

## Product datasheet for MR206669

### Gsk3b (NM\_019827) Mouse Tagged ORF Clone

#### Product data:

Product Type:	Expression Plasmids
Product Name:	Gsk3b (NM_019827) Mouse Tagged ORF Clone
Tag:	Myc-DDK
Symbol:	Gsk3b
Synonyms:	7330414F15Rik; 8430431H08Rik; C86142; GSK-3; GSK-3beta; GSK3
Mammalian Cell Selection:	Neomycin
Vector:	pCMV6-Entry (PS100001)
E. coli Selection:	Kanamycin (25 ug/mL)
ORF Nucleotide Sequence:	>MR206669 ORF sequence Red=Cloning site Blue=ORF Green=Tags(s)

TTTTGTAATACGACTCACTATAGGGCGGCCGGAATTCGTCGACTGGATCCGGTACCGAGGAGATCTGCC  
GCC**CGATCGCC**

ATGTCGGGGCGACCGAGAACCACCTCCTTTGCGGAGAGCTGCAAGCCAGTGCAGCAGCCTTCAGCTTTTG  
GTAGCATGAAAGTTAGCAGAGATAAAGATGGCAGCAAGGTAACCACAGTAGTGGCAACTCCTGGCCAGGG  
TCCTGACAGGCCACAGGAAGTCAGTTATACAGACACGAAAGTGATTGGAAATGGATCATTGGTGTGGTA  
TATCAAGCCAACTTTGTGATTCTGGAGAAGTGGTTGCCATCAAGAAAGTCTACAGGACAAGCGATTTA  
AGAACCGAGAGCTCCAGATCATGAGAAAGCTAGACCACTGTAACATAGTCCGACTGCGGTATTTCTTCTA  
CTCGAGTGGTGAGAAGAAAGATGAGGTCTACCTAACCTGGTGTGGACTATGTTCCGGAGACAGTGTAC  
AGAGTCGCCGAGACTATAGTCGAGCCAAGCAGACACTCCCTGTGATCTATGTCAAGTTGTATATGTATC  
AGCTGTTGAGAGTCTAGCCTATATCCATTCTTTGGAATCTGCCATCGAGACATTAACCACAGAACCT  
CTTGTTGGATCCTGATACAGCTGTATTAATAACTCTGTGACTTTGGAAGTGCAAAGCAGCTGGTCCGAGGA  
GAGCCCAATGTTTCATATATCTGTTCTCGGTAACAGGGCACCAGAGTTGATCTTTGGAGCCACTGATT  
ACACGTCCAGTATAGATGTATGGTCTGCAGGCTGTGTGTGGCTGAATTGTTGCTAGGACAACCAATATT  
TCCTGGGGACAGTGGTGTGGATCAGTTGGTGGAAATAATAAAGGTCCTAGGAACCAACAAGGGAGCAA  
ATTAGAGAAATGAACCAAAATTATACAGAATTCAAATTCCTCAAATCAAGGCACATCCTTGACAAGG  
TCTTCCGGCCCCGAACCTCACCAGAGGCAATTGCACTGTGCAGCGTCTGCTGGAGTACACACCTACCCGC  
CCGGCTAACACCACTGGAAGCTTGTGCACATTCATTTTTCGATGAATTGCGGGACCCAAATGTCAAACCTA  
CCAAATGGGCGAGACACACTGCACTCTTCAACTTTACCACTCAAGAAGTGTCAAGTAACCCCTCTGG  
CCACCATCCTTATCCCTCCACATGCTCGGATTCAGGCCGCTGTTACCCGCTGCCAACGCCACAGCAGC  
CTCAGATACTAATGCTGGAGACCGTGGACAGACCAATAACGCCGTTCTGCATCAGCTTCCAACCTCACC

**ACGCGT**ACGCGGCCGCTCGAGCAGAACTCATCTCAGAAGAGGATCTGGCAGCAAATGATATCCTGGATT  
ACAAGGATGACGACGATAAGGTTTAA



**Protein Sequence:** >MR206669 protein sequence  
 Red=Cloning site Green=Tags(s)

MSGRPRTTSFAESCKPVQQPSAFGSMKVS RDKDGSKVTTVVATPGQGPDRPQEVSYTDTKVI GNGSFGVV  
 YQAKLCDSGELVAIKKVLQDKRFKNRELQIMRKLDHCNIVRLRYFFYSSGEKKDEVYLNVLVDYVPETVY  
 RVARHYSRAKQTL PVIYVKLYMYQLFRSLAYIHSFGICHDRDIKPQNLLDPDTAVLKLKDFGSAKQLVRG  
 EPNVSYICSRYYRAPELIFGATDYTSSIDVWSAGCVLAELLGQP I FPGDSGVDQLVEI IKVLGTPTR EQ  
 IREMNPNYTEFKFPQIK AHPWTKVFRPRTPEAIALCSRLLEYTPARLTPL EACAHSFFDEL RDPNVKL  
 PNGRDTPALFNFTTQELSSNPPLATILIPPHARIQAAASPPANATAASDTNAGDRGQTNN AASASASNST

