

Product datasheet for **SC119691**

DIO2 (NM_000793) Human Untagged Clone

Product data:

Product Type:	Expression Plasmids
Product Name:	DIO2 (NM_000793) Human Untagged Clone
Symbol:	DIO2
Synonyms:	5DII; D2; DIOII; SELENOY; SeLY; TXDI2
Mammalian Cell Selection:	None
Vector:	<u>pCMV6-XL4</u>
E. coli Selection:	Ampicillin (100 ug/mL)
Fully Sequenced ORF:	>OriGene ORF within SC119691 sequence for NM_000793 edited (data generated by NextGen Sequencing) ATGGGCATCCTCAGCGTAGACTTGCTGATCACAACGAAATTCTGCCAGTTTTTTCTCC AACTGCCTCTTCTGGCTCTATGACTCGGTCATTCTGCTCAAGCACGTGGTGCTGCTG TTGAGCCGCTCCAAGTCCAAGTCCGCGGAGAGTGGCGGCGCATGCTGACCTCAGAGGGACTG CGCTGCGTCTGGAAGAGCTTCTCCTCGATGCCTACAAACAGGTGAAATTGGGTGAGGAT GCCCCAATTCCAGTGTGGTGCAATGTCTCCAGTACAGAAGGAGGTGACAACAGTGGCAAT GGTACCCAGGAGAAGATAGCTGAGGGAGCCACATGCCACCTTCTTGACTTTGCCAGCCCT GAGCGCCCACTAGTGGTCAACTTTGGCTCAGCCACTTGACCTCCTTTACGAGCCAGCTG CCAGCCTTCCGCAAAGTGGTGAAGAGTTCTCCTCAGTGGCTGACTTCTGCTGGTCTAC ATTGATGAGGCTCATCCATCAGATGGCTGGGCGATACCGGGGACTCCTCTTTGTCTTT GAGGTGAAGAAGCACCAGAACCAGGAAGATCGATGTGCAGCAGCCAGCAGCTTCTGGAG CGTTTCTCCTTGCCGCCCCAGTGCCGAGTTGTGGCTGACCGCATGGACAATAACGCCAAC ATAGCTTACGGGGTAGCCTTTGAACGTGTGTGCATTGTGCAGAGACAGAAAATTGCTTAT CTGGGAGGAAAGGGCCCTTCTCCTACAACCTTCAAGAAGTCCGGCATTGGCTGGAGAAG AATTTAGCAAGAGATGAAAGAAAAGTATTAGCTGGTTAA

Clone variation with respect to NM_000793.5



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5' Read Nucleotide Sequence:

>OriGene 5' read for NM_000793 unedited
 CACCACCCCTTTTAAATAAGAGGGTGAAGGGGAACCAGAGCGCACAAGGGAACGACT
 CAGGAGGCAGAGAAGATGGGCATCCTCAGCGTAGACTTGCTGATCACACTGCAAATCTG
 CCAATTTTTTCTCCAATGCCTCTTCTGGCTCTCTATGACTCGGTCATTCTGCTCAAG
 CACGTGGTGCTGCTGTTGAGCCGCTCCAAGTCCACTCGCGGAGAGTGGCGGCGCATGCTG
 ACCTCAGAGGGACTGCGCTGCGTCTGGAAGAGCTTCTCCTCGATGCCTACAAACAGGTG
 AAATTGGGTGAGGATGCCCCCAATTCAGTGTGGTGCATGTCTCCAGTACAGAAGGAGGT
 GACAACAGTGGCAATGGTACCCAGGAGAAGATAGCTGAGGGAGCCACATGCCACCTTCTT
 GACTTTGCCAGCCCTGAGCGCCACTAGTGGTCAACTTTGGCTCAGCCACTTGACCTCCT
 TTCACGAGCCAGCTGCCAGCCTTCGCAAACCTGGTGAAGAGTTCTCCTCAGTGGCTGAC
 TTCCTGCTGGTCTACATTGATGAGGCTCATCCATCAGATGGCTGGGCGATACCGGAGGAC
 TCCTCTTTGTCTTTGAGGTGAAGAGCACCAGAACCAGGAAGATCGATGTGCAGCAGCCC
 AGCAGCTTCTGGAACCGTTTCTCCTTGCCGCCCATAGCCGAGTTGTGGCTGACCCGATG
 GACAATAACCGCCACATAGCTTACGGAGTAACCTTTGAACGTGTGTGCATTGTGCAAAGA
 CAGAAAATTGCTTATCTGGAN

3' Read Nucleotide Sequence:

>OriGene 3' read for NM_000793 unedited
 AAATCTGTGNACCGCGCCGAATTTANNATCGAGTTTTTTTTTTTTTTTTTTTTTTTTTT
 TTTTTTAAATTTTCAAATTTTTTATTCCAGGAGCCAAATATAAAAATACACTCAGGC
 AAAATGAAAGACAATAGGCTATTCTTCCACTGGGATGAAAAATAACCCTTCTGGTT
 AACGGGAAGAAAAAATTACCCGAACAGATCACTGGGAAGTTGACTCTACCAAACTCAA
 GGGGACGGGCTTTAAAGGAGGGGAAAACACGGGACCAAGGACCCATGGGGAAAAA
 AGCCATGCAATTTAAGGGACTGTCCCTTAGCTATCCAAAGGCGGACCAGTTCCTTATCGG
 CCTCTAAGGAGGTCAGTAACATTTTAATAACGGCATGAAACATTTTTACATTACTGGGCG
 GCCATCTCCATTATGCCATTAAAAAAAACATGGTTGATCCCACTAGTATTTTACCAA
 CAAAAACGAAAGTGAGTTTTTGATAGGCCAGACCATAGGCCTTTCAAACATTAGGGGT
 TCGACTCCACCCACATGGTATGACAAAATCTCAAACCTGCTGGGAACCTTTTGCAATATA
 ACACACCTAATGACACTTACAAGGTCACCCCAAAACCTCCTGTAACCCCGCCTAGGGG
 AAAACGATTTTGGGGCCAAAACAGAAAACCCACCCTTTACTTTGGATATAATTTTCTC
 TCACCTTACCCTTGCACTATAAAAAACACCCCTTTCTCGGGGCACAAAAACCACAAT
 TCTTAAAGGACAAACCTTTAAACCCCTGAAACCCACGCGTTCTGGAACCTCAATATTT
 CCCCCCTATTCAACACACTTGGGTCTCCCCACCTCAAAAACGAGTTTCGCGCATTCTC
 AAAGAAACCCTCCCCGAACACCTAAAACCTCGCGGGGC

Restriction Sites:

NotI-NotI

ACCN:

NM_000793

Insert Size:

4100 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.

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 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_000793.3](#), [NP_000784.2](#)

RefSeq Size: 6395 bp

Locus ID: 1734

UniProt ID: [Q92813](#)

Cytogenetics: 14q31.1

Protein Families: Druggable Genome

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 (2) uses a different promoter and contains two novel 5' non-coding exons; thus, has a longer 5' UTR compared to the variant 1. Variants 1 (NM_001366496.1), 2 and 3 represent the same one-Sec containing isoform (b), considered to be the canonical form. Sequence Note: This RefSeq record was created from transcript and genomic sequence data to make the sequence consistent with the reference genome assembly. The genomic coordinates used for the transcript record were based on transcript alignments.