

## Product datasheet for **RC401594**

### MLH1 (NM\_000249) Human Mutant ORF Clone

#### Product data:

Product Type:	Mutant ORF Clones
Product Name:	MLH1 (NM_000249) Human Mutant ORF Clone
Mutation Description:	Q409X
Affected Codon#:	409
Affected NT#:	1225
Nucleotide Mutation:	MLH1 Mutant (Q409X), Myc-DDK-tagged ORF clone of Homo sapiens mutL homolog 1, colon cancer, nonpolyposis type 2 (E. coli) (MLH1), transcript variant 1 as transfection-ready DNA
Effect:	Colorectal cancer, non-polyposis
Symbol:	MLH1
Synonyms:	COCA2; FCC2; hMLH1; HNPCC; HNPCC2; MMRCS1
E. coli Selection:	Kanamycin (25 ug/mL)
Mammalian Cell Selection:	Neomycin
Vector:	pCMV6-Entry (PS100001)
Tag:	Myc-DDK
ACCN:	NM_000249
ORF Size:	1224 bp
Restriction Sites:	SgfI-MluI



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**ORF Nucleotide Sequence:**

>RC401594 representing NM\_000249  
 Red=Cloning site Blue=ORF Green=Tags(s)

TTTTGTAATACGACTCACTATAGGGCGGCCGGGAATTCGTCGACTGGATCCGGTACCGAGGAGATCTGCC  
 GCC**GCGATCGCC**

ATGTCGTTCTGTCGAGGGGTTATTCGGCGGCTGGACGAGACAGTGGTGAACCGCATCGCGCGGGGAAG  
 TTATCCAGCGGCCAGCTAATGCTATCAAAGAGATGATTGAGAAGTGTAGATGCAAAATCCACAAGTAT  
 TCAAGTGATTGTTAAAGAGGGAGGCTGAAGTTGATTCAGATCCAAGACAATGGCACCGGGATCAGGAAA  
 GAAGATCTGGATATTGTATGTGAAAGGTTCACTACTAGTAAACTGCAGTCCTTTGAGGATTTAGCCAGTA  
 TTTCTACCTATGGCTTCGAGGTGAGGCTTTGGCCAGCATAAGCCATGTGGCTCATGTTACTATTACAAC  
 GAAAACAGCTGATGGAAGTGTGCATACAGAGCAAGTACTCAGATGGAAAAGTAAAGCCCTCTCTAAA  
 CCATGTGCTGGCAATCAAGGGACCCAGATCACGGTGGAGGACCTTTTTTACAACATAGCCACGAGGAGAA  
 AAGCTTTAAAAAATCCAAGTGAAGAATATGGGAAAATTTTGAAGTTGTTGGCAGGTATTCAGTACACAA  
 TGCAGGCATTAGTTTCTCAGTTAAAAACAAGGAGAGACAGTAGCTGATGTTAGGACACTACCCAATGCC  
 TCAACCGTGGACAATATTCGCTCCATCTTTGGAATGCTGTTAGTCGAGAAGTATAGAAATGGATGTG  
 AGGATAAAACCTAGCCTTCAAATGAATGGTTACATATCCAATGCAAACACTCAGTGAAGAAGTGCAT  
 CTTCTTACTCTTCATCAACCATCGTCTGGTAGAATCAACTTCCTTGAGAAAAGCCATAGAAAACAGTGTAT  
 GCAGCCTATTTGCCCAAAAACACACACCATTCTGTACCTCAGTTTAGAAAATCAGTCCCAGAAATGTGG  
 ATGTTAATGTGCACCCCAAAAGCATGAAGTTCCTTCTGCACGAGGAGAGCATCCTGGAGCGGGTGCA  
 GCAGCACATCGAGAGCAAGCTCCTGGGCTCCAATTCTCCAGGATGTACTTACCCAGACTTTGTACCA  
 GGACTTGCTGGCCCTCTGGGGAGATGGTTAAATCCACAACAAGTCTGACCTCGTCTTCTACTTCTGGAA  
 GTAGTGATAAGGTCTATGCCACCAGATGGTTCTGACAGATTCCCGGGAACAGAAGCTTGATGCATTTCT  
 GCAGCCTCTGAGCAAACCCCTGTCCAGTCAGCCC

AG**GCGACCG**ACGCGTACGCGGCCGCTCGAGCAGAACTCATCTCAGAAGAGGATCTGGCAGCAAATGATATCC  
 TGGATTACAAGGATGACGACGA TAAGGTTTAA

**Protein Sequence:**

>RC401594 representing NM\_000249  
 Red=Cloning site Green=Tags(s)

MSFVAGVIRRLDETVVNRIAAGEVIQRPANAIEKMIENCLDAKSTSIQVIVKEGGLKLIQIQDNGTGIRK  
 EDLDIVCERFTSKLQSFEDLASISTYGRGEALASISHVAHVITTTKTADGKCAYRASYSKGKLPKPK  
 PCAGNQGTQITVEDLFYNIATRRKALKNPSEYKILEVVGRYSVHNAGISFSVKKQGETVADVRLPNA  
 STVDNIRSIIFGNAVSRELIEIGCEDKTLAFKMNGYISNANYSVKCCIFLLFINHRLVESTSLRKAIEVY  
 AAYLPKNTHPFLYLSEI SPQNV DVNVHPTKHEVHFLHEESILERVQQHIESKLLGSNSSRMFTQTLPL  
 GLAGPSGEMVKSTTSLTSSSTSGSSDKVYAHQMVRTDSREQKLDAFLQPLSKPLSSQP

**SGP**TRRRLEQKLI**SEEDLAANDILDYKDDDDK**V

**Restriction Sites:**

Sgfl-MluI

**Cloning Scheme:**

**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).

**RefSeq:**

[NP\\_000240](#)

**RefSeq Size:**

1224 bp

**RefSeq ORF:**

2271 bp

**Locus ID:**

4292

**Cytogenetics:**

3p22.2

**Domains:**

DNA\_mis\_repair, HATPase\_c

**Protein Families:**

Druggable Genome

**Protein Pathways:**

Colorectal cancer, Endometrial cancer, Mismatch repair, Pathways in cancer

**MW:**

44.9 kDa

**Gene Summary:**

The protein encoded by this gene can heterodimerize with mismatch repair endonuclease PMS2 to form MutL alpha, part of the DNA mismatch repair system. When MutL alpha is bound by MutS beta and some accessory proteins, the PMS2 subunit of MutL alpha introduces a single-strand break near DNA mismatches, providing an entry point for exonuclease degradation. The encoded protein is also involved in DNA damage signaling and can heterodimerize with DNA mismatch repair protein MLH3 to form MutL gamma, which is involved in meiosis. This gene was identified as a locus frequently mutated in hereditary nonpolyposis colon cancer (HNPCC). [provided by RefSeq, Aug 2017]