**OriGene Technologies, Inc.**
9620 Medical Center Drive, Ste 200
Rockville, MD 20850, US
Phone: +1-888-267-4436
https://www.origene.com
techsupport@origene.com
EU: info-de@origene.com
CN: techsupport@origene.cn

# Product datasheet for SC123784

## Glucokinase (GCK) (NM_000162) Human Untagged Clone

### Product data:

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|---|---|
| **Product Type:** | Expression Plasmids |
| **Product Name:** | Glucokinase (GCK) (NM_000162) Human Untagged Clone |
| **Tag:** | Tag Free |
| **Symbol:** | Glucokinase |
| **Synonyms:** | FGQTL3; GK; GLK; HHF3; HK4; HKIV; HXKP; LGLK; MODY2; PNDM1 |
| **Mammalian Cell Selection:** | None |
| **Vector:** | pCMV6-XL5 |
| **E. coli Selection:** | Ampicillin (100 ug/mL) |

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**Fully Sequenced ORF:**

>OriGene sequence for NM_000162 edited
GAGCAGGAAATGCCGAGCGGCGCCTGAGCCCCAGGGAAGCAGGCTAGGATGTGAGAGACA
CAGTCACCTGCAGCCTAATTACTCAAAAGCTGTCCCCAGGTCACAGAAGGGAGAGGACAT
TTCCCACTGAATCTGTCTGAAGGACACTAAGCCCCACAGCTCAACACAACCAGGAGAGAA
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TACTGGGGAAGGCTGAGGGGTCCCAGCTCCCCACGCTGGCTGCTGTGCAGATGCTGGACG
ACAGAGCCAGGATGGAGGCCGCCAAGAAGGAGAAGGTAGAGCAGATCCTGGCAGAGTTCC
AGCTGCAGGAGGAGGACCTGAAGAAGGTGATGAGACGGATGCAGAAGGAGATGGACCGCG
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CCACCCCAGAAGGCTCAGAAGTCGGGGACTTCCTCTCCCTGGACCTGGGTGGCACTAACT
TCAGGGTGATGCTGGTGAAGGTGGGAGAAGGTGAGGAGGGGCAGTGGAGCGTGAAGACCA
AACACCAGATGTACTCCATCCCCGAGGACGCCATGACCGGCACTGCTGAGATGCTCTTCG
ACTACATCTCTGAGTGCATCTCCGACTTCCTGGACAAGCATCAGATGAAACACAAGAAGC
TGCCCCTGGGCTTCACCTTCTCCTTTCCTGTGAGGCACGAAGACATCGATAAGGGCATCC
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ATGACACGGTGGCCACGATGATCTCCTGCTACTACGAAGACCATCAGTGCGAGGTCGGCA
TGATCGTGGGCACGGGCTGCAATGCCTGCTACATGGAGGAGATGCAGAATGTGGAGCTGG
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GCGAGCTGGACGAGTTCCTGCTGGAGTATGACCGCCTGGTGGACGAGAGCTCTGCAAACC
CCGGTCAGCAGCTGTATGAGAAGCTCATAGGTGGCAAGTACATGGGCGAGCTGGTGCGGC
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GCGACATCGTGCGCCGCGCCTGCGAGAGCGTGTCTACGCGCGCTGCGCACATGTGCTCGG
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GTCAGGACCCAGGCCGCCTGCCATACCGCTGGGGAACAGAGCGGGCCTCTTCCCTCAGTT
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TGGAAGCCCCCCACCTTTCTCGCTGGAATCAATTTCCCAGAAGGGAGTTGCTCACTCAGG
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AGGGGGCTCCATGGAGGAGGTGTCCCAAGCTTTGAATACCCCCAGAGACCTTTTCTCTCC
CATACCATCACTGAGTGGCTTGTGATTCTGGGATGGACCCTCGCAGCAGGTGCAAGAGAC
AGAGCCCCCAAGCCTCTGCCCCAAGGGGCCCACAAAGGGGAGAAGGGCCAGCCCTACATC
TTCAGCTCCCATAGCGCTGGCTCAGGAAGAAACCCCAAGCAGCATTCAGCACACCCCAAG
GGACAACCCCATCATATGACATGCCACCCTCTCCATGCCCAACCTAAGATTGTGTGGGTT
TTTTAATTAAAAATGTTAAAAGTTTTAAAAAAAAAAAAAAAAAAAAAA

