

GSK-3 α (B-8): sc-166116

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-3 α and GSK-3 β , 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. 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. Pugazhenti, 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 BSK3 β 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.

CHROMOSOMAL LOCATION

Genetic locus: GSK3A (human) mapping to 19q13.2; Gsk3a (mouse) mapping to 7 A3.

SOURCE

GSK-3 α (B-8) is a mouse monoclonal antibody raised against amino acids 408-483 mapping at the C-terminus of glycogen synthase kinase-3 α of human origin.

PRODUCT

Each vial contains 200 μ g IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

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.

APPLICATIONS

GSK-3 α (B-8) is recommended for detection of GSK-3 α of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g 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 GSK-3 α siRNA (h): sc-29339, GSK-3 α siRNA (m): sc-35526, GSK-3 α siRNA (r): sc-270583, GSK-3 α shRNA Plasmid (h): sc-29339-SH, GSK-3 α shRNA Plasmid (m): sc-35526-SH, GSK-3 α shRNA Plasmid (r): sc-270583-SH, GSK-3 α shRNA (h) Lentiviral Particles: sc-29339-V, GSK-3 α shRNA (m) Lentiviral Particles: sc-35526-V and GSK-3 α shRNA (r) Lentiviral Particles: sc-270583-V.

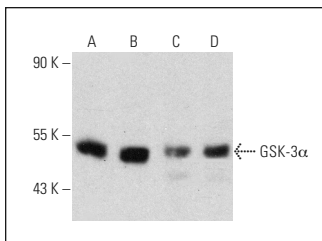
Molecular Weight of GSK-3 α : 51 kDa.

Positive Controls: GSK-3 α (h2): 293T Lysate: sc-116382, MCF7 whole cell lysate: sc-2206 or Jurkat whole cell lysate: sc-2204.

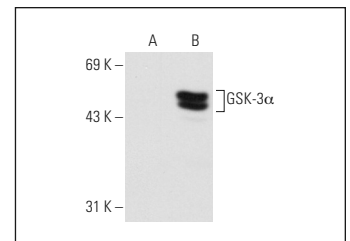
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgG κ BP-FITC: sc-516140 or m-IgG κ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



GSK-3 α (B-8): sc-166116. Western blot analysis of GSK-3 α expression in MCF7 (A), Jurkat (B), NIH/3T3 (C) and RAW 264.7 (D) whole cell lysates.



GSK-3 α (B-8): sc-166116. Western blot analysis of GSK-3 α expression in non-transfected: sc-117752 (A) and human GSK-3 α transfected: sc-116382 (B) 293T whole cell lysates.

SELECT PRODUCT CITATIONS

1. Ahn, J., et al. 2014. GSK3 β , but not GSK3 α , inhibits the neuronal differentiation of neural progenitor cells as a downstream target of mammalian target of rapamycin complex1. *Stem Cells Dev.* 23: 1121-1133.

CONJUGATES

See **GSK-3 α / β (0011-A): sc-7291** for GSK-3 α / β antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.