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GSK3 alpha Antibody

Purified Mouse Monoclonal Antibody
Catalog # AO1070a

Product Information

Application	WB, IHC, E
Primary Accession	P49840
Reactivity	Human
Host	Mouse
Clonality	Monoclonal
Clone Names	6G2F1; 6G2F2
Calculated MW	50981
Description	GSK3 alpha (Glycogen synthase kinase 3 alpha), with 483-amino acid protein (about 53kDa), belongs to the Ser/Thr family of protein kinases, Cdc2/cdkx subfamily,GSK3 subsubfamily, which also includes GSK3 beta.GSK3 is a multifunctional serine/threonine kinase that is usually inactivated by serine phosphorylation in response to extracellular cues. GSK3 is a key regulator of numerous signalling pathways, including cellular responses to Wnt, receptor tyrosine kinases and G-protein-coupled receptors and is involved in a wide range of cellular processes, ranging from glycogen metabolism to cell cycle regulation and proliferation.GSK3 alpha is implicated in the control of several regulatory proteins including glycogen synthase and transcription factors.
Immunogen	Purified recombinant fragment of GSK3 alpha expressed in E. Coli.
Formulation	Ascitic fluid containing 0.03% sodium azide.

Additional Information

Gene ID	2931
Other Names	Glycogen synthase kinase-3 alpha, GSK-3 alpha, 2.7.11.26, Serine/threonine-protein kinase GSK3A, 2.7.11.1, GSK3A
Dilution	WB~~1/500 - 1/2000 IHC~~1/200 - 1/1000 E~~N/A
Storage	Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	GSK3 alpha Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	GSK3A

Function

Constitutively active protein kinase that acts as a negative regulator in the hormonal control of glucose homeostasis, Wnt signaling and regulation of transcription factors and microtubules, by phosphorylating and inactivating glycogen synthase (GYS1 or GYS2), CTNNB1/beta-catenin, APC and AXIN1 (PubMed:11749387, PubMed:17478001, PubMed:19366350). Requires primed phosphorylation of the majority of its substrates (PubMed:11749387, PubMed:17478001, PubMed:19366350). Contributes to insulin regulation of glycogen synthesis by phosphorylating and inhibiting GYS1 activity and hence glycogen synthesis (PubMed:11749387, PubMed:17478001, PubMed:19366350). Regulates glycogen metabolism in liver, but not in muscle (By similarity). May also mediate the development of insulin resistance by regulating activation of transcription factors (PubMed:10868943, PubMed:17478001). In Wnt signaling, regulates the level and transcriptional activity of nuclear CTNNB1/beta-catenin (PubMed:17229088). Facilitates amyloid precursor protein (APP) processing and the generation of APP-derived amyloid plaques found in Alzheimer disease (PubMed:12761548). May be involved in the regulation of replication in pancreatic beta-cells (By similarity). Is necessary for the establishment of neuronal polarity and axon outgrowth (By similarity). Through phosphorylation of the anti-apoptotic protein MCL1, may control cell apoptosis in response to growth factors deprivation (By similarity). Acts as a regulator of autophagy by mediating phosphorylation of KAT5/TIP60 under starvation conditions which activates KAT5/TIP60 acetyltransferase activity and promotes acetylation of key autophagy regulators, such as ULK1 and RUBCNL/Pacer (PubMed:30704899). Negatively regulates extrinsic apoptotic signaling pathway via death domain receptors. Promotes the formation of an anti- apoptotic complex, made of DDX3X, BRIC2 and GSK3B, at death receptors, including TNFRSF10B. The anti-apoptotic function is most effective with weak apoptotic signals and can be overcome by stronger stimulation (By similarity). Phosphorylates mTORC2 complex component RICTOR at 'Thr- 1695' which facilitates FBXW7-mediated ubiquitination and subsequent degradation of RICTOR (PubMed:25897075).

References

1. Bradley W. Doble and James R. Woodgett. J. Cell Sci., Apr 2003; 116: 1175. 2. C. Laura Sayas , Aafke Ariaens, Bas Ponsioen. Mol. Biol. Cell, Apr 2006; 17: 1834 – 1844.

Images

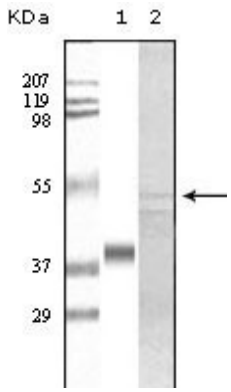


Figure 1: Western blot analysis using GSK3 alpha mouse mAb against truncated GSK3 alpha recombinant protein (1) and A549 cell lysate (2).

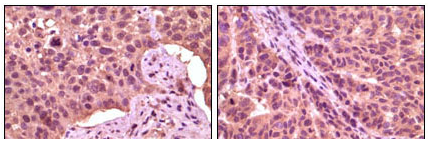


Figure 2: Immunohistochemical analysis of paraffin-embedded human lung carcinoma (left) and skin carcinoma (right), showing cytoplasmic localization using GSK3 aphpa mouse mAb with DAB staining.

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.