

## Product datasheet for **RG213149**

### DIO2 (NM\_001007023) Human Tagged ORF Clone

#### Product data:

**Product Type:** Expression Plasmids  
**Product Name:** DIO2 (NM\_001007023) Human Tagged ORF Clone  
**Symbol:** DIO2  
**Synonyms:** 5DII; D2; DIOII; SelY; TXDI2  
**Mammalian Cell Selection:** Neomycin  
**Vector:** pCMV6-AC-GFP (PS100010)  
**E. coli Selection:** Ampicillin (100 ug/mL)  
**ORF Nucleotide Sequence:** >RG213149 representing NM\_001007023  
Red=Cloning site Blue=ORF Green=Tags(s)

TTTTGTAATACGACTCACTATAGGGCGGCCGGAATTCGTCGACTGGATCCGGTACCGAGGAGATCTGCC  
GCCGCGATCGCC

ATGGGCATCCTCAGCGTAGACTTGCTGATCACACTGCAAATTCTGCCAGTTTTTTCTCCAAGTGCCTCT  
TCCTGGCTCTCTATGACTCGGTCATTCTGCTCAAGCACGTGGTGTGCTGTTGAGCCGCTCCAAGTCCAC  
TCGCGGAGAGTGGCGGCGCATGCTGACCTCAGAGGGACTGCGCTGCGTCTGGAAGAGCTTCTCCTCGAT  
GCCTACAAACAGCTAAATTGCTCCATCAGTTTTAGCAAAGATGGACACATTTATGACTAGTATATG  
AAGCTTATAAAGCAGACTACTGGTCTACTCACATTTGGATTTATGGATGGTAAAATGGGTGAGGATGC  
CCCAATTCCAGTGTGGTGCATGTCTCCAGTACAGAAGGAGGTGACAACAGTGGCAATGGTACCCAGGAG  
AAGATAGCTGAGGGAGCCACATGCCACCTTCTGACTTTGCCAGCCCTGAGCGCCCACTAGTGGTCAACT  
TTGGCTCAGCCACTTGACCTCCTTTACAGAGCCAGCTGCCAGCCTCCGCAAAGTGGTGAAGAGTTCTC  
CTCAGTGGCTGACTTCTGCTGGTCTACATTGATGAGGCTCATCCATCAGATGGCTGGGCGATACCGGGG  
GACTCCTCTTTGCTTTTGGAGTGAAGAAGCACCAGAACCAGGAAGATCGATGTGCAGCAGCCCAGCAGC  
TTCTGGAGCGTTTCTCCTTGCCGCCAGTGCCGAGTTGTGGCTGACCGCATGGACAATAACGCCAACAT  
AGCTTACGGGTAGCCTTTGAACGTGTGTGCATTGTGCAGAGACAGAAAATTGCTTATCTGGGAGGAAA  
GGCCCCCTTCTCTACAACCTTCAAGAAGTCCGGCATTGGCTGGAGAAGAATTTACAGCAAGAGATGAAAGA  
AAACTAGATTAGCTGGT

ACGCGTACGCGGCCGCTCGAG - GFP Tag - GTTTAA



[View online »](#)

**Protein Sequence:** >RG213149 representing NM\_001007023  
Red=Cloning site Green=Tags(s)

MGILSVDLLITLQILPVFFSNCLFLALYDSVILLKHVVLLLRSKSTRGEWRRLTSEGLRCVWKSFLLD  
 AYKQLNCPPSGFSKDGHIL\*LVYEAYKSRLLVYSHLDLWMVKLGEDAPNSSVVHVSVSTEGGDNNGTQE  
 KIAEGATCHLLDFASPERPLVVNFGSAT\*PPFTSQLPAFRKLVVEEFSVADFLVYIDEAHPSDGWAIPG  
 DSSLSEVKKHQNQEDRCAAAQQLLERFSLPPQCRVVADRMNANIAYGVAFERVCIVQRQKIAYLGGK  
 GPFSYNLQEVRHWLEKNFSKR\*KKTRLAG

TRTRPLE - GFP Tag - V

**Restriction Sites:** SgfI-MluI

**Cloning Scheme:**

Cloning sites used for ORF Shuttling:



\* The last codon before the Stop codon of the ORF

**ACCN:** NM\_001007023

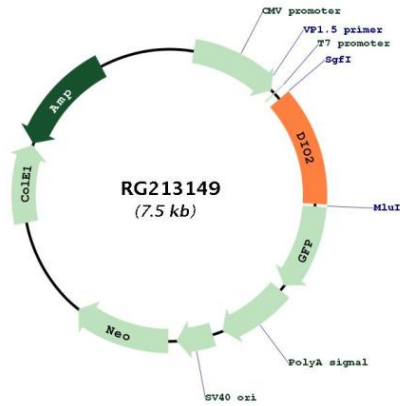
**OTI Disclaimer:** Due to the inherent nature of this plasmid, standard methods to replicate additional amounts of DNA in E. coli are highly likely to result in mutations and/or rearrangements. Therefore, OriGene does not guarantee the capability to replicate this plasmid DNA. Additional amounts of 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](mailto: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.

<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>	<u>NM_001007023.4, NP_001007024.1</u>
<b>RefSeq Size:</b>	6129 bp
<b>RefSeq ORF:</b>	930 bp
<b>Locus ID:</b>	1734
<b>UniProt ID:</b>	<u>Q92813</u>
<b>Cytogenetics:</b>	14q31.1
<b>Protein Families:</b>	Druggable Genome
<b>Gene Summary:</b>	<p>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]</p>

Product images:



Circular map for RG213149