TRTRPLEQKLISEEDLAANDILDYKDDDDKV

**Restriction Sites:**

Sgfl-MluI

**Cloning Scheme:**

Cloning sites used for ORF Shuttling:



\* The last codon before the Stop codon of the ORF

**ACCN:** NM\_019827

**ORF Size:** 1263 bp

**OTI Disclaimer:** Due to the inherent nature of this plasmid, standard methods to replicate additional amounts of DNA in E. coli are highly likely to result in mutations and/or rearrangements. Therefore, OriGene does not guarantee the capability to replicate this plasmid DNA. Additional amounts of DNA can be purchased from OriGene with batch-specific, full-sequence verification at a reduced cost. Please contact our customer care team at [custsupport@origene.com](mailto:custsupport@origene.com) or by calling 301.340.3188 option 3 for pricing and delivery.

The molecular sequence of this clone aligns with the gene accession number as a point of reference only. However, individual transcript sequences of the same gene can differ through naturally occurring variations (e.g. polymorphisms), each with its own valid existence. This clone is substantially in agreement with the reference, but a complete review of all prevailing variants is recommended prior to use. [More info](#)

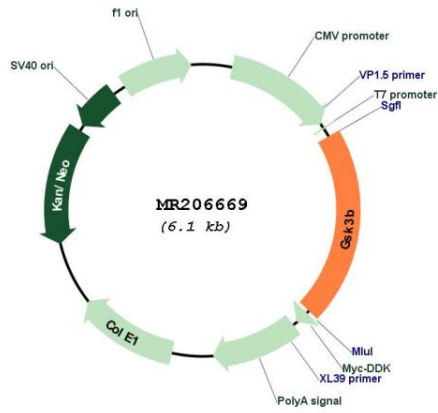
**OTI Annotation:** This clone was engineered to express the complete ORF with an expression tag. Expression varies depending on the nature of the gene.

<b>Components:</b>	The ORF clone is ion-exchange column purified and shipped in a 2D barcoded Matrix tube containing 10ug of transfection-ready, dried plasmid DNA (reconstitute with 100 ul of water).
<b>Reconstitution Method:</b>	<ol style="list-style-type: none"><li>1. Centrifuge at 5,000xg for 5min.</li><li>2. Carefully open the tube and add 100ul of sterile water to dissolve the DNA.</li><li>3. Close the tube and incubate for 10 minutes at room temperature.</li><li>4. Briefly vortex the tube and then do a quick spin (less than 5000xg) to concentrate the liquid at the bottom.</li><li>5. Store the suspended plasmid at -20°C. The DNA is stable for at least one year from date of shipping when stored at -20°C.</li></ol>
<b>RefSeq:</b>	<u><a href="#">NM_019827.7</a></u>
<b>RefSeq Size:</b>	8298 bp
<b>RefSeq ORF:</b>	1263 bp
<b>Locus ID:</b>	56637
<b>UniProt ID:</b>	<u><a href="#">Q9WV60</a></u>
<b>Cytogenetics:</b>	16 B3
<b>MW:</b>	46.7 kDa

**Gene Summary:**

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. 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. 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 SFPQ at 'Thr-679' upon T-cell activation. Phosphorylates SNAI1, leading to its BTRC-triggered ubiquitination and proteasomal degradation. 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 (PubMed:20049328, PubMed:28903391). Phosphorylates CLOCK at 'Ser-427' and targets it for proteasomal degradation (By similarity). Phosphorylates ARNTL/BMAL1 at 'Ser-17' and 'Ser-21' and primes it for ubiquitination and proteasomal degradation (PubMed:20049328, PubMed:28903391). Phosphorylates OGT at 'Ser-3' or 'Ser-4' which positively regulates its activity. Regulates the circadian rhythmicity of hippocampal long-term potentiation and ARNTL/BMAL1 and PER2 expression (PubMed:28556462). Acts as a regulator of autophagy by mediating phosphorylation of KAT5/TIP60 under starvation conditions, leading to activate KAT5/TIP60 acetyltransferase activity and promote acetylation of key autophagy regulators, such as ULK1 and RUBCNL/Pacer (PubMed:22539723). [UniProtKB/Swiss-Prot Function]

Product images:



Circular map for MR206669