

Recombinant GSK3 β protein

Catalog No: 81194, 81794

Lot No: 17818001

Expressed In: Baculovirus

Quantity: 20, 1000 μ g

Concentration: 0.25 μ g/ μ l

Source: Human

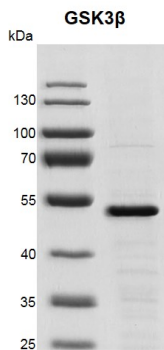
Buffer Contents: Recombinant GSK3 β protein is supplied in 25 mM HEPES-NaOH pH 7.5, 300 mM NaCl, 10% glycerol, 0.04% Triton X-100, 0.5 mM TCEP.

Background: GSK3 β (Glycogen Synthase Kinase 3 Beta), 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 apoptotic pathways. Defects in this gene have been associated with Parkinson disease and Alzheimer disease. GSK3 β a 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. It contributes to insulin regulation of glycogen synthesis by phosphorylating and inhibiting GYS1 activity and hence glycogen synthesis. And it may also mediate the development of insulin resistance by regulating activation of transcription factors. GSK3 β can regulate protein synthesis by controlling the activity of initiation factor 2B (EIF2BE/EIF2B5) in the same manner as glycogen synthase. In Wnt signaling, GSK3 β 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. In addition, it can negatively regulate replication in pancreatic beta-cells, resulting in apoptosis, loss of beta-cells and diabetes. Through phosphorylation of the anti-apoptotic protein MCL1, GSK3 β may control cell apoptosis in response to growth factors deprivation. It regulates the circadian clock via phosphorylation of the major clock components including ARNTL/BMAL1, CLOCK and PER2, which might promote their degradation.

Protein Details: Recombinant human GSK3 β protein was expressed in a baculovirus expression system as the full length protein (accession number NP_001139628.1) with an N-terminal FLAG tag. The molecular weight of the protein is 48.4 kDa.

Application Notes: Recombinant GSK3 β protein is suitable for use in the study of enzyme kinetics, inhibitor screening, and selectivity profiling.

Storage and Guarantee: Recombinant proteins in solution are temperature sensitive and must be stored at -80°C to prevent degradation. Avoid repeated freeze/thaw cycles and keep on ice when not in storage. This product is for research use only and is not for use in diagnostic procedures. This product is guaranteed for 6 months from date of arrival.



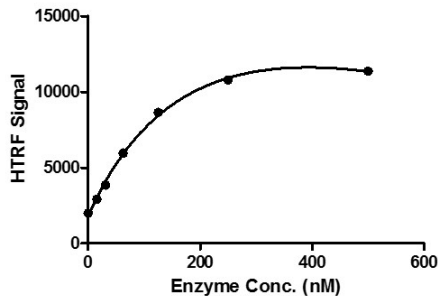
Recombinant GSK3β protein

10% SDS-PAGE Coomassie staining

MW: 48.4 kDa

Purity: ≥ 95%

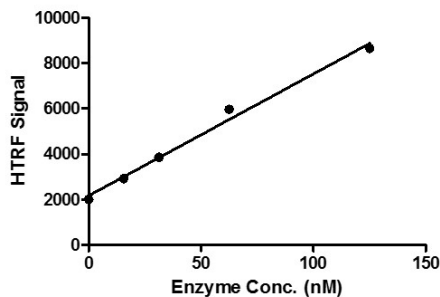
GSK3β Titration



HTRF assay for GSK3β activity

1 μM STK S3 substrate was incubated with different concentrations of GSK3β protein in a 10 μl reaction system containing 1×Enzymatic Buffer, 5 mM MgCl₂, 1 mM DTT and 100 μM ATP for 1 hour. The detection reagents were added and incubated with the reactions for 1 hr. All the operations and reactions were performed at room temperature, and HTRF KinASE STK assay was used to detect the enzymatic activity.

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