

# p-GSK-3 $\beta$ (F-2): sc-373800

## BACKGROUND

Glycogen synthase kinase-3 $\alpha$  (GSK-3 $\alpha$ ) and GSK-3 $\beta$  are highly similar isoforms of serine/threonine kinases that regulate metabolic enzymes and transcription factors, which are responsible for coordinating processes such as glycogen synthesis and cell adhesion. GSK-3 $\beta$  activity is also required for nuclear activity of Rel dimers, which mediate an anti-apoptotic response to TNF $\alpha$  in mice. GSK-3 catalytic kinase activity is controlled through differential phosphorylation of serine/threonine residues, which have an inhibitory effect, and tyrosine residues, which have an activating effect. Growth factor stimulation of mammalian cells expressing GSK-3 $\alpha$  and GSK-3 $\beta$  induces phosphorylation of Ser 21 and Ser 9, respectively, through a phosphatidylinositol 3-kinase (PI 3-K)-protein kinase B (PKB)-dependent pathway, thereby enhancing proliferative signals. Additionally, GSK-3 physically associates with cAMP-dependent protein kinase A (PKA), which phosphorylates Ser 21 of GSK-3 $\alpha$  or Ser 9 of GSK-3 $\beta$  and inactivates both forms. GSK-3 $\alpha$ / $\beta$  is positively regulated by phosphorylation on Tyr 279 and Tyr 216, respectively. Activated GSK-3 $\alpha$ / $\beta$  participates in energy metabolism, neuronal cell development, and body pattern formation. Tyrosine dephosphorylation of GSK-3 is involved in its extracellular signal-dependent inactivation.

## CHROMOSOMAL LOCATION

Genetic locus: GSK3B (human) mapping to 3q13.33; Gsk3b (mouse) mapping to 16 B3.

## SOURCE

p-GSK-3 $\beta$  (F-2) is a mouse monoclonal antibody epitope corresponding to a short amino acid sequence containing Ser 9 phosphorylated GSK-3 $\beta$  of human origin.

## PRODUCT

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

p-GSK-3 $\beta$  (F-2) is available conjugated to agarose (sc-373800 AC), 500  $\mu$ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-373800 HRP), 200  $\mu$ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-373800 PE), fluorescein (sc-373800 FITC), Alexa Fluor<sup>®</sup> 488 (sc-373800 AF488), Alexa Fluor<sup>®</sup> 546 (sc-373800 AF546), Alexa Fluor<sup>®</sup> 594 (sc-373800 AF594) or Alexa Fluor<sup>®</sup> 647 (sc-373800 AF647), 200  $\mu$ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor<sup>®</sup> 680 (sc-373800 AF680) or Alexa Fluor<sup>®</sup> 790 (sc-373800 AF790), 200  $\mu$ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-373800 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

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## STORAGE

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

## APPLICATIONS

p-GSK-3 $\beta$  (F-2) is recommended for detection of Ser 9 phosphorylated GSK-3 $\beta$  of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g 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).

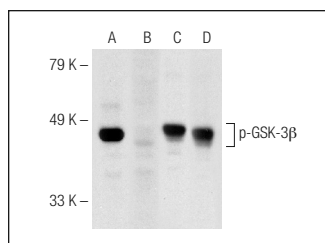
p-GSK-3 $\beta$  (F-2) is also recommended for detection of correspondingly phosphorylated GSK-3 $\beta$  in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for GSK-3 $\beta$  siRNA (h): sc-35527, GSK-3 $\beta$  siRNA (m): sc-35525, GSK-3 $\beta$  shRNA Plasmid (h): sc-35527-SH, GSK-3 $\beta$  shRNA Plasmid (m): sc-35525-SH, GSK-3 $\beta$  shRNA (h) Lentiviral Particles: sc-35527-V and GSK-3 $\beta$  shRNA (m) Lentiviral Particles: sc-35525-V.

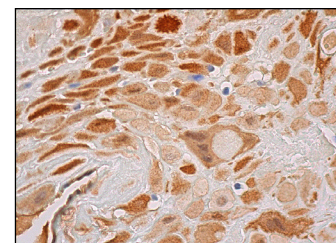
Molecular Weight of p-GSK-3 $\beta$ : 47 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, A-431 whole cell lysate: sc-2201 or NIH/3T3 whole cell lysate: sc-2210.

## DATA



Western blot analysis of GSK-3 $\beta$  phosphorylation in untreated (A, C) and lambda protein phosphatase (sc-200312A) treated (B, D) HeLa whole cell lysates. Antibodies tested include p-GSK-3 $\beta$  (F-2): sc-373800 (A, B) and GSK-3 $\beta$  (H-76): sc-9166 (C, D).



p-GSK-3 $\beta$  (F-2): sc-373800. Immunoperoxidase staining of formalin fixed, paraffin-embedded human placenta tissue showing cytoplasmic and nuclear staining of decidual cells.

## SELECT PRODUCT CITATIONS

- Kajabadi, N.S., et al. 2015. The synergistic enhancement of cloning efficiency in individualized human pluripotent stem cells by peroxisome proliferative-activated receptor- $\gamma$  (PPAR $\gamma$ ) activation and Rho-associated kinase (ROCK) inhibition. *J. Biol. Chem.* 290: 26303-26313.
- Li, F.F., et al. 2018. Alterations in  $\beta$ -catenin/E-cadherin complex formation during the mechanotransduction of Saos-2 osteoblastic cells. *Mol. Med. Rep.* 18: 1495-1503.
- Zheng, S., et al. 2019. MIR31HG promotes cell proliferation and invasion by activating the Wnt/ $\beta$ -catenin signaling pathway in non-small cell lung cancer. *Oncol. Lett.* 17: 221-229.
- Lee, D.H., et al. 2020. Increased O-GlcNAcylation of c-Myc promotes Pre-B cell proliferation. *Cells* 9: 158.

## RESEARCH USE

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