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# GSK3 alpha Antibody

Purified Mouse Monoclonal Antibody
Catalog # AO1106a

## Product Information

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| **Application** | WB, ICC, E |
| **Primary Accession** | P49840 |
| **Reactivity** | Human |
| **Host** | Mouse |
| **Clonality** | Monoclonal |
| **Clone Names** | 9D5G1 |
| **Isotype** | IgG1 |
| **Calculated MW** | 50981 |
| **Description** | Glycogen synthase kinase 3 alpha belongs to the Ser/Thr family of protein kinases, Cdc2/cdkx subfamily; GSK3 subsubfamily. It is implicated in the hormonal control of several regulatory proteins including glycogen synthase, myb, and the transcription factor c jun. GSK3 phosphorylates glycogen synthase and thereby inactivates it. Insulin stimulates the dephosphorylation of glycogen synthase at the sites phosphorylated by GSK3 and subsequently inhibits GSK3 acutely leading to the stimulation of glycogen synthesis. GSK3 signaling is performed by two isoforms, GSK3 alpha and GSK3 beta. The two isoforms share 97% sequence similarity within their catalytic domains. GSK3 has also been shown to play a role in protein synthesis, cell adhesion, cell proliferation, cell differentiation, microtubule dynamics and cell motility. |
| **Immunogen** | Purified recombinant fragment of GSK3 alpha expressed in E. Coli. |
| **Formulation** | Ascitic fluid containing 0.03% sodium azide. |

## Additional Information

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| **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 ICC~~1:200~~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

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| **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. Mendez P, Garcia-Segura LM. Endocrinology. 2006 Jun;147(6):3027-39. Epub 2006 Feb 23. 2. Bianchi M, De Lucchini S, et, al. Biochem J. 2005 Oct 15;391(Pt 2):359-70. 3. De Servi B, Hermani A, Medunjanin S, Mayer D. Oncogene. 2005 Jul 21;24(31):4946-55.

## Images

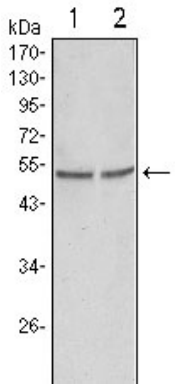


Figure 1: Western blot analysis using GSK3 alpha mouse mAb against Hela (1) and PC-3 cell lysate.

Figure 2: Immunofluorescence analysis of Hela cells using GSK3 alpha mouse mAb showing cytoplasmic localization.

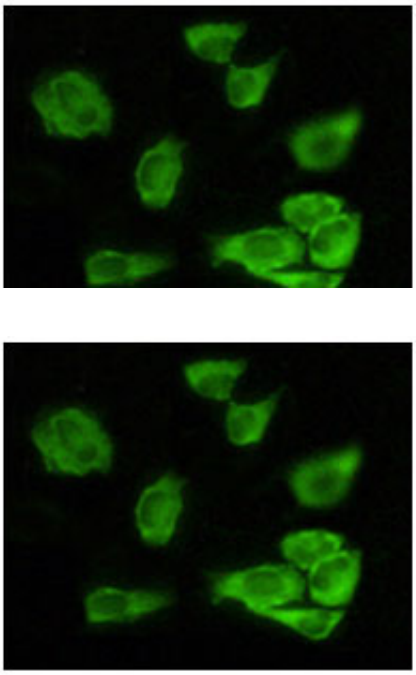

Figure 2: Immunofluorescence analysis of Hela cells using GSK3 alpha mouse mAb showing cytoplasmic localization.