

Product datasheet for **SC301132**

DIO2 (NM_001007023) Human Untagged Clone

Product data:

Product Type:	Expression Plasmids
Product Name:	DIO2 (NM_001007023) Human Untagged Clone
Symbol:	DIO2
Synonyms:	5DII; D2; DIOII; SelY; TXDI2
Mammalian Cell Selection:	Neomycin
Vector:	pCMV6-Entry (PS100001)
E. coli Selection:	Kanamycin (25 ug/mL)
Fully Sequenced ORF:	>SC301132 representing NM_001007023. Blue=Insert sequence Red=Cloning site Green=Tag(s)

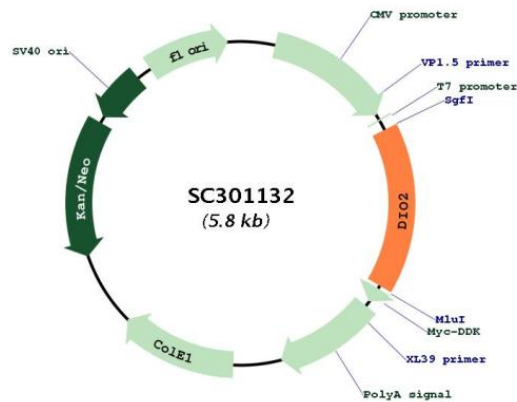
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GCTCGTTTAGTGAACCGTCAGAATTTTGTAAACGACTCACTATAGGGCGGCCGGGAATTCGTCGACTG
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TTCTGGCTCTCTATGACTCGGTCATTCTGCTCAAGCACGTGGTCTGCTGTTGAGCCGCTCCAAGTCC
ACTCGCGGAGAGTGGCGGCATGCTGACCTCAGAGGGACTGCGTGCCTGGAAGAGCTTCTCCTCCTC
GATGCCTACAAACAGCTAAATTGCCTCCATCAGGTTTTAGCAAAGATGGACACATTTTATGACTAGTA
TATGAAGCTTATAAAGCAGACTACTGGTCTACTCACATTTGGATTTATGGATGGTAAAATTGGGTGAG
GATGCCCAATTCCAGTGTGGTGCATGTCTCCAGTACAGAAGGAGGTGACAACAGTGGCAATGGTACC
CAGGAGAAGATAGCTGAGGGAGCCACATGCCACCTTCTTGACTTTGCCAGCCCTGAGCGCCCACTAGTG
GTCAACTTTGGCTCAGCCACTTGACCTCCTTTACGAGCCAGCTGCCAGCCTTCCGCAAACCTGGTGAA
GAGTTCTCCTCAGTGGCTGACTTCTGCTGGTCTACATTGATGAGGCTCATCCATCAGATGGCTGGGCG
ATACCGGGGGACTCCTCTTTGTCTTTGAGGTGAAGAAGCACCAGAACCAGGAAGATCGATGTGCAGCA
GCCCAGCAGCTTCTGGAGGCTTCTCCTTGCCGCCCCAGTGCCGAGTTGTGGCTGACCGCATGGACAAT
AACGCCAACATAGCTTACGGGTAGCCTTTGAACGTGTGTGCATTGTGCAGAGACAGAAAATTGCTTAT
CTGGGAGGAAAGGGCCCTTCTCCTACAACCTTCAAGAAGTCCGGCATTGGCTGGAGAAGAATTCAGC
AAGAGATGAAAGAAAAGTAACTAGATTAGCTGGTTAA
ACGCGTACGCGGCCGCTCGAGCAGAAACTCATCTCAGAAGAGGATCTGGCAGCAAATGATATCCTGGAT
TACAAGGATGACGACGATAAGGTTTAAACGGCCGGC
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Restriction Sites: SgfI-MluI



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Plasmid Map:



ACCN: NM_001007023

Insert Size: 930 bp

OTI Disclaimer: Due to the inherent nature of this plasmid, standard methods to replicate additional amounts of DNA in *E. coli* are highly likely to result in mutations and/or rearrangements. Therefore, OriGene does not guarantee the capability to replicate this plasmid DNA. Additional amounts of DNA can be purchased from OriGene with batch-specific, full-sequence verification at a reduced cost. Please contact our customer care team at custsupport@origene.com or by calling 301.340.3188 option 3 for pricing and delivery.

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).

The expression of this clone is not guaranteed due to the nature of selenoproteins.

OTI Annotation: This clone encodes a selenoprotein containing the rare amino acid selenocysteine (Sec). Sec is encoded by UGA codon, which normally signals translational termination. Expression of this clone is not guaranteed due to the nature of selenoproteins.

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_001007023.4](#)

RefSeq Size: 6256 bp

RefSeq ORF: 930 bp

Locus ID: 1734

UniProt ID: [Q92813](#)

Cytogenetics: 14q31.1

Protein Families: Druggable Genome

MW: 34.7 kDa

Gene Summary: The protein encoded by this gene belongs to the iodothyronine deiodinase family. It catalyzes the conversion of prohormone thyroxine (3,5,3',5'-tetraiodothyronine, T4) to the bioactive thyroid hormone (3,5,3'-triiodothyronine, T3) by outer ring 5'-deiodination. This gene is widely expressed, including in thyroid and brain. It is thought to be responsible for the 'local' production of T3, and thus important in influencing thyroid hormone action in these tissues. It has also been reported to be highly expressed in thyroids of patients with Graves disease, and in follicular adenomas. The intrathyroidal T4 to T3 conversion by this enzyme may contribute significantly to the relative increase in thyroidal T3 production in these patients. This protein is a selenoprotein containing the non-standard amino acid, selenocysteine (Sec), which is encoded by the UGA codon that normally signals translation termination. The 3' UTRs of selenoprotein mRNAs contain a conserved stem-loop structure, designated the Sec insertion sequence (SECIS) element, that is necessary for the recognition of UGA as a Sec codon, rather than as a stop signal. Unlike the other two members (DIO1 and DIO3) of this enzyme family, the mRNA for this gene contains an additional in-frame UGA codon that has been reported (in human) to function either as a Sec or a stop codon, which can result in two isoforms with one or two Sec residues; however, only the upstream Sec (conserved with the single Sec residue found at the active site in DIO1 and DIO3) was shown to be essential for enzyme activity (PMID:10403186). Alternatively spliced transcript variants have been described for this gene. [provided by RefSeq, Oct 2018]

Transcript Variant: This variant (3, also known as hDII-b) includes a novel in-frame coding exon compared to variant 1. The resulting isoform (b) is longer, containing an internal protein segment not found in isoform a.