

Product datasheet for **MG208109**

Shmt2 (NM_028230) Mouse Tagged ORF Clone

Product data:

Product Type:	Expression Plasmids
Product Name:	Shmt2 (NM_028230) Mouse Tagged ORF Clone
Tag:	TurboGFP
Symbol:	Shmt2
Synonyms:	2700043D08Rik; AA408223; AA986903
Mammalian Cell Selection:	Neomycin
Vector:	pCMV6-AC-GFP (PS100010)
E. coli Selection:	Ampicillin (100 ug/mL)



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ORF Nucleotide Sequence:

>MG208109 representing NM_028230
 Red=Cloning site Blue=ORF Green=Tags(s)

TTTTGTAATACGACTCACTATAGGGCGGCCGGGAATTCGTCGACTGGATCCGGTACCGAGGAGATCTGCC
 GCC**GCGATCGCC**

ATGGTATCCTTCTTTGCTTCGGACCACTCGGCCTCGCAGAGATGTGGCCAGCTGGTCTGCATGGCTG
 CCCGGGCCAGCACAGCAAGGTGGCCAGACGAGGCTGGGAAGCAACTGGAGGTTGGACGGGCCAGGA
 GAGTTTATCAGACAGTGACCCTGAGATGTGGGAGCTTCTGCAGAGGGAGAAGACAGACAGTGTCCGGC
 CTGGAGCTCATCGCCTCAGAGAATTCTGCAGCCGAGCTGCGCTGGAGGCCCTGGGGTCTGTCTCAACA
 ACAAGTACTCGGAGGGTTACCTGGCAAGAGATACTACGGAGGAGCGGAAGTGGTGGACGAGATCGAGCT
 GCTCTGCCAGCGCCGGCCTTGAAGCCTTTGACCTGGATCCGGCACAGTGGGGAGTCAATGTGCAGCCA
 TACTCAGGGTCCCAGCCAATCTGGCTGCCTATACGGCCCTTCTGCAGCCTCATGATCGAATCATGGGT
 TGGACCTGCCGATGGGGCCATCTACCCATGGCTACATGTCTGATGTCAAGCGGATCTCCGCCACATC
 CATTTTCTTCGAGTCTATGCCCTATAAGCTCAATCCCCAACTGGCCTCATCGACTACGACCAGCTGGCG
 CTGACCGCTCGGCTTTTCCGACCGCGGCTCATCATAGCTGGCACGAGTGCCTATGCCCGCCTATTGACT
 ATGCACGCATGAAAGAGGTCTGTGATGAGGTGAGGGCACACCTGCTGGCAGACATGGCCACATCAGTGG
 CCTGGTGGCTGCCAAGGTGATCCCCTCCCCTTTCAAGTACGCGGATGTTGTTACCACCACCACTACAAG
 ACACTGCGAGGGGCCAGGTGAGGCTCATCTTCTACCGGAAGGGAGTACGAACCGTAGACCCCAAGACTG
 GCAAAGAGATCCCTTATACCTTTGAGGACCGAATCAACTTCGCTGTGTTCCCATCCCTACAGGGTGGCC
 CCACAACCAGCCATTGCTGCAGTAGCCGTGGCTCTCAAGCAGGCTGCACCCCTATGTTCCGCGAGTAC
 TCCTTACAAGTGTGAGGAACGCCAGGCCATGGCTGATGCCCTGCTCAAGCGAGGATACTCGCTGGTGT
 CTGGTGGCACTGACACCCACCTGGTGTGCTGGTGGACCTGCGGCCCAAGGGCCTGGATGGAGCCGAGCCGA
 ACGCGTGTGGAACTTGTCTCCATCACAGCCAACAAGAACACCTGTCTGGAGACCGGAGCGCCATTACT
 CCGGGGGCTTGAAGCTTGGGGCCCCGCGTTGACCTCTCGCCAGTTCCTGAGGACGACTTCCGTAGAG
 TCGTGCATTTTATCGATGAGGGAGTCAACATTGGCTTGGAGGTGAAGCGCAAGACTGCCAAGCTCCAGGA
 TTTCAAATCCTTCTGCTCAAAGACCCAGAGACAAGCCAGCGTTTGGCCAACCTCCGGCAACAGGTGGAA
 CAGTTTGCAGGGGCTTCCCGATGCCTGGATTTGATGAACGT

AG**CGGACCG**ACGCGTACGCGGCCGCTCGAG – GFP Tag – GTTAA

Protein Sequence:

