

## Product datasheet for SC329976

### DIO2 (NM\_001242503) Human Untagged Clone

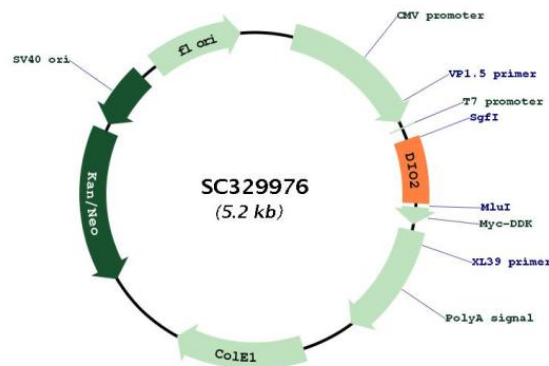
#### Product data:

Product Type:	Expression Plasmids
Product Name:	DIO2 (NM_001242503) Human Untagged Clone
Tag:	Tag Free
Symbol:	DIO2
Synonyms:	5DII; D2; DIOII; SelY; TXDI2
Vector:	pCMV6-Entry (PS100001)
Fully Sequenced ORF:	>SC329976 representing NM_001242503. Blue=Insert sequence Red=Cloning site Green=Tag(s)

```
ATGGGCATCCTCAGCGTAGACTTGCTGATCACACTGCAAATCTGCCAGTTTTTTTCTCCAAGTGCCTC
TTCCTGGCTCTATGACTCGGTCATTCTGCTCAAGCACGTGGTCTGCTGTTGAGCCGCTCCAAGTCC
ACTCGCGGAGAGTGGCGGCGCATGCTGACCTCAGAGGGACTGCGTCTGGAAGAGCTTCTCCTCCTC
GATGCCTACAAACAGACTGACAGTGTGTACTTACTCTAAATTTCCAAGCAAATTAGTCTGTGTTTT
GGAAAGAATTCTGCAGCTGAACATACATTGTTTCTAAGAAGGAGAAGGTGCCTTAA
```

Restriction Sites: SgfI-MluI

Plasmid Map:



ACCN: NM\_001242503

Insert Size: 333 bp



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<b>OTI Disclaimer:</b>	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).
<b>Components:</b>	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).
<b>Reconstitution Method:</b>	<ol style="list-style-type: none"><li>1. Centrifuge at 5,000xg for 5min.</li><li>2. Carefully open the tube and add 100ul of sterile water to dissolve the DNA.</li><li>3. Close the tube and incubate for 10 minutes at room temperature.</li><li>4. Briefly vortex the tube and then do a quick spin (less than 5000xg) to concentrate the liquid at the bottom.</li><li>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.</li></ol>
<b>RefSeq:</b>	<a href="#">NM_001242503.1</a>
<b>RefSeq Size:</b>	6176 bp
<b>RefSeq ORF:</b>	333 bp
<b>Locus ID:</b>	1734
<b>UniProt ID:</b>	<a href="#">Q92813</a>
<b>Cytogenetics:</b>	14q31.1
<b>Protein Families:</b>	Druggable Genome
<b>MW:</b>	12.5 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 (5) includes a novel exon in the coding region, which causes a frameshift compared to variant 1. The resulting isoform (d) is shorter with a distinct C-terminus compared to isoform a.