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Product Information

ANTI-GLYCOGEN SYNTHASE KINASE-3 β (GSK-3 β), Developed in Rabbit Affinity Isolated Antibody

Product Number **G7914**

Product Description

Anti-Glycogen Synthase Kinase-3 β (GSK-3 β) is developed in rabbit using a synthetic peptide (K-GDRGQTNNAASASASNST) corresponding to the C-terminal region of human GSK-3 β (amino acids 403-420 with N-terminally added lysine) conjugated to KLH as immunogen. This sequence is identical in rat GSK-3 β and is highly conserved in frog and zebrafish GSK-3 β (70-80%). The antiserum to GSK-3 β is affinity-purified using the immunogenic peptide immobilized on agarose.

Anti-Glycogen Synthase Kinase-3 β (GSK-3 β) recognizes rat GSK-3 β (47 kD) by immunoblotting. It does not recognize GSK-3 α . By immunoblotting, staining of GSK-3 β is specifically inhibited with the GSK-3 β immunizing peptide (human GSK-3 β , amino acids 403-420 with N-terminally added lysine).

Glycogen synthase kinase-3 (GSK-3), a serine/threonine protein kinase, specifically phosphorylates glycogen synthase, a critical enzyme regulating glucose storage, and mediates insulin regulation of glycogen synthesis.¹ GSK-3 exists as two closely related protein kinases, termed GSK-3 α and GSK-3 β , encoded by different genes.⁵ The GSK-3 α -isoform (also termed protein kinase F_A/GSK-3 α , 51 kD) is 95% identical in the kinase domain to the GSK-3 β isoform (47 kD). GSK-3 is also involved in phosphorylation of the regulatory subunits of the cytosolic and glycogen-associated forms of protein Ser/Thr phosphatase 1, cyclic AMP-dependent protein kinase, microtubule-associated tau proteins,³ and the largest subunit of eIF-2B of the protein synthesis initiation factor eIF-2. The *c-jun*, *c-myc*, *c-myc*, CREB and CREM transcription factors have also been found to be substrates for GSK-3.⁴ GSK-3 is highly homologous to a *Drosophila melanogaster* homoeotic gene product termed *zeste-white3/shaggy* that is required during embryogenesis and development. GSK-3 β is expressed ubiquitously as a constitutively active kinase. Its activity is down-regulated upon growth factor stimulation. GSK-3 β is involved in regulating the degradation of β -catenin by the tumor suppressor gene product APC.^{6,7}

APC forms a stable complex including axin, GSK-3 β and β -catenin. GSK-3 β phosphorylates regulatory sites in the central region of APC. Binding of β -catenin to APC, marking β -catenin for destruction, is dependent on phosphorylation of APC by GSK-3 β . Thus, GSK-3 β may play a critical role in regulating β -catenin stability during development and tumor progression.

Reagents

The product is provided as affinity isolated antibody in 0.01 M phosphate buffered saline, pH 7.4, containing 1% BSA and 15 mM sodium azide (see MSDS)* as a preservative.

Precautions and Disclaimer

* Due to the sodium azide content a material safety sheet (MSDS) for this product has been sent to the attention of the safety officer of your institution. Consult the MSDS for information regarding hazardous and safe handling practices.

Storage/Stability

For continuous use, store at 2-8°C for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing is not recommended. Storage in "frost-free" freezers is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilution samples should be discarded if not used within 12 hours.

Product Profile

A minimum working dilution of 1:2,000 is determined by immunoblotting using a cytosolic fraction of rat brain extract.

Note: In order to obtain the best results and assay sensitivity in different techniques and preparations we recommend determining the optimal working dilutions by titration.

References

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