

Product datasheet for **RC401181**

Glucokinase (GCK) (NM_000162) Human Mutant ORF Clone

Product data:

Product Type:	Mutant ORF Clones
Product Name:	Glucokinase (GCK) (NM_000162) Human Mutant ORF Clone
Mutation Description:	Y108X
Affected Codon#:	108
Affected NT#:	324
Nucleotide Mutation:	GCK Mutant (Y108X), Myc-DDK-tagged ORF clone of Homo sapiens glucokinase (hexokinase 4) (GCK), transcript variant 1 as transfection-ready DNA
Effect:	Diabetes, MODY
Symbol:	Glucokinase
Synonyms:	FGQTL3; GK; GLK; HHF3; HK4; HKIV; HXKP; LGLK; MODY2; PNDM1
E. coli Selection:	Kanamycin (25 ug/mL)
Mammalian Cell Selection:	Neomycin
Vector:	pCMV6-Entry (PS100001)
Tag:	Myc-DDK
ACCN:	NM_000162
ORF Size:	321 bp
Restriction Sites:	Sgfl-MluI

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ORF Nucleotide Sequence:

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>RC401181 representing NM_000162
Red=Cloning site Blue=ORF Green=Tags(s)
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TTTTGTAATACGACTCACTATAGGGCGGCCGGAATTCTGTCGACTGGATCCGGTACCGAGGAGATCTGCC
GCCGCGATCGCC

ATGCTGGACGACAGAGCCAGGATGGAGGCCGCCAAGAAGGAGAAGGTAGAGCAGATCTCGGCAGAGTTCC
AGCTGCAGGAGGAGGACCTGAAGAAGGTGATGAGACGGATGCAGAAAGGAGATGGACCGCGGCTGAGGCT
GGAGACCCATGAAGAGGCCAGTGTGAAGATGTCGCCACCTACGTGCGCTCCACCCAGAAGGCTCAGAA
TTCGGGGACTTCTCTCTCGGACCTGGTGGCATAACTTCAGGGTGATGCTGGTGAAGGTGGGAGAAG
GTGAGGAGGGGCGATGGAGGCTGAAGACCAAAACCAATG

AGCGGACCGACGCGTACGCGGCCGCTCGAGCAGAACTCATCTCAGAAGAGGATCTGGCAGCAAATGATATCC
TGGATTACAAGGATGACGACGA TAAGTTTAA

Protein Sequence:

>RC401181 representing NM_000162
Red=Cloning site Green=Tags(s)

MLDDRARMEAAKKEKVEQILAEFLQEEDLKVMRRMQKEMDRGLRLETHEEASVKMLPTYVVRSTPEGSE
VGDFLSLDLGGTNFRVMLVKVGEEGOWSVKTKHOM

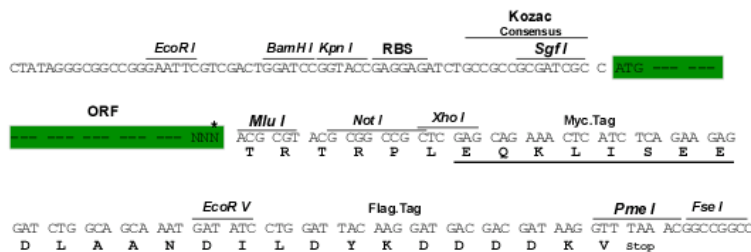
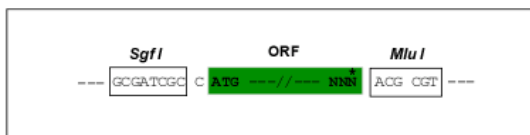
SGPTRRRL EOKLISEEDLAANDILDYKDDDDKV

Restriction Sites:

Sgfl-Mlul

Cloning Scheme:

Cloning sites used for ORF Shuttling:



* The last codon before the Stop codon of the ORF

OTI Disclaimer:

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.

Components:	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).
Note:	Plasmids are not sterile. For experiments where strict sterility is required, filtration with 0.22um filter is required.
RefSeq:	NP_000153
RefSeq Size:	321 bp
RefSeq ORF:	1398 bp
Locus ID:	2645
Cytogenetics:	7p13
Protein Families:	Druggable Genome
Protein Pathways:	Amino sugar and nucleotide sugar metabolism, Galactose metabolism, Glycolysis / Gluconeogenesis, Insulin signaling pathway, Maturity onset diabetes of the young, Metabolic pathways, Starch and sucrose metabolism, Type II diabetes mellitus
MW:	11.8 kDa
Gene Summary:	This gene encodes a member of the hexokinase family of proteins. Hexokinases phosphorylate glucose to produce glucose-6-phosphate, the first step in most glucose metabolism pathways. In contrast to other forms of hexokinase, this enzyme is not inhibited by its product glucose-6-phosphate but remains active while glucose is abundant. The use of multiple promoters and alternative splicing of this gene result in distinct protein isoforms that exhibit tissue-specific expression in the pancreas and liver. In the pancreas, this enzyme plays a role in glucose-stimulated insulin secretion, while in the liver, this enzyme is important in glucose uptake and conversion to glycogen. Mutations in this gene that alter enzyme activity have been associated with multiple types of diabetes and hyperinsulinemic hypoglycemia. [provided by RefSeq, Aug 2017]