>MG208109 representing NM_028230
 Red=Cloning site Green=Tags(s)

MVSFSLRTRRPLQRCGQLVCMARAQHSKVAQTQAGEATGGWTGQESLSDSDPEMWELLQREKDRQCRG
 LELIASENFCSRAALEALGSCLNNKYSEGYPGKRYYGGAIEVDEIELLCQRRALEAFDLPAQWGVNVQP
 YSGSPANLAAYTALLQPHDRIMGLDLPDGGHLTHGYMSDVKRISATSIFFESMPYKLNPTGLIDYDQLA
 LTARLFRPRLIIAGTSAYARLIDYARMKEVCDEVRAHLLADMAHISGLVAAKVIPSPFKYADVTTTHK
 TLRGARSGLIFYRKGVRTVDPKTKGKEIPYTFEDRINFVFPSSLQGGPHNHAIAAVALKQACTPMFREY
 SLQVLRNAQAMADALLKRGYSLSVSGTDTHLVLVDLRPKGLDGARAERVLELVSITANKNTCPGDRSAIT
 PGGRLRGAPALTSRQFREDDFRRVVDVIDEGVNIQLEVKRKTAKLQDFKSFLLKDPETSQRANLRQVVE
 QFARGFPMPGFDER

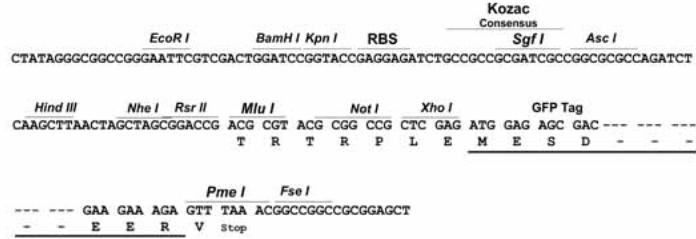
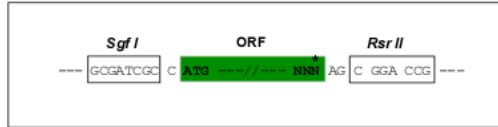
SGP**TRRRLE** – GFP Tag – V

Restriction Sites:

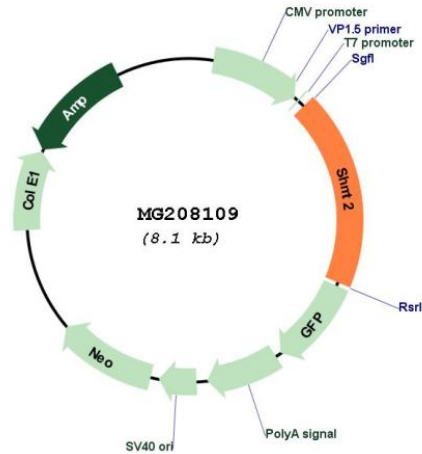
Sgfl-RsrII

Cloning Scheme:

Cloning sites used for ORF Shuttling:



Plasmid Map:



ACCN: NM_028230

ORF Size: 1512 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](#)

OTI Annotation: This clone was engineered to express the complete ORF with an expression tag. Expression varies depending on the nature of the gene.

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_028230.3](#), [NP_082506.1](#)

RefSeq Size: 2280 bp

RefSeq ORF: 1515 bp

Locus ID: 108037

UniProt ID: [Q9CZN7](#)

Cytogenetics: 10 D3

Gene Summary: Catalyzes the cleavage of serine to glycine accompanied with the production of 5,10-methylenetetrahydrofolate, an essential intermediate for purine biosynthesis (By similarity). Serine provides the major source of folate one-carbon in cells by catalyzing the transfer of one carbon from serine to tetrahydrofolate (By similarity). Contributes to the de novo mitochondrial thymidylate biosynthesis pathway via its role in glycine and tetrahydrofolate metabolism: thymidylate biosynthesis is required to prevent uracil accumulation in mtDNA (By similarity). Also required for mitochondrial translation by producing 5,10-methylenetetrahydrofolate; 5,10-methylenetetrahydrofolate providing methyl donors to produce the taurinomethyluridine base at the wobble position of some mitochondrial tRNAs (PubMed:29452640). Associates with mitochondrial DNA (By similarity). In addition to its role in mitochondria, also plays a role in the deubiquitination of target proteins as component of the BRISC complex: required for IFNAR1 deubiquitination by the BRISC complex (By similarity).[UniProtKB/Swiss-Prot Function]