

## Product datasheet for MR221933

### Dio2 (NM\_010050) Mouse Tagged ORF Clone

#### Product data:

Product Type:	Expression Plasmids
Product Name:	Dio2 (NM_010050) Mouse Tagged ORF Clone
Symbol:	Dio2
Synonyms:	5DII; AI324267; DIOII
Mammalian Cell Selection:	Neomycin
Vector:	pCMV6-Entry (PS100001)
E. coli Selection:	Kanamycin (25 ug/mL)
ORF Nucleotide Sequence:	>MR221933 ORF sequence Red=Cloning site Blue=ORF Green=Tags(s)

TTTTGTAATACGACTCACTATAGGGCGGCCGGAATTCGTCGACTGGATCCGGTACCGAGGAGATCTGCCGCC**CGATCGCC**

ATGGGACTCCTCAGCGTAGACTTGCTGATCACCTGCAGATCCTGCCAGTCTTTTTCTCCAAGTGCCTCTCCTGGCGCTCTATGACTCGGTCATTCTGCTCAAGCACGTGGCGTTGCTTCTGAGCCGCTCCAAGTCCACTCGCGGAGAGTGGAGGCGCATGCTGACCTCAGAAGGGCTGCGCTGTGTCTGGAACAGCTTCTCCTAGATGCCTACAAACAGGTTAACTGGGTGAAGATGCTCCCAATCCAGTGTGGTGCACGTCTCCAATCCTGAATCAGGTAACAATTATGCCTCGGAGAAGACCGCTGATGGGGCGAATGCCACCTTCTTGACTTTGCCAGTGCAGAGCGCCCACTGGTGGTCAACTTTGGTTCAGCCACCTGACCACCTTTCAGTGGCAACTGCCAGCCTTCGCCAGCTGGTGGAGAGTTCTCCTCGGTGGCTGACTTCTGTTGGTATACATTGATGAGGCTCACCTTCGGATGGCTGGCAGTGCCTGGGACTCCTCTGTCTTTTGGAGTTAAGAAGCACCGGAACCAAGAGGACCGATGTGCAGCAGCTCACAGCTCCTGGAGCGTTTCTCCTTGGCCGCCAGTGTCAAGTTGTGGCTGACCGCATGGACAATAATGCCAACGTAGCTTACGGGTAGCCTTTGAACGTGTGTGCATCGTGCAGAGACGGAATTTGCTTACTTAGGAGGGAAGGGCCCTTCAGCTATAACCTACAAGAAGTCCGAAGTTGGCTGGAGAA GAATTCAGCAAGAGATGAATTCTAGAT

**ACGCGT**ACGCGGCCGCTCGAGCAGAAACTCATCTCAGAAGAGGATCTGGCAGCAAATGATATCCTGGATTACAAGGATGACGACGATAAGGTTTAA



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**Protein Sequence:** >MR221933 protein sequence  
Red=Cloning site Green=Tags(s)

MGLLSVDLLITLQILPVFFSNCLFLALYDSVILLKHVALLLSRSKSTRGEWRMLTSEGLRCVWNSFLLD  
 AYKQVKLGEDAPNSSVVHVSNPESGNNYASEKTADGAECHLLDFASAERPLVVNFGSAT\*PPFTRQLPAF  
 RQLVEEFSSVADFLLVYIDEAHPSDGWAVPGDSSLSFEVKKHRNQEDRCAAHQLLERFSLPPQCQVVAD  
 RMDNANVAYGVAFERVCIVQRRKIAYLGGKGF SYNLQEVRSWLEKNFSKR\*I LD

TRTRPLEQKLISEEDLAANDILDYKDDDDKV

**Restriction Sites:** SgfI-MluI

**Cloning Scheme:**



**ACCN:** NM\_010050

**OTI Disclaimer:** 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\\_010050.3](#)

**RefSeq Size:** 5843 bp

**RefSeq ORF:** 789 bp

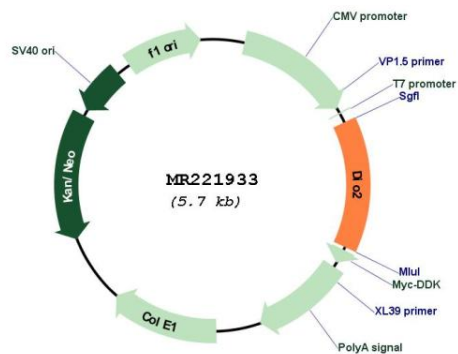
**Locus ID:** 13371

**UniProt ID:** [Q9Z1Y9](#)

**Cytogenetics:** 12 D3

**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 highly expressed in brain, placenta and mammary gland. It is thought to be responsible for the 'local' production of T3, and thus important in influencing thyroid hormone action in these tissues. Knockout studies in mice suggest that this gene may play an important role in brown adipose tissue lipogenesis, auditory function, and bone formation. 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, resulting in two potential 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). In addition, the lack of conservation of the protein extension past the second TGA codon suggests that the one-Sec containing isoform represents the canonical form. [provided by RefSeq, Oct 2018]

Product images:



Circular map for MR221933