

## Product datasheet for **RC401499**

### 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:	I68N
Affected Codon#:	68
Affected NT#:	203
Nucleotide Mutation:	MLH1 Mutant (I68N), 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:	2268 bp
Restriction Sites:	SgfI-MluI



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**ORF Nucleotide Sequence:**

>RC401499 representing NM\_000249  
 Red=Cloning site Blue=ORF Green=Tags(s)

TTTTGTAATACGACTCACTATAGGGCGGCCGGGAATTCGTCGACTGGATCCGGTACCGAGGAGATCTGCC  
 GCC**CGGATCGCC**

ATGTCGTTCTGTCGAGGGGTTATTCGGCGGCTGGACGAGACAGTGGTGAACCGCATCGCGCGGGGGAAG  
 TTATCCAGCGGCCAGCTAATGCTATCAAGAGATGATTGAGAAGTGTGTTAGATGCAAAATCCACAAGTAT  
 TCAAGTGATTGTTAAAGAGGGAGGCCTGAAGTTGATTCAGATCCAAGACAATGGCACCGGGAACAGGAAA  
 GAAGATCTGGATATTGTATGTGAAAGGTTCACTACTAGTAAACTGCAGTCCTTTGAGGATTTAGCCAGTA  
 TTTCTACCTATGGCTTTGAGGTGAGGCTTTGGCCAGCATAAGCCATGTGGCTCATGTTACTATTACAAC  
 GAAAACAGCTGATGGAAGTGTGCATACAGAGCAAGTACTCAGATGGAAAAGTAAAAGCCCTCTCTAAA  
 CCATGTGCTGGCAATCAAGGGACCCAGATCACGGTGGAGGACCTTTTTTACAACATAGCCACGAGGAGAA  
 AAGCTTTAAAAATCCAAGTGAAGAATATGGGAAAATTTGGAAGTTGTTGGCAGGTATTCAGTACACAA  
 TGCAGGCATTAGTTTCTCAGTTAAAAACAAGGAGAGACAGTAGCTGATGTTAGGACACTACCCAATGCC  
 TCAACCGTGGACAATATTCGCTCCATCTTTGGAATGCTGTTAGTCGAGAAGTATAGAAATGGATGTG  
 AGGATAAAACCTAGCCTTCAAATGAATGGTTACATATCCAATGCAAACTACTCAGTGAAGAAGTGCAT  
 CTTCTTACTCTTCATCAACCATCGTCTGGTAGAATCAACTTCCTTGAGAAAAGCCATAGAAAACAGTGTAT  
 GCAGCCTATTTGCCCAAAAACACACACCATTCTGTACCTCAGTTTAGAAAATCAGTCCCAGAAATGTGG  
 ATGTTAATGTGCACCCCAAAAGCATGAAGTTCACTTCCTGCACGAGGAGAGCATCCTGGAGCGGGTGCA  
 GCAGCAGATCGAGAGCAAGTCTCTGGGCTCCAATTCCTCCAGGATGACTTCACCCAGACTTTGTACCA  
 GGACTTGCTGGCCCTCTGGGGAGATGGTTAAATCCACAACAAGTCTGACCTCGTCTTCTACTTCTGGAA  
 GTAGTGATAAGGTCTATGCCACCAGATGGTTCTGTACAGATTCCTGGGAACAGAAGCTTGATGCATTTCT  
 GCAGCCTCTGAGCAAACCCCTGTCCAGTCAGCCCCAGGCCATTGTCACAGAGGATAAGACAGATATTTCT  
 AGTGGCAGGGCTAGGCAGCAAGATGAGGAGATGCTTGAAGTCCAGCCCTGCTGAAGTGGCTGCCAAAA  
 ATCAGAGCTTGGAGGGGGATACAACAAAGGGGACTTCAGAAAATGTGAGAGAAGAGAGGACCTACTCCAG  
 CAACCCAGAAAAGAGACATCGGGAAGATTCTGATGTGGAATGGTGAAGATGATTCCCAGAAAGGAAATG  
 ACTGCAGCTTGTACCCCGGAGAAGGATCATTAACTCACTAGTGTGTTTGTAGTCTCCAGGAAGAAATTA  
 ATGAGCAGGGACATGAGGTTCTCCGGGAGATGTTGCATAAACCCTCCTTCGTGGGCTGTGTGAATCCTCA  
 GTGGCCCTTGGCACAGCATCAAACCAAGTTATACCTTCTCAACACCACCAAGCTTAGTGAAGAACTGTTT  
 TACCAGATACTCATTTATGATTTTGCCAAATTTGGTGTCTCAGGTTATCGGAGCCAGCACCGCTCTTTG  
 ACCTTGCCATGCTTGCCTTAGATAGTCCAGAGAGTGGCTGGACAGAGGAAGATGGTCCCAAGAAGGACT  
 TGCTGAATACATTGTTGAGTTTCTGAAGAAGAAGGCTGAGATGCTTGCAGACTATTTCTCTTTGGAAT  
 GATGAGGAAGGGAACCTGATTGGATTACCCCTTCTGATTGACAACTATGTGCCCTTTGGAGGGACTGC  
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 CAGAGTGAAGTGCCTGGCTCCATTCAAACCTCTGGAAGTGGACTGTGGAACACATTGTCTATAAAGCCT  
 TGGCCTCACACATTCTGCCTCTAAACATTTACAGAAGATGGAATATCCTGCAGCTTGCTAACCTGCC  
 TGATCTATACAAAGTCTTTGAGAGGTGT

