



Phospho-GSK3B (Ser9) Antibody

Product Code	CSB-RA009963A09phHU
Abbreviation	Glycogen synthase kinase-3 beta
Storage	Upon receipt, store at -20°C or -80°C. Avoid repeated freeze.
Uniprot No.	P49841
Immunogen	A synthesized peptide derived from Human Phospho-GSK3B (Ser9)
Species Reactivity	Human
Tested Applications	ELISA, WB, IHC, IF; Recommended dilution: WB:1:500-1:5000, IHC:1:50-1:200, IF:1:20-1:200

Relevance

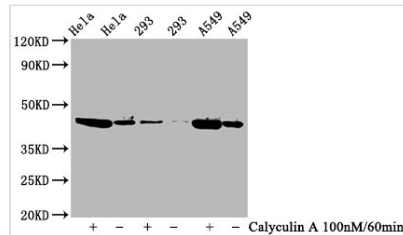
Constitutively active protein kinase that acts as a negative regulator in the hormonal control of glucose homeostasis, Wnt signaling and regulation of transcription factors and microtubules, by phosphorylating and inactivating glycogen synthase (GYS1 or GYS2), EIF2B, CTNNB1/beta-catenin, APC, AXIN1, DPYSL2/CRMP2, JUN, NFATC1/NFATC, MAPT/TAU and MACF1. Requires primed phosphorylation of the majority of its substrates. In skeletal muscle, contributes to insulin regulation of glycogen synthesis by phosphorylating and inhibiting GYS1 activity and hence glycogen synthesis. May also mediate the development of insulin resistance by regulating activation of transcription factors. Regulates protein synthesis by controlling the activity of initiation factor 2B (EIF2BE/EIF2B5) in the same manner as glycogen synthase. In Wnt signaling, GSK3B forms a multimeric complex with APC, AXIN1 and CTNNB1/beta-catenin and phosphorylates the N-terminus of CTNNB1 leading to its degradation mediated by ubiquitin/proteasomes. Phosphorylates JUN at sites proximal to its DNA-binding domain, thereby reducing its affinity for DNA. Phosphorylates NFATC1/NFATC on conserved serine residues promoting NFATC1/NFATC nuclear export, shutting off NFATC1/NFATC gene regulation, and thereby opposing the action of calcineurin. Phosphorylates MAPT/TAU on 'Thr-548', decreasing significantly MAPT/TAU ability to bind and stabilize microtubules. MAPT/TAU is the principal component of neurofibrillary tangles in Alzheimer disease. Plays an important role in ERBB2-dependent stabilization of microtubules at the cell cortex. Phosphorylates MACF1, inhibiting its binding to microtubules which is critical for its role in bulge stem cell migration and skin wound repair. Probably regulates NF-kappa-B (NFKB1) at the transcriptional level and is required for the NF-kappa-B-mediated anti-apoptotic response to TNF-alpha (TNF/TNFA). Negatively regulates replication in pancreatic beta-cells, resulting in apoptosis, loss of beta-cells and diabetes. Through phosphorylation of the anti-apoptotic protein MCL1, may control cell apoptosis in response to growth factors deprivation. Phosphorylates MUC1 in breast cancer cells, decreasing the interaction of MUC1 with CTNNB1/beta-catenin. Is necessary for the establishment of neuronal polarity and axon outgrowth. Phosphorylates MARK2, leading to inhibit its activity. Phosphorylates SIK1 at 'Thr-182', leading to sustain its activity. Phosphorylates ZC3HAV1 which enhances its antiviral activity. Phosphorylates SNAI1, leading to its BTRC-triggered ubiquitination and proteasomal degradation. Phosphorylates SFPQ at



'Thr-687' upon T-cell activation. Phosphorylates NR1D1 at 'Ser-55' and 'Ser-59' and stabilizes it by protecting it from proteasomal degradation. Regulates the circadian clock via phosphorylation of the major clock components including ARNTL/BMAL1, CLOCK and PER2. Phosphorylates CLOCK at 'Ser-427' and targets it for proteasomal degradation. Phosphorylates ARNTL/BMAL1 at 'Ser-17' and 'Ser-21' and primes it for ubiquitination and proteasomal degradation. Phosphorylates OGT at 'Ser-3' or 'Ser-4' which positively regulates its activity. Phosphorylates MYCN in neuroblastoma cells which may promote its degradation (PubMed:24391509).

