SANTA CRUZ BIOTECHNOLOGY, INC.

GSK-3β (2Q274): sc-71188

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. Hoshi, M., et al. 1995. Different localization of Tau protein kinase I/glycogen synthase kinase-3 β from glycogen synthase kinase-3 α in cerebellum mitochondria. J. Biochem. 118: 683-685.
4. Sperber, B.R., et al. 1995. Glycogen synthase kinase-3 β phosphorylates Tau protein at multiple sites in intact cells. Neurosci. Lett. 197: 149-153.
5. Rubinfeld, B., et al. 1996. Binding of GSK-3β to the APC-β-catenin complex and regulation of complex assembly. Science 272: 1023-1026.
6. Black, M.M., et al. 1996. Tau is enriched on dynamic microtubules in the distal region of growing axons. J. Neurosci. 16: 3601-3619.
7. Singh, T.J., et al. 1996. Differential phosphorylation of human Tau isoforms containing three repeats by several protein kinases. Arch. Biochem. Biophys. 328: 43-50.
8. Hoshi, M., et al. 1996. Regulation of mitochondrial pyruvate dehydrogenase activity by Tau protein kinase I/glycogen synthase kinase 3β in brain. Proc. Natl. Acad. Sci. USA 93: 2719-2723.

CHROMOSOMAL LOCATION

Genetic locus: GSK3B (human) mapping to 3q13.33.

SOURCE

GSK-3β (2Q274) is a mouse monoclonal antibody raised against recombinant GSK-3β of *Xenopus laevis* origin.

PRODUCT

Each vial contains 50 µg IgG_{2a} in 0.5 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

RESEARCH USE

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

APPLICATIONS

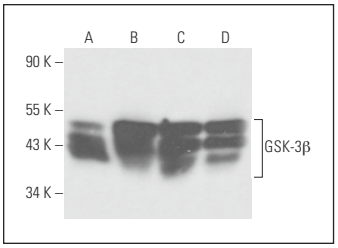
GSK-3β (2Q274) is recommended for detection of GSK-3β of human, rat and *Xenopus laevis* origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

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

Molecular Weight of GSK-3β: 47 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, A549 cell lysate: sc-2413 or SK-BR-3 cell lysate: sc-2218.

DATA



GSK-3β (2Q274): sc-71188. Western blot analysis of GSK-3β expression in HeLa (**A**), A549 (**B**), SK-BR-3 (**C**) and Jurkat (**D**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Liu, J., et al. 2017. Roscovitine, a CDK5 inhibitor, alleviates sevoflurane-induced cognitive dysfunction via regulation Tau/GSK3β and ERK/PPARγ/CREB signaling. Cell. Physiol. Biochem. 44: 423-435.

STORAGE

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

PROTOCOLS

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