

GSK-3 α / β (1H8): sc-56913

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.

CHROMOSOMAL LOCATION

Genetic locus: GSK3A (human) mapping to 19q13.2, GSK3B (human) mapping to 3q13.33; Gsk3a (mouse) mapping to 7 A3, Gsk3b (mouse) mapping to 16 B3.

SOURCE

GSK-3 α / β (1H8) is a mouse monoclonal antibody raised against recombinant GSK-3 α / β of *Xenopus laevis* 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.

APPLICATIONS

GSK-3 α / β (1H8) is recommended for detection of GSK-3 α and GSK-3 β of mouse, rat, human and *Xenopus laevis* 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)].

Molecular Weight of GSK-3 α : 51 kDa.

Molecular Weight of GSK-3 β : 47 kDa.

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

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).

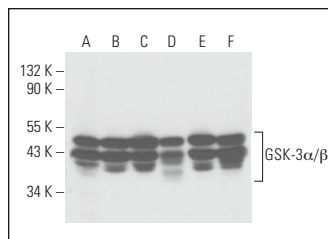
STORAGE

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

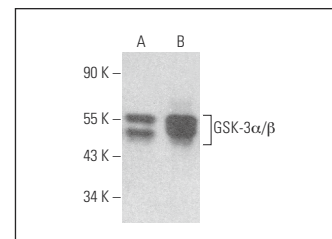
RESEARCH USE

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

DATA



GSK-3 α / β (1H8): sc-56913. Western blot analysis of GSK-3 α and GSK-3 β expression in Caki-1 (A), HeLa (B), A549 (C), SK-BR-3 (D), Jurkat (E) and LNCaP (F) whole cell lysates.



GSK-3 α / β (1H8): sc-56913. Western blot analysis of GSK-3 α / β expression in Hep G2 (A) and NIH/3T3 (B) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Tsika, R.W., et al. 2008. Overexpression of TEAD-1 in transgenic mouse striated muscles produces a slower skeletal muscle contractile phenotype. *J. Biol. Chem.* 283: 36154-36167.
2. Akiyama, T., et al. 2014. The human cathelicidin LL-37 host defense peptide upregulates tight junction-related proteins and increases human epidermal keratinocyte barrier function. *J. Innate Immun.* 6: 739-753.
3. Chiang, C.Y., et al. 2015. A reverse-phase protein microarray-based screen identifies host signaling dynamics upon *Burkholderia* spp. infection. *Front. Microbiol.* 6: 683.
4. Amar, F., et al. 2017. The amyloid- β oligomer A β *56 induces specific alterations in neuronal signaling that lead to Tau phosphorylation and aggregation. *Sci. Signal.* 10: eaal2021.
5. Schubert, F., et al. 2018. Requirement of GSK-3 for PUMA induction upon loss of pro-survival PI3K signaling. *Cell Death Dis.* 9: 470.
6. Crunfli, F., et al. 2019. Cannabinoid receptor type 1 agonist ACEA improves cognitive deficit on STZ-induced neurotoxicity through apoptosis pathway and NO modulation. *Neurotox. Res.* 35: 516-529.
7. de Moraes, R.C.M., et al. 2020. Oral benfotiamine reverts cognitive deficit and increase thiamine diphosphate levels in the brain of a rat model of neurodegeneration. *Exp. Gerontol.* 141: 111097.
8. Lee, H.J., et al. 2021. Proximal tubular epithelial insulin receptor mediates high-fat diet-induced kidney injury. *JCI Insight* 6: e143619.
9. Sánchez-Temprano, A., et al. 2022. Concurrent Akt, ERK1/2 and AMPK activation by obestatin inhibits apoptotic signaling cascades on nutrient-deprived PC12 cells. *Cell. Mol. Neurobiol.* 42: 1607-1614.



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.