

## Product datasheet for **RC401731**

### **MSH2 (NM\_000251) Human Mutant ORF Clone**

#### **Product data:**

Product Type:	Mutant ORF Clones
Product Name:	MSH2 (NM_000251) Human Mutant ORF Clone
Mutation Description:	V163D
Affected Codon#:	163
Affected NT#:	488
Nucleotide Mutation:	MSH2 Mutant (V163D), Myc-DDK-tagged ORF clone of Homo sapiens mutS homolog 2, colon cancer, nonpolyposis type 1 (E. coli) (MSH2) as transfection-ready DNA
Effect:	Colorectal cancer, non-polyposis
Symbol:	MSH2
Synonyms:	COCA1; FCC1; hMSH2; HNPCC; HNPCC1; LCFS2; MMRCS2
E. coli Selection:	Kanamycin (25 ug/mL)
Mammalian Cell Selection:	Neomycin
Vector:	pCMV6-Entry (PS100001)
Tag:	Myc-DDK
ACCN:	NM_000251
ORF Size:	2802 bp
Restriction Sites:	SgfI-MluI



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**ORF Nucleotide Sequence:**

>RC401731 representing NM\_000251  
 Red=Cloning site Blue=ORF Green=Tags(s)

TTTTGTAATACGACTCACTATAGGGCGGCCGGGAATTCGTCGACTGGATCCGGTACCGAGGAGATCTGCC  
 GCC**CGGATCGCC**

ATGGCGGTGCAGCCGAAGGAGACGCTGCAGTTGGAGAGCGCGGCCGAGGTCGGCTTCGTGCGCTTCTTTC  
 AGGGCATGCCGGAAGAAGCCGACCACCACAGTGCGCCTTTTCGACCGGGGCGACTTCTATACGGCGCACGG  
 CGAGGACGCGCTGCTGGCCGCCGGGAGGTGTTCAAGACCCAGGGGTGATCAAGTACATGGGGCCGCA  
 GGAGCAAAGAATCTGCAGAGTGTGTGCTTAGTAAAATGAATTTTGAATCTTTTGTAAAAGATCTTCTTC  
 TGGTTCGTAGTATAGAGTTGAAGTTTATAAGAATAGAGCTGGAATAAGGCATCCAAGGAGAATGATTG  
 GTATTTGGCATATAAGGCTTCTCCTGGCAATCTCTCAGTTTGAAGACATTCTCTTGGTAACAATGAT  
 ATGTCAGCTTCCATTGGTGTGTGGGTGTTAAAATGTCCGAGTTGATGGCCAGAGACAGGTTGGAGATG  
 GGTATGTGGATTCCATACAGAGGAACTAGGACTGTGTGAATCCCTGATAATGATCAGTTCTCCAATCT  
 TGAGGCTCTCCTCATCCAGATTGGACCAAAGGAATGTGTTTTACCCGGAGGAGAGACTGCTGGAGACATG  
 GGGAAACTGAGACAGATAATTCAAAGAGGAGGAATTCGATCACAGAAAGAAAAAGCTGACTTTTCCA  
 CAAAAGACATTTATCAGGACCTCAACCGTTGTTGAAAGGCAAAAAGGGAGAGCAGATGAATAGTGTGT  
 ATTGCCAGAAATGGAGAATCAGGTTGCAGTTTCATCACTGTCTGCGGTAATCAAGTTTTTGAAGCTTTA  
 TCAGATGATTCCAACCTTTGGACAGTTTGAAGTACTACTTTTACTTTCAGCCAGTATATGAAATTTGGATA  
 TTGCAGCAGTCAGAGCCCTTAACCTTTTTCAGGGTCTGTTGAAGATACCACTGGCTCTCAGTCTCTGGC  
 TGCTTGTCTGAATAAGTGTAAAACCCCTCAAGGACAAAGACTTGTAAACCAGTGGATTAAGCAGCCTCTC  
 ATGGATAAGAACAAGAATAGAGGAGAGATTGAATTTAGTGAAGCTTTTGTAGAAGATGCAGAATTGAGGC  
 AGACTTTACAAGAAGATTTACTTCGTCGATTCCAGATCTTAACCGACTTGCCAAAGAATTTCAAAGACA  
 AGCAGCAAACCTTACAAGATTGTTACCGACTCTATCAGGGTATAAATCAACTACCTAATGTTATACAGGCT  
 CTGAAAAAACATGAAGGAAAAACACCAGAAATTATTGTTGGCAGTTTTTGTGACTCCTTACTGATCTTC  
 GTTCTGACTTCTCCAAGTTTCAGGAAATGATAGAAACAACCTTTAGATATGGATCAGGTGGAAAACCATGA  
 ATTCCTTGTAACCTTCATTTGATCCTAATCTCAGTGAATTAAGAGAAATAATGAATGACTTGGAAAAG  
 AAGATGCAGTCAACATTAATAAGTGCAGCCAGAGATCTGGCTTGGACCCTGGCAAACAGATTAACCTGG  
 ATTCCAGTGCACAGTTTGGATATTACTTTCGTGTAACCTGTAAGGAAGAAAAAGTCTTCGTAACAATAA  
 AAACCTTAGTACTGTAGATATCCAGAAGAATGGTGTAAATTTACCAACAGCAAATGACTTCTTTAAAT  
 GAAGAGTATACCAAAAAATAAACAGAATATGAAGAAGCCAGGATGCCATTGTTAAAGAAATTTGCAATA  
 TTTCTTCAGGCTATGTAGAACCAATGCAGACACTCAATGATGTGTAGCTCAGCTAGATGCTGTTGTCAG  
 CTTTGGCTCACGTGCAATGGAGCACCTGTTCCATATGTACGACCAGCCATTTTGGAGAAAGGACAAGGA  
 AGAATTATATTAAGCATCCAGGCATGCTTGTGTTGAAGTTCAAGATGAAATTCGATTTATTCCTAATG  
 ACGTATACTTTGAAAAGATAAACAGATGTTCCACATCACTACTGGCCCAATATGGGAGGTAATCAAC  
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 GAAGTGTCCATTGTGGACTGCATCTTAGCCCGAGTAGGGGCTGGTGACAGTCAATTGAAAGGAGTCTCCA  
 CGTTCATGGCTGAAATGTTGGAACTGCTTCTATCCTCAGGCTGCAACCAAAGATTCAATAAATCAT  
 AGATGAATTTGGGAAGAGGAACCTTACCTACGATGGATTTGGTTAGCATGGGCTATATCAGAATACATT  
 GCAACAAAGATTGGTGCTTTTTCATGTTTGAACCCATTTTCATGAACCTACTGCCTTGGCCAATCAGA  
 TACCAACTGTTAATAATCTACATGTCACAGCACTACCACTGAAGAGACCTTAACTATGCTTTATCAGGT  
 GAAGAAAGGTGTCTGTGATCAAAGTTTTGGATTGATGTTGCAGAGCTTGCTAATTTCCCTAAGCATGTA  
 ATAGAGTGTGCTAAACAGAAAGCCCTGGAACCTGAGGAGTTTTCAGTATATTGGAGAATCGCAAGGATATG  
 ATATCATGGAACCAGCAGCAAAGAAGTGTATCTGAAAGAGAGCAAGGTGAAAAAATTTTTCAGGAGTT  
 CCTGTCCAAGGTGAAACAAATGCCCTTACTGAAATGTCAGAAGAAAACATCACAATAAAGTTAAACAG  
 CTAAGAGCTGAAGTAATAGCAAAGAATAATAGCTTTGTAATGAAATCATTTACGAATAAAAGTTACTA  
 CG

