GSK-3 beta Protein, Mouse (sf9, His)

Cat. No.:	HY-P73090
Synonyms:	Glycogen synthase kinase-3 beta; GSK-3 beta; Gsk3b
Species:	Mouse
Source:	Sf9 insect cells
Accession:	Q9WV60 (M1-T420)
Gene ID:	56637
Molecular Weight:	Approximately 47 kDa

PROPERTIES

AA Sequence	M S G R P R T T S F A E S C K P V Q Q P S A F G S M K V S R D K D G S K V T T V V A T P G Q G P D R P Q E V S Y T D T K V I G N G S F G V V Y Q A K L C D S G E L V A I K K V L Q D K R F K N R E L Q I M R K L D H C N I V R L R Y F F Y S S G E K K D E V Y L N L V L D Y V P E T V Y R V A R H Y S R A K Q T L P V I Y V K L Y M Y Q L F R S L A Y I H S F G I C H R D I K P Q N L L L D P D T A V L K L C D F G S A K Q L V R G E P N V S Y I C S R Y Y R A P E L I F G A T D Y T S S I D V W S A G C V L A E L L L G Q P I F P G D S G V D Q L V E I I K V L G T P T R E Q I R E M N P N Y T E F K F P Q I K A H P W T K V F R P R T P P E A I A L C S R L L E Y T P T A R L T P L E A C A H S F F D E L R D P N V K L P N G R D T P A L F N F T T Q E L S S N P P L A T I L I P P H A R I Q A A A S P P A N A T A A S D T N A G D R G Q T N N A A S A S A S N S T
Biological Activity	1.The specific activity was determined to be > 20 nmol/min/mg using synthetic Phospho-Glycogen Synthase Peptide-2 (YRRAAVPPSPSLSRHSSPHQpSEDEEE) as substrate. 2. Immobilized GSK-3 beta Protein, Mouse (sf9, His) at 10 μg/mL (100 μl/well) can bind human HG3C-CTNNB1 and the EC_{50} is 0.15-0.35 μg/mL.
Appearance	Solution.
Formulation	Supplied as a 0.2 μm filtered solution of 20 mM Tris, 500 mM NaCl, 25% glycerol, 0.2 mM DTT, pH 7.4
Endotoxin Level	<1 EU/μg, determined by LAL method.
Reconsititution	N/A
Storage & Stability	Stored at -80°C for 1 year. It is stable at -20°C for 3 months after opening. It is recommended to freeze aliquots at -80°C for extended storage. Avoid repeated freeze-thaw cycles.
Shipping	Shipping with dry ice.

DESCRIPTION

Background	GSK-3 beta protein, a constitutively active kinase, serves as a negative regulator in the hormonal control of glucose homeostasis, Wnt signaling, and the regulation of transcription factors and microtubules. It achieves this by phosphorylating and inactivating key substrates such as glycogen synthase (GYS1 or GYS2), EIF2B, CTNNB1/beta-catenin, APC, AXIN1, DPYSL2/CRMP2, JUN, NFATC1/NFATC, MAPT/TAU, and MACF1. Primed phosphorylation is a prerequisite for the majority of its substrates. In skeletal muscle, GSK-3 beta contributes to insulin regulation of glycogen synthesis by inhibiting GYS1 activity. It may also mediate insulin resistance by regulating activation of transcription factors. Additionally, GSK-3 beta plays a role in protein synthesis by controlling the activity of initiation factor 2B (EIF2BE/EIF2B5). In Wnt signaling, it forms a multimeric complex with APC, AXIN1, and CTNNB1/beta-catenin, phosphorylating CTNNB1 and targeting it for degradation via ubiquitin/proteasomes. GSK-3 beta is involved in various cellular processes, including regulating replication in pancreatic beta-cells, influencing apoptosis, participating in ERBB2-dependent stabilization of microtubules, and controlling cell polarity and axon outgrowth. It also plays a role in the circadian clock regulation, autophagy, and the negative regulation of the extrinsic apoptotic signaling pathway. Moreover, GSK-3 beta phosphorylates several proteins, including E2F1, FXR1, and interleukin-22 receptor subunit IL22RA1, affecting their stability and function.

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