SANTA CRUZ BIOTECHNOLOGY, INC.

GSK-3α (H-12): sc-5264

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 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. Pugazhenthi, S., et al. 1995. Regulation of glycogen synthase activation in isolated hepatocytes. Mol. Cell. Biochem. 149-150: 95-101.
2. 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.

CHROMOSOMAL LOCATION

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

SOURCE

GSK-3α (H-12) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 460-483 at the C-terminus of GSK-3α of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

GSK-3α (H-12) is available conjugated to agarose (sc-5264 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-5264 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-5264 PE), fluorescein (sc-5264 FITC), Alexa Fluor® 488 (sc-5264 AF488), Alexa Fluor® 546 (sc-5264 AF546), Alexa Fluor® 594 (sc-5264 AF594) or Alexa Fluor® 647 (sc-5264 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-5264 AF680) or Alexa Fluor® 790 (sc-5264 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-5264 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

STORAGE

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

APPLICATIONS

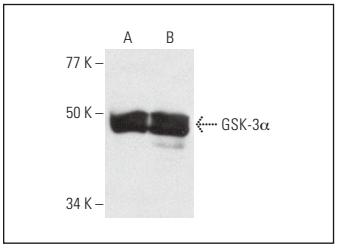
GSK-3α (H-12) is recommended for detection of GSK-3α of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (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-3α siRNA (h): sc-29339, GSK-3α siRNA (m): sc-35526, GSK-3α shRNA Plasmid (h): sc-29339-SH, GSK-3α shRNA Plasmid (m): sc-35526-SH, GSK-3α shRNA (h) Lentiviral Particles: sc-29339-V and GSK-3α shRNA (m) Lentiviral Particles: sc-35526-V.

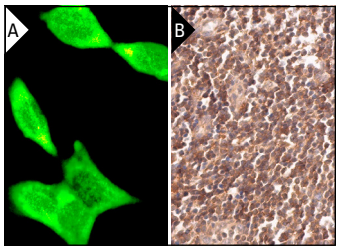
Molecular Weight of GSK-3α: 51 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204, A-431 whole cell lysate: sc-2201 or A549 cell lysate: sc-2413.

DATA



GSK-3α (H-12): sc-5264. Western blot analysis of GSK-3α expression in A-431 (**A**) and A549 (**B**) whole cell lysates.



GSK-3α (H-12): sc-5264. Immunofluorescence staining of methanol-fixed A-431 cells showing cytoplasmic localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human lymph node tissue showing cytoplasmic staining of cells in germinal and non-germinal centers (**B**).

SELECT PRODUCT CITATIONS

1. Jiang, Z.Y., et al. 2003. Insulin signaling through Akt/protein kinase B analyzed by small interfering RNA-mediated gene silencing. Proc. Natl. Acad. Sci. USA 100: 7569-7574.
2. Mishra, R., et al. 2015. Expression and inactivation of glycogen synthase kinase 3 α/β and their association with the expression of cyclin D1 and p53 in oral squamous cell carcinoma progression. Mol. Cancer 14: 20.
3. Zhou, S., et al. 2016. Genetic and pharmacologic targeting of glycogen synthase kinase 3β reinforces the Nrf2 antioxidant defense against podocytopathy. J. Am. Soc. Nephrol. 27: 2289-2308.
4. Sternburg, E.L., et al. 2023. Mammalian pumilio proteins control cellular morphology, migration, and adhesion. Sci. Rep. 13: 3002.

RESEARCH USE

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