alzheimer's disease.

REFERENCES

1. Pugazhenthi, S., et al. 1995. Regulation of glycogen synthase activation in isolated hepatocytes. Mol. Cell. Biochem. 149-150: 95-101.
2. Pelech, S.L. 1995. Networking with proline-directed protein kinases implicated in Tau phosphorylation. Neurobiol. Aging 16: 247-256.
3. Sperber, B.R., et al. 1995. Glycogen synthase kinase-3β phosphorylates tau protein at multiple sites in intact cells. Neurosci. Lett. 197: 149-153.

CHROMOSOMAL LOCATION

Genetic locus: GSK3B (human) mapping to 3q13.33; Gsk3b (mouse) mapping to 16 B4.

SOURCE

GSK-3β (1F7) is a mouse monoclonal antibody raised against amino acids 341-420 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 and 1% glycerol.

APPLICATIONS

GSK-3β (1F7) is recommended for detection of GSK-3β of mouse, rat and human 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 GSK-3β: 47 kDa.

Positive Controls: GSK-3β (m): 293T Lysate: sc-120654, HeLa whole cell lyaste: sc-2200 or Jurkat whole cell lysate: sc-2204.

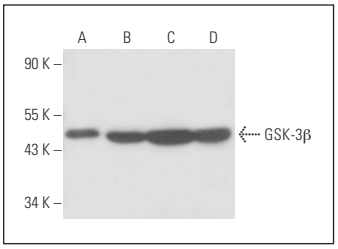
RESEARCH USE

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

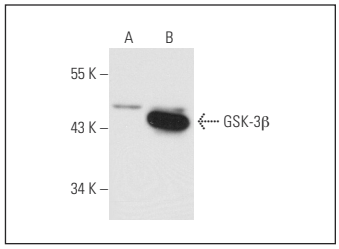
STORAGE

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

DATA



GSK-3β (1F7): sc-53931. Western blot analysis of GSK-3β expression in HeLa (**A**), A549 (**B**), SK-BR-3 (**C**) and Jurkat (**D**) whole cell lysates.



GSK-3β (1F7): sc-53931. Western blot analysis of GSK-3β expression in non-transfected: sc-117752 (**A**) and mouse GSK-3β transfected: sc-120654 (**B**) 293T whole cell lysates.

SELECT PRODUCT CITATIONS

1. Guo, W.J., et al. 2007. Mel-18 acts as a tumor suppressor by repressing Bmi-1 expression and down-regulating Akt activity in breast cancer cells. Cancer Res. 67: 5083-5089.
2. Moro, L., et al. 2009. Mitochondrial DNA depletion in prostate epithelial cells promotes anoikis resistance and invasion through activation of PI3K/Akt2. Cell Death Differ. 16: 571-583.
3. Schütz, S.V., et al. 2011. Inhibition of glycogen synthase kinase-3β counteracts ligand-independent activity of the androgen receptor in castration resistant prostate cancer. PLoS ONE 6: e25341.
4. Zhu, Z., et al. 2013. ZFX regulates glioma cell proliferation and survival *in vitro* and *in vivo*. J. Neurooncol. 112: 17-25.
5. Anitua, E., et al. 2014. Plasma rich in growth factors (PRGF-Endoret) reduces neuropathologic hallmarks and improves cognitive functions in an Alzheimer's disease mouse model. Neurobiol. Aging 35: 1582-1595.
6. Lv, X.B., et al. 2015. Regulation of SOX10 stability via ubiquitination-mediated degradation by Fbxw7α modulates melanoma cell migration. Oncotarget 6: 36370-36382.
7. Sousa, A.M., et al. 2016. Effect of MUC1/β-catenin interaction on the tumorigenic capacity of pancreatic $CD133^+$ cells. Oncol. lett. 12: 1811-1817.
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9. Lee, Y., et al. 2019. The NRON complex controls circadian clock function through regulated PER and CRY nuclear translocation. Sci. Rep. 9: 11883.