

Product datasheet for **RC401340**

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:	C364X
Affected Codon#:	364
Affected NT#:	1092
Nucleotide Mutation:	GCK Mutant (C364X), Myc-DDK-tagged ORF clone of Homo sapiens glucokinase (hexokinase 4) (GCK), transcript variant 1 as transfection-ready DNA
Effect:	Diabetes, MODY2
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:	1089 bp
Restriction Sites:	Sgfl-MluI

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ORF Nucleotide Sequence:

>RC401340 representing NM_000162
 Red=Cloning site Blue=ORF Green=Tags(s)

TTTTGTAATACGACTCACTATAGGGCGGCCGGGAATTCGTCGACTGGATCCGGTACCGAGGAGATCTGCC
 GCC**CGGATCGC**

ATGCTGGACGACAGACCAGGATGGAGGCCGCCAAGAAGGAGAAGGTAGAGCAGATCCTGGCAGAGTTCC
 AGCTGCAGGAGGAGGACCTGAAGAAGGTGATGAGACGGATGCAGAAGGAGATGGACCGCGCCTGAGGCT
 GGAGACCCATGAAGAGGCCAGTGTGAAGATGCTGCCACCTACGTGCGCTCCACCCAGAAGGCTCAGAA
 GTCGGGGACTTCTCTCCCTGGACCTGGGTGGCACTAACTTCAGGGTGATGCTGGTGAAGGTGGGAGAAG
 GTGAGGAGGGCAGTGGAGCGTGAAGACCAACACCAGATGTACTCCATCCCGAGGACGCCATGACCGG
 CACTGCTGAGATGCTCTCGACTACATCTCTGAGTGCATCTCCGACTTCTGGACAAGCATCAGATGAAA
 CACAAGAAGCTGCCCTGGGCTTCACTTCTCCTTTCTGTGAGGCACGAAGACATCGATAAGGGCATCC
 TTCTCACTGGACCAAGGGCTTCAAGGCCTCAGGAGCAGAAGGGAACAATGTCGTGGGGCTTCTGCGAGA
 CGCTATCAAACGAGAGGGGACTTTGAAATGGATGTGGTGGCAATGGTGAATGACACGGTGGCCACGATG
 ATCTCCTGCTACTACGAAGACCATCAGTGCGAGGTCCGCATGATCGTGGGCACGGCTGCAATGCCTGCT
 ACATGGAGGAGATGCAGAATGTGGAGCTGGTGGAGGGGACGAGGGCCGCATGTGCGTCAATACCGAGTG
 GGGCGCCTTCGGGACTCCGGCGAGCTGGACGAGTTTCTGCTGGAGTATGACCGCCTGGTGGACGAGAGC
 TCTGCAAAACCCGGTCAGCAGCTGTATGAGAAGCTCATAGGTGGCAAGTACATGGGCGAGCTGGTGGCGC
 TTGTGCTGCTCAGGCTCGTGGACGAAAACCTGCTCTTCCACGGGGAGGCCTCCGAGCAGCTGCGCACACG
 CGGAGCCTTCGAGACGCGCTTCGTGTCGAGGTGGAGAGCGACACGGGCGACCGCAAGCAGATCTACAAC
 ATCCTGAGCACGCTGGGGCTGCGACCTCGACCACCGAC

AG**CGGACCG**ACGCGTACGCGCCGCTCGAGCAGAACTCATCTCAGAAGAGGATCTGGCAGCAAATGATATCC
 TGGATTACAAGGATGACGACGA TAAGGTTTAA

Protein Sequence:

>RC401340 representing NM_000162
 Red=Cloning site Green=Tags(s)

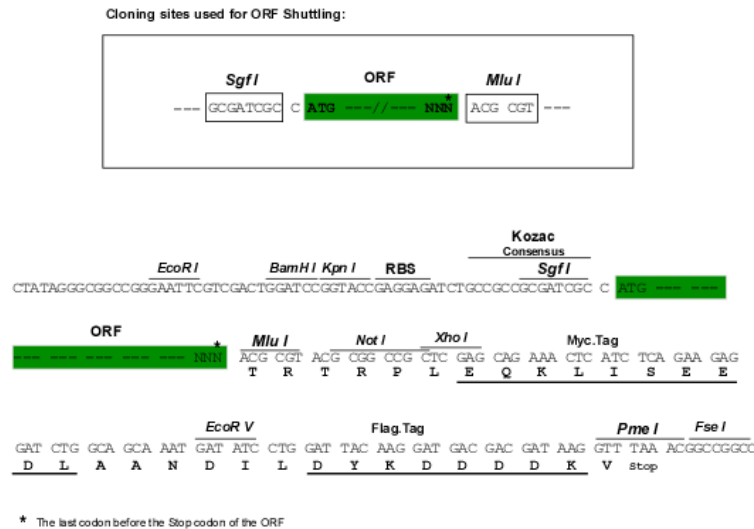
MLDDRARMEAAKKEKVEQILAEFQLQEEDLKKVMRMQKEMDRGLRLETHEEASVKMLPTYVRSTPEGSE
 VGDFLSLDLGGTNFRVMLVKVGEEGQWSVKTKHQMSIPEDAMTGTAEMLFDYISECISDFLDKHQMK
 HKKLPLGFTFSFPVRHEDIDKGILLNWTGFKASGAEGNNVGLLRDAIKRRGDFEMDVVAMVNDTVATM
 ISCYIEDHQCEVGMIVGTGCNACYPEEMQNVELVEGDEGRMCVNTEWGAFGDSGELDEFLLYDRLVDES
 SANPGQQLYEKLIGGKYMGEVLRLVLLRLVDENLLFHGEASEQLRTRGAFETRFVSQVESDGTDRKQIYN
 ILSTLGLRPSTTD

SGP**TRRRLEQKLISEEDLA**ANDILDYKDDDDKV

Restriction Sites:

Sgfl-MluI

Cloning Scheme:



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:

1089 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:

39.9 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]