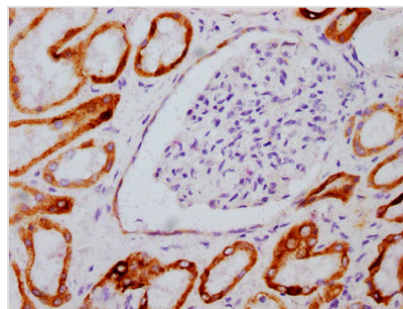
Form	Liquid
Conjugate	Non-conjugated
Storage Buffer	Rabbit IgG in phosphate buffered saline , pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol.
Purification Method	Affinity-chromatography
Isotype	Rabbit IgG
Clonality	Monoclonal
Alias	Glycogen synthase kinase-3 beta, GSK-3 beta, Serine/threonine-protein kinase GSK3B, GSK3B
Immunogen Species	Homo sapiens (Human)
Research Area	Neuroscience
Gene Names	GSK3B
Accession NO.	3A6

Image

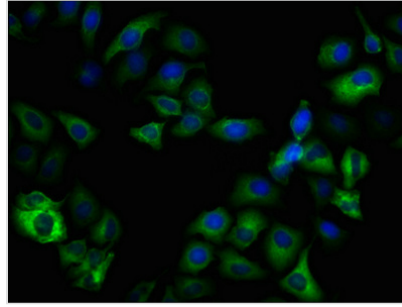


Western Blot

Positive WB detected in HeLa whole cell lysate, 293 whole cell lysate, A549 whole cell lysate (treated with Calyculin A or not)
 All lanes Phospho-GSK3B antibody at 0.77 μg/ml
 Secondary
 Goat polyclonal to rabbit IgG at 1/50000 dilution
 Predicted band size: 46 KDa
 Observed band size: 46 KDa



IHC image of CSB-RA009963A09phHU diluted at 1:100 and staining in paraffin-embedded human kidney tissue performed on a Leica Bond™ system. After dewaxing and hydration, antigen retrieval was mediated by high pressure in a citrate buffer (pH 6.0). Section was blocked with 10% normal goat serum 30min at RT. Then primary antibody (1% BSA) was incubated at 4°C overnight. The primary is detected by a biotinylated secondary antibody and visualized using an HRP conjugated SP system.



Immunofluorescence staining of HeLa cells (treated with 50mM Calyculin A for 30min) with CSB-RA009963A09phHU at 1:100, counter-stained with DAPI. The cells were fixed in 4% formaldehyde, permeabilized using 0.2% Triton X-100 and blocked in 10% normal Goat Serum. The cells were then incubated with the antibody overnight at 4°C. The secondary antibody was Alexa Fluor 488-conjugated AffiniPure Goat Anti-Rabbit IgG (H+L).

Description

The vectors expressing anti-GSK3B antibody were constructed as follows: immunizing an animal with a synthesized peptide derived from human Phospho-GSK3B (Ser9), isolating the positive splenocyte and extracting RNA, obtaining DNA by reverse transcription, sequencing and screening GSK3B antibody gene, and amplifying heavy and light chain sequence by PCR and cloning them into plasma vectors. After that, the vector clones were transfected into the mammalian cells for production. The product is the recombinant GSK3B antibody. Recombinant GSK3B antibody in the culture medium was purified using affinity-chromatography. It can react with GSK3B protein from Human and is used in the ELISA, WB, IHC, IF.

The protein encoded by GSK3B is a serine-threonine kinase belonging to the glycogen synthase kinase subfamily. It is a negative regulator of glucose homeostasis and is involved in energy metabolism, inflammation, ER-stress, mitochondrial dysfunction and apoptosis pathways. According to some studies, GSK3B may have the following characteristics.

Inhibition of DYRK1A and GSK3B induces human β -cell proliferation. GSK3B polymorphisms alter transcription and splicing and interact with Tau haplotypes to alter disease risk in Parkinson's disease. A phased approach was used to investigate the role of GSK3B in dementia susceptibility in several different cohorts of patients with Alzheimer's disease and frontotemporal dementia. miR-769 may act as a tumor promoter by targeting GSK3B during human melanoma development. GSK3B induces autophagy by phosphorylating ULK1. ZNRF1 promotes Wallerian degeneration by degrading AKT to induce GSK3B-dependent phosphorylation of CRMP2.