Product datasheet for SC124708

DIO2 (NM_013989) Human Untagged Clone

Product data:

Product Type:	Expression Plasmids
Product Name:	DIO2 (NM_013989) Human Untagged Clone
Symbol:	DIO2
Synonyms:	5DII; D2; DIOII; SELENOY; SelY; TXDI2
Mammalian Cell Selection:	None
Vector:	pCMV6-XL5
E. coli Selection:	Ampicillin (100 ug/mL)
Fully Sequenced ORF:	>NCBI ORF sequence for NM_013989, the custom clone sequence may differ by one or more nucleotides

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ATGGGCATCCTCAGCGTAGACTTGCTGATCACACTGCAAATTCTGCCAGTTTTTTTCTCCAACTGCCTCT
TCCTGGCTCTCTATGACTCGGTCATTCTGCTCAAGCACGTGGTGCTGCTGTTGAGCCGCTCCAAGTCCAC
TCGCGGAGAGTGGCGGCGCATGCTGACCTCAGAGGGACTGCGCTGCGTCTGGAAGAGCTTCCTCCTCGAT
GCCTACAAACAGGTGAAATTGGGTGAGGATGCCCCCAATTCCAGTGTGGTGCATGTCTCCAGTACAGAAG
GAGGTGACAACAGTGGCAATGGTACCCAGGAGAAGATAGCTGAGGGAGCCACATGCCACCTTCTTGACTT
TGCCAGCCCTGAGCGCCCACTAGTGGTCAACTTTGGCTCAGCCACTTGACCTCCTTTCACGAGCCAGCTG
CCAGCCTTCCGCAAACTGGTGGAAGAGTTCTCCTCAGTGGCTGACTTCCTGCTGGTCTACATTGATGAGG
CTCATCCATCAGATGGCTGGGCGATACCGGGGGACTCCTCTTTGTCTTTTGAGGTGAAGAAGCACCAGAA
CCAGGAAGATCGATGTGCAGCAGCCCAGCAGCTTCTGGAGCGTTTCTCCTTGCCGCCCCAGTGCCGAGTT
GTGGCTGACCGCATGGACAATAACGCCAACATAGCTTACGGGGTAGCCTTTGAACGTGTGTGCATTGTGC
AGAGACAGAAAATTGCTTATCTGGGAGGAAAGGGCCCCTTCTCCTACAACCTTCAAGAAGTCCGGCATTG
GCTGGAGAAGAATTTCAGCAAGAGATGAAAGAAAACTAGATTAGCTGGTTAA
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5' Read Nucleotide Sequence:	``` >OriGene 5' read for NM_013989 unedited GTAGAATTAGTATACGACTCATATAGGGCGGCCGCGAATTCGCACGAGGGGAGAGAACTAG TCTCGAGTTTTTTTTTTTTTTTTTTTTTCCCCTAAATGGTATGGCCAAAAGTCAGAGTTA AAATATATATAGTTAGATTCCAACTTCCTCCTTCACTCTAAAAATAGAATCCAAACCCAC TCTTCATATATGCTTCCAGAATGGGGCTTAAGTACCAATCTCTGCTTTGCAATGGGCACA ATCTTGGTCATGTCCTGAGGCTCTCTAAGAAAAGAGAGGATCTAGGATGGGAGAGCTAGA AAGTTGCTAACTGGGAAGAACAAGGCCCTGAGGGCTTGGTCTACCAATCTGGGAAGATTT GAAAACAAACTTCTCGCAACTGAAGGAAGGCTGAAGGCTGCTGCAAGTCATTGAGTGACT TTAGGATGAGCAAAACATTGGGCCACTTCCTAATGCCCTATGTGTATAGTACCAGAAGCA AGGTCTCAGACTTAACAGACCCAGCTCTGTTCCAAGGTGAGTCTGAACCAATAGAAAGCA AACATGTGCAGATATCCAAACAAGACTGCTCATGCAAGTCGGGGCTGGCTACCCGTCTTA GGCAGCAACAGCAGAGCTCCAGGGAGCTTATTCAATATTTACTGAGACTTCGAAGACCCA GCAGATGTTTAATGAAGTCACTATTTTGGCTCAAACCCTCCACTTCTCCCCCTCCCCTCA AAAAGCCAACAGGTAAACACATAAATGAAAGAAACCCACAGAAGGGGATGGGAAATAAGA AAATTCTCTCAAGACTTNCTCCAGGCCATGTCACTGGTCAGCGTGGTTTTTATGTGTATT AGGGATGGGGGATGTGAAGAAATAGTATCCAGTCCTTTATAACCAAGCANTAAATGATAT GGGTAGGGAATGTNGGCCAGNTTNNGTTAGTTTGCATCACATGTCCCAGACTACTAGCCC AGTATC ```
Restriction Sites:	NotI-NotI
ACCN:	NM_013989
Insert Size:	1500 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_013989.2, NP_054644.1
RefSeq Size:	6703 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 (1, also known as hDII-a) represents the predominant transcript and encodes two isoforms resulting from the use of alternative in-frame translation termination codons. The shorter isoform (b) with one Sec residue results from translation termination at the second UGA codon, while the longer isoform (a) with two Sec residues results from translation termination at an in-frame downstream UAA stop codon. This RefSeq represents the longer isoform (a). 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.