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Product datasheet for RR201204

Dio2 (NM_031720) Rat Tagged ORF Clone

Product data:

Product Type:	Expression Plasmids
Product Name:	Dio2 (NM_031720) Rat Tagged ORF Clone
Symbol:	Dio2
Synonyms:	5DII; DIOII
Mammalian Cell Selection:	Neomycin
Vector:	pCMV6-Entry (PS100001)
E. coli Selection:	Kanamycin (25 ug/mL)

ORF Nucleotide Sequence:

>RR201204 representing NM_031720
Red=Cloning site Blue=ORF Green=Tags(s)

TTTTGTAATACGACTCACTATAGGGCGGCCGGGAATTCGTCGACTGGATCCGGTACCGAGGAGATCTGCC
GCCGCGATCGCC

ATGGGACTCCTCAGCGTAGACTTGCTGATCACTCTTCAGATTCTGCCAGTCTTTTTCTCCAACTGCCTCT
TCCTGGCGCTCTATGACTCGGTCATTCTGCTCAAGCACGTGGCGCTGCTTCTCAGCCGCTCCAAGTCCAC
TCGCGGAGAGTGGAGGCGCATGCTGACCTCAGAAGGACTACGCTGTGTCTGGAACAGCTTTCTCCTAGAC
GCCTACAAACAGGTTAAATTGGGTGAAGATGCTCCCAATTCCAGTGTGGTGCACGTGTCCAATCCTGAAG
CAGGTAACAATTGTGCCTCAGAGAAGACGGCGGATGGGGCTGAATGCCACCTTCTTGACTTTGCCAGTGC
AGAGCGCCCACTGGTGGTCAACTTTGGTTCAGCGACCTGACCACCTTTTACTAGGCAACTGCCAGCCTTC
CGCCAGTTGGTGGAAGAGTTCTCCTCGGTGGCTGACTTCCTGTTGGTATACATTGATGAGGCTCACCCTT
CAGATGGCTGGGCAGTGCCTGGGGACTCCTCTATGTCTTTTGAGGTTAAGAAGCACCGGAACCAAGAGGA
CCGATGTGCTGCAGCCCACCAGCTCCTGGAGCGTTTCTCCTTGCCGCCCCAGTGTCAAGTTGTGGCTGAC
CGCATGGACAATAATGCCAACGTAGCTTATGGGGTAGCCTTTGAACGTGTGTGCATCGTGCAGAGACGGA
AAATTGCTTACTTAGGAGGGAAGGGCCCCTTCAGCTATAACCTGCAAGAAGTCCGAAGTTGGCTGGAGAA
GAATTTCAGCAAGAGATGAATTCTAGAT

ACGCGTACGCGGCCGCTCGAGCAGAAACTCATCTCAGAAGAGGATCTGGCAGCAAATGATATCCTGGATT
ACAAGGATGACGACGATAAGGTTTAA

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Protein Sequence:

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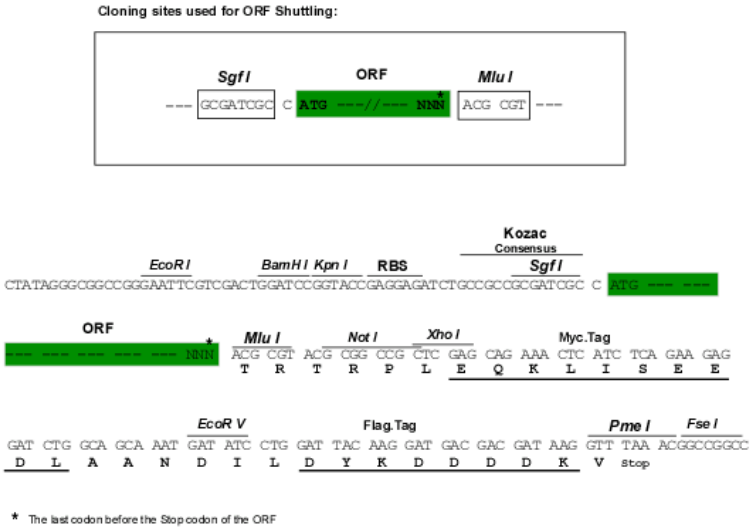
Red=Cloning site Green=Tags(s)

MGLLSVDLLITLQILPVFFSNCLFLALYDSVILLKHVALLLSRSKSTRGEWRRMLTSEGLRCVWNSFLLD
AYKQVKLGEDAPNSSVVHVSNPEAGNNCASEKTADGAECHLLDFASAERPLVVNFGSAT*PPFTRQLPAF
RQLVEEFSSVADFLLVYIDEAHPSDGWAVPGDSSMSFEVKKHRNQEDRCAAAHQLLERFSLPPQCQVVAD
RMDNNANVAYGVAFERVCIVQRRKIAYLGGKGPFSYNLQEVRSWLEKNFSKR*ILD

TRTRPLEQKLISEEDLAANDILDYKDDDDKV

Restriction Sites: SgfI-MluI

Cloning Scheme:



ACCN: NM_031720

ORF Size: 798 bp

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).

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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_031720.4, NP_113908.3
RefSeq Size:	1829 bp
RefSeq ORF:	789 bp
Locus ID:	65162
UniProt ID:	P70551
Cytogenetics:	6q31
MW:	29.8 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 expressed in a few tissues in rat, including brain, pituitary and brown adipose tissue. It is thought to be responsible for the 'local' production of T3, and thus important in influencing thyroid hormone action in these tissues. Studies in rat suggest that this gene may play an important role in the regulation of lipid metabolism and thermogenesis, and in osteoarthritis pathogenesis by enhancing the chondrocyte hypertrophy and inflammatory response. 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]

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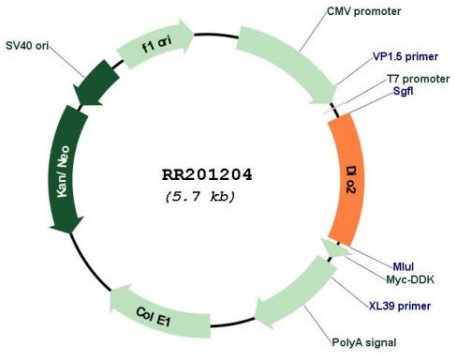
Product images:



Circular map for RR201204

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