SANTA CRUZ BIOTECHNOLOGY, INC.

GSK-3α (h3): 293T Lysate: sc-176245

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 hyper-phosphorylated in paired helical filaments (PHF), the major fibrous component of neurofibrillary lesions associated with Alzheimer's disease. Hyper-phosphorylation 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

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3. Hoshi, M., et al. 1995. Different localization of Tau protein kinase I/glycogen synthase kinase-3β from glycogen synthase kinase-3α in cerebellum mitochondria. J. Biochem. 118: 683-685.
4. Sperber, B.R., et al. 1995. Glycogen synthase kinase-3β 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: GSK3A (human) mapping to 19q13.2.

PRODUCT

GSK-3α (h3): 293T Lysate represents a lysate of human GSK-3α transfected 293T cells and is provided as 100 µg protein in 200 µl SDS-PAGE buffer.

STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

RESEARCH USE

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

APPLICATIONS

GSK-3α (h3): 293T Lysate is suitable as a Western Blotting positive control for human reactive GSK-3α antibodies. Recommended use: 10-20 µl per lane.

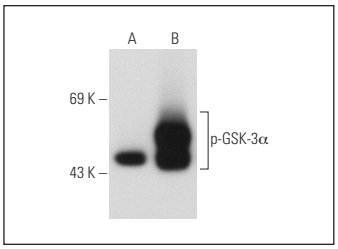
Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

p-GSK-3α (9B8): sc-81497 is recommended as a positive control antibody for Western Blot analysis of enhanced human GSK-3α expression in GSK-3α transfected 293T cells (starting dilution 1:100, dilution range 1:100-1:1,000).

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto B Blocking Reagent: sc-2335 (use 50 mM NaF, sc-24988, as diluent), Lambda Phosphatase: sc-200312A and Western Blotting Luminol Reagent: sc-2048.

DATA



p-GSK-3a (9B8): sc-81497. Western blot analysis of GSK-3a phosphorylation in non-transfected: sc-117752 (**A**) and human GSK-3a transfected: sc-176245 (**B**) 293T whole cell lysates.

PROTOCOLS

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