

Product datasheet for **SC120083**

GTP cyclohydrolase 1 (GCH1) (NM_000161) Human Untagged Clone

Product data:

Product Type:	Expression Plasmids
Product Name:	GTP cyclohydrolase 1 (GCH1) (NM_000161) Human Untagged Clone
Tag:	Tag Free
Symbol:	GTP cyclohydrolase 1
Synonyms:	DYT5; DYT5a; DYT14; GCH; GTP-CH-1; GTPCH1; HPABH4B
Mammalian Cell Selection:	None
Vector:	<u>pCMV6-XL5</u>
E. coli Selection:	Ampicillin (100 ug/mL)
Fully Sequenced ORF:	>OriGene ORF within SC120083 sequence for NM_000161 edited (data generated by NextGen Sequencing)

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ATGGAGAAGGGCCCTGTGCGGGCACCGGCGGAGAAGCCGCGGGGCGCCAGGTGCAGCAAT
GGGTTCCCGAGCGGGATCCGCCCGGGCCCGGGCCAGCAGGCCGCGGAGAAGCCCCCG
CGGCCCGAGGCCAAGAGCGCGCAGCCCGCGGACGGCTGGAAGGGCGAGCGCCCCGAGC
GAGGAGGATAACGAGCTGAACCTCCCTAACCTGGCAGCCGCTACTCGTCCATCCTGAGC
TCGCTGGGCGAGAACCCCGAGCGCAAGGGCTGCTCAAGACGCCCTGGAGGGCGGCCTCG
GCCATGCAGTTCTTACCAAGGGCTACCAGGAGACCATCTCAGATGTCCTAAACGATGCT
ATATTTGATGAAGATCATGATGAGATGGTGATTGTGAAGGACATAGACATGTTTTCCATG
TGTGAGCATCACTTGGTCCATTTGTTGAAAAGGTCCATATTGGTTATCTTCTAAACAAG
CAAGTCCTTGGCCTCAGCAAACCTTGGCAGGATTGTAGAAATCTATAGTAGAAGACTACAA
GTTCAGGAGCGCCTTACAAAACAATTGCTGTAGCAATCACGGAAGCCTTGCGGCCTGCT
GGAGTCGGGGTAGTGGTTGAAGCAACACACATGTGTATGGTAATGCGAGGTGTACAGAAA
ATGAACAGCAAACCTGTGACCAGCACAATGTTGGGTGTGTTCCGGGAGGATCCAAAGACT
CGGGAAGAGTTCCTGACTCTCATTAGGAGCTGA

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Clone variation with respect to NM_000161.2



