

## Product datasheet for **RG200472**

### Glucokinase (GCK) (NM\_000162) Human Tagged ORF Clone

#### Product data:

Product Type:	Expression Plasmids
Product Name:	Glucokinase (GCK) (NM_000162) Human Tagged ORF Clone
Tag:	TurboGFP
Symbol:	Glucokinase
Synonyms:	FGQTL3; GK; GLK; HHF3; HK4; HKIV; HXKP; LGLK; MODY2; PNDM1
Mammalian Cell Selection:	Neomycin
Vector:	pCMV6-AC-GFP (PS100010)
E. coli Selection:	Ampicillin (100 ug/mL)



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**ORF Nucleotide Sequence:**

>RG200472 representing NM\_000162  
 Red=Cloning site Blue=ORF Green=Tags(s)

TTTTGTAATACGACTCACTATAGGGCGGCCGGAATTCGTCGACTGGATCCGGTACCGAGGAGATCTGCC  
 GCC**CGGATCGCC**

ATGCTGGACGACAGACCAGGATGGAGGCCCAAGAAGGAGAAGGTAGAGCAGATCCTGGCAGAGTTCC  
 AGCTGCAGGAGGAGACCTGAAGAAGGTGATGAGACGGATGCAGAAGGAGATGGACCGCGCCTGAGGCT  
 GGAGACCCATGAAGAGGCCAGTGTGAAGATGCTGCCACCTACGTGCGCTCCACCCAGAAGGCTCAGAA  
 GTCGGGGACTTCTCCTCGACTGGTGGGACTAACTTCAGGGTGTGCTGGTGAAGGTGGGAGAAG  
 GTGAGGAGGGCAGTGGAGCGTGAAGACCAACACCAGATGTAATCCATCCCGAGGACGCCATGACCGG  
 CACTGCTGAGATGCTCTCGACTACATCTCTGAGTGCATCTCCGACTTCTGGACAAGCATCAGATGAAA  
 CACAAGAAGCTGCCCTGGGCTCACCTTCTCCTTTCTGTGAGGCACGAAGACATCGATAAGGGCATCC  
 TTCTCACTGGACCAAGGGCTTCAAGGCCTCAGGAGCAGAAGGGAACAATGTCGTGGGGCTTCTCGGAGA  
 CGCTATCAAACGGAGAGGGGACTTTGAAATGGATGTGGTGGCAATGGTGAATGACACGGTGGCCACGATG  
 ATCTCCTGCTACTACGAAGACCATCAGTGCAGGTCGGCATGATCGTGGGCACGGGCTGCAATGCCTGCT  
 ACATGGAGGAGATGCAGAATGTGGAGCTGGTGGAGGGGACGAGGGCCGATGTGCGTCAATACCGAGTG  
 GGGCGCCTTCGGGGACTCCGGCGAGCTGGACGAGTTCTGCTGGAGTATGACCGCCTGGTGGACGAGAGC  
 TCTGCAAACCCCGGTGAGCAGCTGTATGAGAAGCTCATAGGTGGCAAGTACATGGGCGAGCTGGTGGCG  
 TTGTGCTGCTCAGGCTCGTGACGAAAACCTGCTTCCACGGGGAGGCCTCCGAGCAGCTGCGCACACG  
 CGGAGCCTTCGAGACGCGCTTCGTGTGCGAGGTGGAGAGCGACACGGGCGACCGCAAGCAGATCTACAAC  
 ATCCTGAGCAGCTGGGGCTGCGACCCTCGACCACCGACTGCGACATCGTGGCCCGCCTGCGAGAGCCG  
 TGCTACGCGCGCTGCGACATGTGCTCGGCGGGGCTGGCGGGGTCATCAACCGCATGCGCGAGAGCCG  
 CAGCGAGGACGTAATGCGCATCACTGTGGCGTGGATGGCTCCGTGTACAAGCTGCACCCAGCTTCAAG  
 GAGCGGTTCCATGCCAGCGTGGCAGGCTGACGCCAGCTGCGAGATCACCTTATCGAGTCGGAGGAGG  
 GCAGTGGCCGGGCGCGCCCTGGTCTCGGCGGTGGCCTGTAAGAAGGCCTGTATGCTGGGCCAG

**ACGCGTACGCGGCCGCTCGAG** – GFP Tag – GTTTAA

**Protein Sequence:**

>RG200472 representing NM\_000162  
 Red=Cloning site Green=Tags(s)

MLDDRARMEAAKKEKVEQILAEFQLQEEDLKKVMRRMQKEMDRGLRLETHEEASVKMLPTYVVRSTPEGSE  
 VGDFLSLDLGGTNFRVMLVKVGEEGQWSVKTKHQMYSIPEDAMTGAEMLFDYISECISDFLDKHQMK  
 HKKLPLGFTTFSPVVRHEDIDKGILLNWTGFKASGAEGNNVVGLLRDAIKRRGDFEMDVVAMVNDTVATM  
 ISCYEDHQCEVGMIVGTGCNACYMEEMQNVELVEGDEGRMCVNTIEWGAFGDSGELDEFLLLEYDRLVDES  
 SANPQQLYEKLIGGKYMGEVLRLVLLRLVDENLLFHGEASEQLRTRGAFETRFVSVQVESDTGDRKQIYN  
 ILSTLGLRPSTTDCDIVRRACESVSTRAAHMCSAGLAGVINRMRESRSEDYMRITVGVGDSVYKHLHPSFK  
 ERFHASVRRLLTPSCEITFIESEEGSGRGAALVSAVACKKACMLGQ

**TRTRPLE** – GFP Tag – V

**Restriction Sites:**

Sgfl-MluI

**Cloning Scheme:**


**ACCN:** NM\_000162

**ORF Size:** 1395 bp

**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).

**Reconstitution Method:**

1. Centrifuge at 5,000xg for 5min.
2. Carefully open the tube and add 100ul of sterile water to dissolve the DNA.
3. Close the tube and incubate for 10 minutes at room temperature.
4. Briefly vortex the tube and then do a quick spin (less than 5000xg) to concentrate the liquid at the bottom.
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.

**RefSeq:** [NM\\_000162.5](#)

**RefSeq Size:** 2759 bp

**RefSeq ORF:** 1398 bp

**Locus ID:** 2645

**UniProt ID:** [P35557](#)

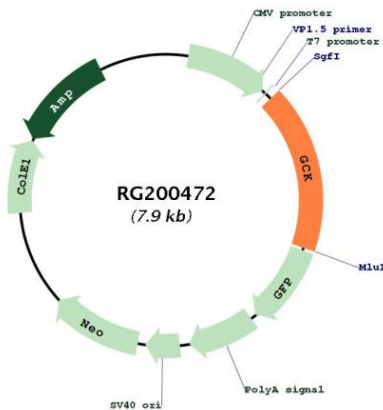
**Cytogenetics:** 7p13

**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

**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]

**Product images:**



Circular map for RG200472