

GSK-3α/β (D75D3) Rabbit mAb

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Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W, W-S, IP	H M R Hm Mk	Endogenous	51, 46	Rabbit IgG	#P49840, #P49841	2931, 2932

Product Usage Information**Application**

Western Blotting
Simple Western™
Immunoprecipitation

Dilution

1:1000
1:10 - 1:50
1:50

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at -20°C. Do not aliquot the antibody.

Specificity/Sensitivity

GSK-3α/β (D75D3) XP® Rabbit mAb detects endogenous levels of total GSK-3α and GSK-3β. The peptide sequence used as the antigen is 100% conserved between GSK-3α and GSK-3β in humans, monkeys, mice and rats.

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide surrounding Gln269 of human GSK-3α protein.

Background

Glycogen synthase kinase-3 (GSK-3) was initially identified as an enzyme that regulates glycogen synthesis in response to insulin (1). GSK-3 is a ubiquitously expressed serine/threonine protein kinase that phosphorylates and inactivates glycogen synthase. GSK-3 is a critical downstream element of the PI3K/Akt cell survival pathway whose activity can be inhibited by Akt-mediated phosphorylation at Ser21 of GSK-3α and Ser9 of GSK-3β (2,3). GSK-3 has been implicated in the regulation of cell fate in *Dictyostelium* and is a component of the Wnt signaling pathway required for *Drosophila*, *Xenopus*, and mammalian development (4). GSK-3 has been shown to regulate cyclin D1 proteolysis and subcellular localization (5).

GSK-3α regulates the production of amyloid-β peptides, a major component of the plaques that accumulate with progression of Alzheimer disease. Administration of therapeutic concentrations of lithium, a GSK-3 inhibitor, attenuates amyloid-β production by specifically inhibiting the cleavage of amyloid precursor protein (APP) by γ-secretase, blocking accumulation of amyloid-β peptides in the brains of mice that overproduce APP (6).

Background References

1. Welsh, G.I. et al. (1996) *Trends Cell Biol* 6, 274-9.
2. Srivastava, A.K. and Pandey, S.K. (1998) *Mol Cell Biochem* 182, 135-41.
3. Cross, D.A. et al. (1995) *Nature* 378, 785-9.
4. Nusse, R. (1997) *Cell* 89, 321-3.
5. Diehl, J.A. et al. (1998) *Genes Dev* 12, 3499-511.
6. Phiel, C.J. et al. (2003) *Nature* 423, 435-9.

Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Western Blot Buffer

IMPORTANT: For western blots, incubate membrane with diluted primary antibody in 5% w/v BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

W: Western Blotting **W-S:** Simple Western™ **IP:** Immunoprecipitation

Cross-Reactivity Key

H: Human **M:** Mouse **R:** Rat **Hm:** Hamster **Mk:** Monkey

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