**5' Read Nucleotide Sequence:**

>OriGene 5' read for NM_000162 unedited
GGCAGGACTTCNGTTAANNTNTAAAACACGNATTTACTNAAAGGGNCGGNNCGCGNAATT
CGGCACGAGGGAAGCAGGTAAATGCCGAGCGGCGCCTNGAGCCCCAGGAAAGCAGGCTAG
GATGTGAGAGACACAGTCACCTGCAGCCTAATTACTCAAAAGCTGTCCCCAGGTCACAGA
AGGGAGAGGACATTTCCCACTGAATCTGTCTGAAGGACACTAAGCCCCACAGCTCAACAC
AACCAGGAGAGAAAGCGCTGAGGACGCCACCCAAGCGCCCAGCAATGGCCCTGCCTGGAG
AACATCCAGGCTCAGTGAGGAAGGGTCCAGAAGGGAATGCTTGCCGACTCGTTGGAGAAC
AATGAAAAGGAGGAAACTGTGACTGAACCTCAAACCCCAAACCAGCCCGAGGAGAACCAC
ATTCTCCCAGGGACCCAGGGCGGGCCGTGACCCCTGCGGCGGAGAAGCCTTGGATATTTC
CACTTCAGAAGCCTACTGGGGAAGGCTGAGGGGTCCCAGCTCCCCACGCTGGCTGCTGTG
CAGATGCTGGACGACAGAGCCAGGATGGAGGCCGCCAAGAAGGAGAAGGTAGAGCAGATC
CTGGCAGAGTTCCAGCTGCAGGAGGAGGACCTGAAGAAGGTGATGAGACGGATGCAGAAG
GAGATGGACCGCGGCCTGAGGCTGGAGACCCATGAAGAGGCCAGTGTGAAGATGCTGCCC
ACCTACGTGCGCTCCACCCCAGAAGGCTCAGAAGTCGGGGACTTCCTCTCCCTGGACCTG
TGTGGCACTAACTTCANGGTGATGCTGGTGAAGGTGGGAAAAGTGAGGAGGGGCAGTGGA
GCGTGAAGACAACACCAGAGTACTCCATCCCCGAGGACGCCTGACCCGCACTGCTGAGAG
CTCTTCACTCA

**3' Read Nucleotide Sequence:**

>OriGene 3' read for NM_000162 unedited
GGGGCCATTGGGCGATGGTCAACTTGCCAGGNCCAGGATAGCACTGGGGNAGGGTCACAG
GGCTGCCACCCGGGCTCTGTTCAGGAAACAGCTATGACCGCGGCCGCAATCTAGAGTCGA
GTTTTTTTTTTTNTTTTTTTTTTTAAAACTTTTAACATTTTTAATTAAAAAACCCACACA
ATCTTATGTTGGGCATGGAGAGGGTGGCATGTCATATGATGGGGTTGTCCCTTGGGGTGT
GCTGAATGCTGCTTGGGGTTTCTTCCTGAGCCAGCGCTATGGGAGCTGAATATGTAGGGC
TGGCCCTTCTCCCCTTTGTGGGCCCCTTGGGGCAGAAGCTTGGGGGCTCTGTCTCTTGCA
CCTGCTGCGAGGGTCCATCCCAGAATCACAAGCCACTCAGTGATGGTATGGGAGAGAAAA
GGTCTCTGGGGGTATTCAAAGCTTGGGACACCTCCTCCATGGAGCCCCCTCCCATTGCTC
CCTGGGCCTCTTGAGCCTCAGGCAAGAAAATGGCCAGGACTGGGTGATGAGCAGCCCCTG
GCTGCCCTTTTGGCCCAAGTCTAAGTCTGGTCAAGCTGTTGGAGCTGCCTCCCCACACAG
GATGAGTTCCCAGGGAAGTGAGGCCACAGCAGGATCCAGAGGGCACCCCTTCCCAGAGCC
TGGGCCCAGGCGAGGCCAACAGCTCTGACAGTGTGGAAATGCATCAAAGTCCTGAGTGAG
CAACTCCCTTCTGGGAAATTGATTCCAGCGAGAAAGGTGGGGGGGCTTCCAGAGTCTCTG
TTCCTGCTCCTGCCGCACCCCCGTTAGGGCCCTGGGGCTGTCCCACCGAAAACTGAGGGA
AATAGCCCGCTCTTTACCACGTTTTGGGGAAAGCCGCCTTGGTTTCCTGAAAGGCCAGGT
CCTTCTGCCCCGACAT

**Restriction Sites:** Please inquire

**ACCN:** NM_000162

**Insert Size:** 2740 bp

**OTI Disclaimer:** Our molecular clone sequence data has been matched to the reference identifier above as a point of reference. Note that the complete sequence of our molecular clones may differ from the sequence published for this corresponding reference, e.g., by representing an alternative RNA splicing form or single nucleotide polymorphism (SNP).

**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).

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|---|---|
| **Reconstitution Method:** | 1. Centrifuge at 5,000xg for 5min.<br>2. Carefully open the tube and add 100ul of sterile water to dissolve the DNA.<br>3. Close the tube and incubate for 10 minutes at room temperature.<br>4. Briefly vortex the tube and then do a quick spin (less than 5000xg) to concentrate the liquid at the bottom.<br>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_000162.2, NP_000153.1 |
| **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]<br>Transcript Variant: This variant (1) encodes the isoform expressed specifically in pancreatic islet beta cells. Its first exon is specific to this variant, which has a unique 5' UTR. Isoform 1 has a distinct N-terminus; the remainder of the protein is identical to isoforms 2 and 3. |