

GSK-3 α (9D5G1): sc-81166

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 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

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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 τ 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-3 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.
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.

CHROMOSOMAL LOCATION

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

SOURCE

GSK-3 α (9D5G1) is a mouse monoclonal antibody raised against a recombinant protein corresponding to amino acids 84-150 of GSK-3 α of human origin.

PRODUCT

Each vial contains 200 μ g IgG $_1$ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

Store at 4 $^{\circ}$ C, ****DO NOT FREEZE****. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

APPLICATIONS

GSK-3 α (9D5G1) is recommended for detection of GSK-3 α of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)].

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.

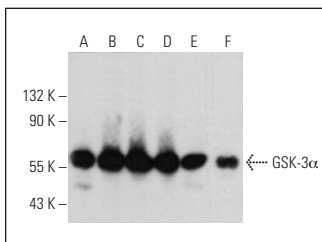
Molecular Weight of GSK-3 α : 51 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, MCF7 whole cell lysate: sc-2206 or A-431 whole cell lysate: sc-2201.

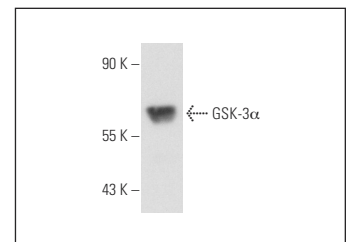
RECOMMENDED SUPPORT REAGENTS

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 MarkerTM Molecular Weight Standards: sc-2035, UltraCruz[®] Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048.

DATA



GSK-3 α (9D5G1): sc-81166. Western blot analysis of GSK-3 α expression in A-431 (A), MCF7 (B), NIH/3T3 (C), RAW 264.7 (D), C6 (E) and RBL-1 (F) whole cell lysates.




GSK-3 α (9D5G1): sc-81166. Western blot analysis of GSK-3 α expression in HeLa whole cell lysate.

RESEARCH USE

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

PROTOCOLS

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



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.