

PRODUCT INFORMATION



GSK3 β (human, recombinant)

Item No. 33738

Overview and Properties

Synonyms: Glycogen Synthase Kinase 3 β , GSK3B, Serine/threonine-protein Kinase GSK3B
Source: Active recombinant human GST-tagged, His-tagged GSK3 β expressed in insect cells
Amino Acids: 2-433 (full length)
Uniprot No.: P49841
Molecular Weight: 75 kDa
Storage: -80°C (as supplied)
Stability: ≥ 18 months
Purity: $\geq 90\%$ estimated by SDS-PAGE
Supplied in: 40 mM Tris-HCl, pH 8.0, with 110 mM sodium chloride, 2.2 mM potassium chloride, 3 mM DTT, 250 mM imidazole, and 20% glycerol

Protein

Concentration: *batch specific* mg/ml

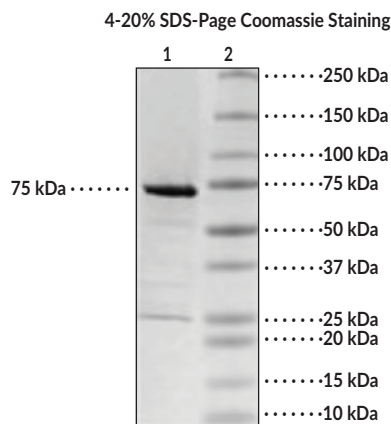
Activity: *batch specific* U/ml

Specific Activity: *batch specific* U/mg

Unit Definition: One unit is defined as the amount of enzyme required to produce 1 pmol of ADP per minute at 30°C in kinase assay buffer with GSK substrate peptide.

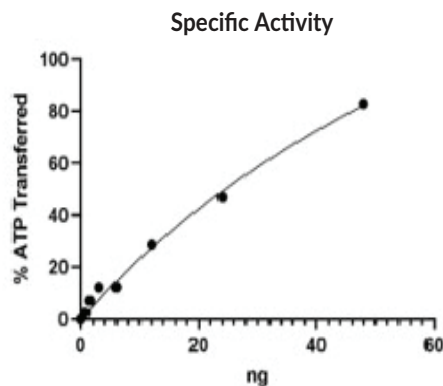
Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Images



Lane 1: GSK3 β
Lane 2: MW Markers

Representative gel image shown; actual purity may vary between each batch.



WARNING
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

WARRANTY AND LIMITATION OF REMEDY
Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

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Description

Glycogen synthase kinase 3 β (GSK3 β) is a serine/threonine protein kinase that has roles in numerous signaling pathways and cellular processes, including cell proliferation and survival, as well as neural development and plasticity.^{1,2} It is composed of an N-terminal β -strand domain, a kinase domain, and a C-terminal α -helical domain.³ GSK3 β is constitutively active, ubiquitously expressed, and localizes predominantly to the cytosol but is also found in the nucleus and mitochondria.^{2,4} It is inhibited by phosphorylation at serine 9 (Ser⁹), which is mediated by a variety of kinases, including PKA, PKB, and Akt, and has roles in insulin, growth factor, and Wnt signaling pathways.² GSK3 β is involved in several pathophysiological conditions, such as diabetes, cancer, inflammation, and neurological or psychiatric disorders, including Alzheimer's disease, Parkinson's disease, and bipolar disorder.^{1,4} Cayman's GSK3 β (human, recombinant) protein can be used for enzymatic activity assays.

References

1. Yang, K., Chen, Z., Gao, J., *et al.* The key roles of GSK-3 β in regulating mitochondrial activity. *Cell. Physiol. Biochem.* **44**(4), 1445-1459 (2017).
2. Krishnankutty, A., Kimura, T., Saito, T., *et al.* *In vivo* regulation of glycogen synthase kinase 3 β activity in neurons and brains. *Sci. Rep.* **7**(1), 8602 (2017).
3. ter Haar, E., Coll, J.T., Austen, D.A., *et al.* Structure of GSK3 β reveals a primed phosphorylation mechanism. *Nat. Struct. Biol.* **8**(7), 593-596 (2001).
4. Beurel, E., Grieco, S.F., and Jope, R.S. Glycogen synthase kinase-3 (GSK3): Regulation, actions, and diseases. *Pharmacol. Ther.* **148**, 114-131 (2015).

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