

## Product datasheet for **RC401353**

### 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:	S383X
Affected Codon#:	383
Affected NT#:	1148
Nucleotide Mutation:	GCK Mutant (S383X), Myc-DDK-tagged ORF clone of Homo sapiens glucokinase (hexokinase 4) (GCK), transcript variant 1 as transfection-ready DNA
Effect:	Diabetes, MODY
Symbol:	GCK
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:	1146 bp
Restriction Sites:	Sgfl-Mlul



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ORF Nucleotide  
Sequence:

>RC401353 representing NM\_000162  
Red=Cloning site Blue=ORF Green=Tags(s)

TTTTGTAATACGACTCACTATAGGGCGGCCGGGAATTCGTCGACTGGATCCGGTACCGAGGAGATCTGCC  
GCCGCGATCGCC

ATGCTGGACGACAGCCAGGATGGAGGCCCAAGAAGGAGAAGGTAGAGCAGATCCTGGCAGAGTTCC  
AGCTGCAGGAGGAGACCTGAAGAAGGTGATGAGACGGATGCAGAAGGAGATGGACCGCGCCTGAGGCT  
GGAGACCCATGAAGAGGCCAGTGTGAAGATGCTGCCACCTACGTGCGCTCCACCCAGAAAGGCTCAGAA  
GTGGGGGACTTCTCTCCCTGGACCTGGGTGGCACTAACTTCAGGGTGTGCTGGTGAAGGTGGGAGAAG  
GTGAGGAGGGCAGTGGAGCGTGAAGACCAAACACCAGATGTAATCCATCCCGAGGACGCCATGACCGG  
CACTGCTGAGATGCTCTCGACTACATCTCTGAGTGCATCTCCGACTTCTGGACAAGCATCAGATGAAA  
CACAAGAAGCTGCCCTGGGCTTCACTTCTCCTTTCCTGTGAGGCACGAAGACATCGATAAGGGCATCC  
TTCTCAACTGGACCAAGGGCTTCAAGGCCTCAGGAGCAGAAGGGAACAATGTCGTGGGGCTTCTGCGAGA  
CGCTATCAAACGGAGAGGGGACTTTGAAATGGATGTGGTGGCAATGGTGAATGACACGGTGGCCACGATG  
ATCTCCTGCTACTACGAAGACCATCAGTGCAGGTCGGCATGATCGTGGGCACGGCTGCAATGCCTGCT  
ACATGGAGGAGATGCAGAATGTGGAGCTGGTGGAGGGGACGAGGGCCGATGTGCGTCAATACCGAGTG  
GGGCGCCTTCGGGACTCCGGCGAGCTGGACGAGTTCTGCTGGAGTATGACCGCCTGGTGGACGAGAGC  
TCTGCAAACCCGGTCAGCAGCTGTATGAGAAGCTCATAGGTGGCAAGTACATGGGCGAGCTGGTGGCGC  
TTGTGCTGCTCAGGCTCGTGGACGAAAACCTGCTCTCCACGGGGAGGGCTCCGAGCAGCTGCGCACAGC  
CGGAGCCTTCGAGACGCGCTTCGTGTCGAGGTGGAGAGCGACACGGGCGACCGCAAGCAGATCTACAAC  
ATCCTGAGCACGCTGGGGCTGCGACCTCGACCACCGACTGCGACATCGTGGCCGCGCCTGCGAGAGCG  
TGCTACGCGCGCTGCGCACATGTGC

AGCGGACCGACGCGTACGCGCCGCTCGAGCAGAACTCATCTCAGAAGAGGATCTGGCAGCAAATGATATCC  
TGGATTACAAGGATGACGACGA TAAGGTTTAA

## Protein Sequence:

>RC401353 representing NM\_000162  
Red=Cloning site Green=Tags(s)

MLDDRARMEAAKKEKVEQILAEFQLQEEDLKKVMRMQKEMDRGLRLETHEEASVKMLPTYVVRSTPEGSE  
VGDFLSLDLGGTNFRVMLVKVGEEGQWSVKTKHQMYSIPEDAMTGTAEMLFDYISECISDFLDKHQMK  
HKKLPLGFTFSFPVRHEDIDKGI LLNWTGFKASGAEGNNVGLLRDAIKRRGDFEMDVVAMVNDTVATM  
ISCYEDHQCEVGMIVGTGCNACYMEEMQNVELVEGDEGRMCVNTWGAFGDSGELDEFLLLEYDRLVDES  
SANPGQQLYEKLIGGKYMGE LVRLVLLRLVDENLLFHGEASEQLRTRGAFETRFVSQVESD TGDRKQIYN  
ILSTLGLRPSTTDCDIVRRACESVSTRAAHMC

SGPTRRRLEQKLI SEEDLAANDILDYKDDDDKV

## Restriction Sites:

Sgfl-Mlul

**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).

**RefSeq:**

[NP\\_000153](#)

**RefSeq Size:**

1146 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:**

42 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]