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5' Read Nucleotide Sequence:	<p>>OriGene 5' read for NM_000161 unedited</p> <pre>GCGGCAACGCAATTCGCACGAGGCCCGGCTCGGTATGTGATCTAAGCAGGTCGCGTACCT TCCTCAGGTGACTCCGGCCACAGCCCATTTGTCCGCGGCCACCGCGGAGTTTAGCCGCAG ACCTCGAAGCGCCCCGGGTCTTCCCGAACGGCAGCGGCTGCGGCGGGTCCATGGAGAA TGGCTCNGTGCGGCACCGGCGGAGAAGCCGCGGGGCCAGGTGCAGCAATGGTTCCC CGAGCGGGATCCGCCGCGGCCCGGGCCATCAGGCCGCGGAGAAGCCCCCGGGCCGA GGCCAAGAGCGCGCAGCCCGGACGGCTGGAAGGGCGAGCGGCCCGCAGCGAGGAGGA TAACGAGCTGAACCTCCCTAACCTGGCAGCCGCTACTCGTCCATCCTGAGCTCGTGGG CGAGAACCCCCAGCGGCAAGGGTGCTCAAGACGCCCTGGAGGGCGGCCTCGGCCATGCA GTTCTTACCAAGGGCTACCAGGAGACCATCTCAGATGCTTAAACGATGCTATATTTGA TGAAGATCATGATGAGATGGTGATTGTGAAGGACATAGACATGTTTTCCATGTGTGAGCA TCACTTGGTTCCATTTGTTGAAAGGTCCATATTGTTATCTTCCCTAACAGCAAGTCTT GGCCTCAGCAAATTCGAGGATTGTAGAAATCTATAGTAGAAGACTACCAGTTCAGGAG CGCCTTACAAAACACATGGCTGTAGCAATCACGGAAGCCTTGCGGCTGTGGAGTCCGC GTAGTGGTTGAAGCAACACACATGTGTTTGGTAATGCGAGGTGTACACAAAATGACCAGC ANACTGTGACCAGCAATGTTGGGTGTGTTCCCGGGAGGACC</pre>
3' Read Nucleotide Sequence:	<p>>OriGene 3' read for NM_000161 unedited</p> <pre>AATGNNACCGCGCCGCAATCTAGGATCGAGTTTTTTTTTTTTTTTTTTTTTAAAGTTACAATA GTTTAATAATTTAAATAGGACCAACTTCAGGAACATACATACTCATAACATAAAATTAAC AATTTAATTTTGAACAGTGTATTGAAATACATCAAATTCCTAAAAATCCCCAAATGGAC TCAAGATCATGGATATGAAAAGTAATTTTGAAGTACTAAAGACTAGAGTAAAACAGACA AAGTCATTACTTTGCATTTACTAATAAGACAACAGCCTGTGGATACATTAGACCTTTATA AGAACACTTCTAGGAAATGTTAGAACACGAGTCATTA AAAAGGAATATAAATGAGTTCA TAAAGATAAATGTATAGCTGACAATTTCTTTGGTCTCGAAGTCACACTTGTTTTACTT TAAATGCCCCAACATGAGTTGAGTGCTCAGAATTTACCTTATTAATGTCTTAATATTA GCAAGCTAATGGTTATTCTGGGGCTAGATTTAAAAAGGGACTTCAGCCCACCTCACTGG ACTTTAACTTCAGAAAGAAAAAGCCTGGGAACAGAAAGTTGAGAGGAATGGGAAAAACCA AAAAACCCATTCCTCTGCCATCTTGCCCCATCATAACCCAAAATAGCATCCAAGTGG GCAGAGATGGGGACTAAAGTTTAAAGCAAGCATCAAAGTTATACTTTTGGGTAATGGG ATGAAATTTGAAGACACTATGTCAACCAATCCTAAACTCATGGATAACTGTGTTTGTGTT CTTGTGAGAGTTGCGGTTTTGTTGTTTAAATTTGGCCACGCTGCCCATGGAGGAATTTAA GATATCATTATTAGGCACAGCTCCAGATTAATACTATCCATCTTACGGAGTCCATGAG ACAGACCCCTTGACCCCAAGGAAGGGACCGAGCTTCATGCATTTACGATCGGTACATA CCTTGATAACG</pre>
Restriction Sites:	NotI-NotI
ACCN:	NM_000161
Insert Size:	3000 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).

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_000161.2](#), [NP_000152.1](#)

RefSeq Size: 2941 bp

RefSeq ORF: 753 bp

Locus ID: 2643

UniProt ID: [P30793](#)

Cytogenetics: 14q22.2

Domains: GTP_cyclohydrol

Protein Families: Druggable Genome

Protein Pathways: Folate biosynthesis, Metabolic pathways

Gene Summary: This gene encodes a member of the GTP cyclohydrolase family. The encoded protein is the first and rate-limiting enzyme in tetrahydrobiopterin (BH4) biosynthesis, catalyzing the conversion of GTP into 7,8-dihydroneopterin triphosphate. BH4 is an essential cofactor required by aromatic amino acid hydroxylases as well as nitric oxide synthases. Mutations in this gene are associated with malignant hyperphenylalaninemia and dopa-responsive dystonia. Several alternatively spliced transcript variants encoding different isoforms have been described; however, not all variants give rise to a functional enzyme. [provided by RefSeq, Jul 2008]

Transcript Variant: This variant (1), also known as Type I, represents the longest transcript. Variants 1 and 2 encode the longest isoform (1), which is the active enzyme.