AG**CGGACCG**ACGCGTACGCGGCCGCTCGAGCAGAACTCATCTCAGAAGAGGATCTGGCAGCAAATGATATCC  
 TGGATTACAAGGATGACGACGA TAAGGTTTAA

**Protein Sequence:** >RC401731 representing NM\_000251  
 Red=Cloning site Green=Tags(s)

MAVQPKETLQLESAAEVGFVRFVFGMPKEPTTTVRLFDRGDFYTAHGEDALLAAREVFKTQGVIKYMGPA  
 GAKNLQSVVL SKMNFESFVKDLLLVRQYRVEVYKNRAGNKASKENDWYLAYKASPGNLSQFEDILFGNND  
 MSASIGVVGVKMSAVDGGQRQVGDGYVDSIQRKLGLCEFPDNDQFSNLEALLIQIGPKECVLPGGETAGDM  
 GKLRQIIQRGGILITERKKADFSTKDIYQDLNRLLLKGGKGEQMNSAVLPEMENQVAVSSLSAVIKFLELL  
 SDDSNFGQFELTTFFDSQYMKLDIAAVRALNLFQGSVEDTTGSQSLAALLNKCKTPQGGRLVNQWIKQPL  
 MDKNRIEERLNLVEAFVEDAELRQTLQEDLLRRFPDLNRLAKKFQRQAANLQDCYRLYQGINQLPNVIQA  
 LEKHEGHQKLLLAVFVTPLTDLRSDFSKFQEMIEITLMDQVENHEFLVKPSFDPNLSELREIMNDLEK  
 KMQSTLISAARDLGLDPGKQIKLDSSAQFGYYFRVTCKEEKVLRNNKNFSTVDIQKNGVKFTNSKLTSLN  
 EEYTKNKTEYEEAQDAIVKEIVNISSGYVPMQTLNDVLAQLDAVVSFAHVSNGAPVPPYVRPAILEKGQG  
 RIILKASRHACVEVQDEIAFIPNDVYFEKDKQMFHIITGPNMGGKSTYIRQTGVIVLMAQIGCFVPCESA  
 EVSIVDCILARVGAGDSQLKGVSTFMAEMLETASILRSATKDSLIIIDELGRGTSTYDGFGLAWAISEYI  
 ATKIGAFCMFATHFHELTALANQIPTVNNLHVTALTTEETLTMLYQVKKGVCDQSFGIHVAELANFPKHV  
 IECAKQKALELEEFQYIGESQGYDIMEPAAKKCYLEREQGEKIIQEFLSKVKQMPFTEMSEENITIKLKQ  
 LKAEVIAKNNSFVNEIISRIKVTT

SGPTRRRLEQKLISEEDLAANDILDYKDDDDKV

**Restriction Sites:**

SgfI-MluI

**Cloning Scheme:**



**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](#)

**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).

**RefSeq:** [NP\\_000242](#)

**RefSeq Size:** 2802 bp

**RefSeq ORF:** 2805 bp

**Locus ID:** 4436

**Cytogenetics:** 2p21-p16.3

**Domains:** MutS\_V, MutS\_I, MutS\_III, MutS\_II, MutS\_IV

**Protein Families:** Druggable Genome, Stem cell - Pluripotency

**Protein Pathways:** Colorectal cancer, Mismatch repair, Pathways in cancer

**MW:** 102.7 kDa

**Gene Summary:** This locus is frequently mutated in hereditary nonpolyposis colon cancer (HNPCC). When cloned, it was discovered to be a human homolog of the E. coli mismatch repair gene mutS, consistent with the characteristic alterations in microsatellite sequences (RER+ phenotype) found in HNPCC. Two transcript variants encoding different isoforms have been found for this gene. [provided by RefSeq, Apr 2012]