AG**CGGACCG**ACGCGTACGCGGCCGCTCGAGCAGAACTCATCTCAGAAGAGGATCTGGCAGCAAATGATATCC  
 TGGATTACAAGGATGACGACGA TAAGGTTTAA

**Protein Sequence:** >RC401499 representing NM\_000249  
 Red=Cloning site Green=Tags(s)

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MSFVAGVIRRLDETVVNRIAAGEVIQRPANAIEKEMENCLDAKSTSIQVIVKEGGLKLIQIQDNGTGNRK
EDLDIVCERFTTSKLSQSFEDLASISTYGRGEALASISHVAHVITITTKTADGKCAFRASYSDGKLGKAPPK
PCAGNQGTQITVEDLFYNIATRRKALKNPSEEYKILEVVGGRYSVHNAGISFSVKKQGETVADVRTLPNA
STVDNIRSIIFGNAVSRELIEIGCEDKTLAFKMNGYISNANYSVKCKIFLLFINHRLVESTSLRKAIVTVY
AAYLPKNTHPFLYLSEISPNQVNDVNVHPTKHEVHFLHEESILERVQQHIESKLLGNSSSRMFTQTLLP
GLAGPSGEMVKSTTSLTSSSTSGSSDKVYAHQMVRTDSREQKLDLQPLSKPLSSQPQAIIVTEDKTDIS
SGRARQDEEMLELPAPAEVAANKQSLEGDTTKGTSEMSEKRGPTSSNPRKRHRESDVEMVEDDSRKEM
TAACTPRRRIINLTSVLSLQEEINEQGHEVLEMLHNHSFVGCVPQWALAQHQTKLYLLNNTKLEELF
YQILYDFANFVLRLEPAPLFDLAMLALDSPESGWTEEDGPKKEGLAEYIVEFLKKAEMLADYFSLEI
DEEGLNIGLPLLIDNYVPPLEGLPIFILRLATEVNWDEEKECFESLSKECAMFYIIRKQYISEESTLSGQ
QSEVPGSIPNSWKWTVEHIVYKALRSHILPPKHFTEGNIQLANLPDLYKVFERC
```

SGPTRTRRLEQKLISEEDLAANDILDYKDDDDKV

**Restriction Sites:**

SgfI-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.

<b>Components:</b>	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).
<b>RefSeq:</b>	<a href="#">NP_000240</a>
<b>RefSeq Size:</b>	2268 bp
<b>RefSeq ORF:</b>	2271 bp
<b>Locus ID:</b>	4292
<b>Cytogenetics:</b>	3p22.2
<b>Domains:</b>	DNA_mis_repair, HATPase_c
<b>Protein Families:</b>	Druggable Genome
<b>Protein Pathways:</b>	Colorectal cancer, Endometrial cancer, Mismatch repair, Pathways in cancer
<b>MW:</b>	83.2 kDa
<b>Gene Summary:</b>	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]