

Product datasheet for **MG211249**

Msh2 (NM_008628) Mouse Tagged ORF Clone

Product data:

Product Type:	Expression Plasmids
Product Name:	Msh2 (NM_008628) Mouse Tagged ORF Clone
Tag:	TurboGFP
Symbol:	Msh2
Synonyms:	A1788990
Mammalian Cell Selection:	Neomycin
Vector:	pCMV6-AC-GFP (PS100010)
E. coli Selection:	Ampicillin (100 ug/mL)



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ORF Nucleotide Sequence:

>MG211249 representing NM_008628
 Red=Cloning site Blue=ORF Green=Tags(s)

TTTTGTAATACGACTCACTATAGGGCGGCCGGGAATTCGTCGACTGGATCCGGTACCGAGGAGATCTGCC
 GCC**CGGATCGCC**

ATGGCGGTGCAGCCTAAGGAGACGCTGCAGTTGGAAGGCGGCCGAGGCGGGCTTCGTGCGCTTCTTTG
 AGGGCATGCCGGAGAAGCCGAGCACACCGTGCCTCTTCGACCGCGGGGACTTTTACACGGCGCACGG
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 TGGTTCGCCAGTATCGAGTTGAAGTTTATAAGAATAAAGCTGAAATAAGGCGTCTAAGGAGAATGAGTG
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 CGAGGCTCTTCTGATTGAGTTGACCAAAGGAATGCGTTTTACCAGGAGGAGAGACTACTGGAGACATG
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 CTAAGACATTTATCAGGATCTCAACCGGTTACTGAAAGGCAAAAAGGAGAACAGATAAATAGTCTGC
 CCTACCAGAGATGGAGAATCAGGTTGCAGTTTCATCACTATCTGCAGTAATCAAGTTTTTGAAGCTTTA
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 CTGAAAGCCGAGGTGGTGCAAAAGAACAACAGCTTCGTAACGAGATCATTTACGGATAAAGGCTCCGG
 CTCCG

ACGCGTACGCGGCCGCTCGAG – GFP Tag – GTTTAA

Protein Sequence: >MG211249 representing NM_008628
 Red=Cloning site Green=Tags(s)

MAVQPKETLQLEGAAEAGFVRFEGMPEKPSTTVRLFDRGDFYTAHGEDALLAAREVFKTQGVIKYMGPA
 GSKTLQSVVLSKMNFEFVKDLLVLRQYRVEVYKNKAGNKASKENEWYLAFAKSPGNLSQFEDILFGNND
 MSASVGVMIKMAVVDGQRHVGVYVDSTQRKLGCEFPENDQF SNLEALLIQIGPKCVLPGGETTGDM
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 MDRNRIEERLNLVEAFVDESELRQSLQEDLLRRFPDLNRLAKKFQRQAANLQDCYRLYQGINQLPSVIQA
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 RIILKASRHACVEVQDEVAFIPNDVHFEDKQMFHIITGPNMGGKSTYIRQTVIVLMAQIGCFVPCESA
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 ATKIGAFCMFATHFHELTALANQIPTVNNLHVTALTTEETLTMLYQVKKGVCDQSFGIHVAELANFPRHV
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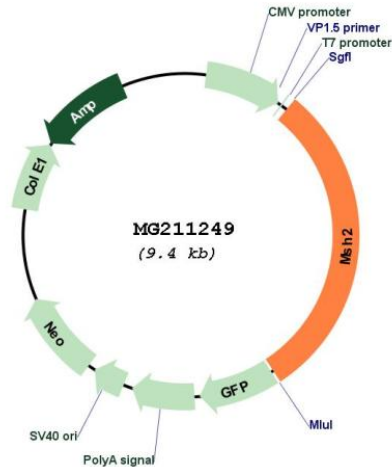
TRTRPLE - GFP Tag - V

Restriction Sites:

SgfI-MluI

Cloning Scheme:



Plasmid Map:


ACCN: NM_008628

ORF Size: 2805 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_008628.2](#), [NP_032654.1](#)

RefSeq Size: 3056 bp

RefSeq ORF: 2808 bp

Locus ID: 17685

UniProt ID: [P43247](#)

Cytogenetics: 17 57.87 cM

Gene Summary:

Component of the post-replicative DNA mismatch repair system (MMR). Forms two different heterodimers: MutS alpha (MSH2-MSH6 heterodimer) and MutS beta (MSH2-MSH3 heterodimer) which binds to DNA mismatches thereby initiating DNA repair. When bound, heterodimers bend the DNA helix and shields approximately 20 base pairs. MutS alpha recognizes single base mismatches and dinucleotide insertion-deletion loops (IDL) in the DNA. MutS beta recognizes larger insertion-deletion loops up to 13 nucleotides long. After mismatch binding, MutS alpha or beta forms a ternary complex with the MutL alpha heterodimer, which is thought to be responsible for directing the downstream MMR events, including strand discrimination, excision, and resynthesis. Recruits DNA helicase MCM9 to chromatin which unwinds the mismatch containing DNA strand. ATP binding and hydrolysis play a pivotal role in mismatch repair functions. The ATPase activity associated with MutS alpha regulates binding similar to a molecular switch: mismatched DNA provokes ADP-->ATP exchange, resulting in a discernible conformational transition that converts MutS alpha into a sliding clamp capable of hydrolysis-independent diffusion along the DNA backbone. This transition is crucial for mismatch repair. MutS alpha may also play a role in DNA homologous recombination repair. In melanocytes may modulate both UV-B-induced cell cycle regulation and apoptosis.[UniProtKB/Swiss-Prot Function]