

## Product datasheet for **RC401513**

### 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:	E102K
Affected Codon#:	102
Affected NT#:	304
Nucleotide Mutation:	MLH1 Mutant (E102K), 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:

>RC401513 representing NM\_000249  
Red=Cloning site Blue=ORF Green=Tags(s)

TTTTGTAATACGACTCACTATAGGGCGGCCGGGAATTCGTCGACTGGATCCGGTACCGAGGAGATCTGCC  
GCC**CGGATCGCC**

ATGTCGTTCTGTGGCAGGGTTATTTCGGCGGCTGGACGAGACAGTGGTGAACCGCATCGCGCGGGGAAG  
TTATCCAGCGGCCAGCTAATGCTATCAAGAGATGATTGAGAAGTGTAGATGCAAAATCCACAAGTAT  
TCAAGTGATTGTTAAAGAGGGAGGCTGAAGTTGATTCAGATCCAAGACAATGGCACCGGGATCAGGAAA  
GAAGATCTGGATATTGTATGTGAAAGTTCACTACTAGTAAACTGCAGTCCTTTGAGGATTTAGCCAGTA  
TTTCTACCTATGGCTTTGAGGTAAGGCTTTGGCCAGCATAAGCCATGTGGCTCATGTTACTATTACAAC  
GAAAACAGCTGATGAAAGTGTGCATACAGAGCAAGTACTCAGATGGAAAAGTAAAGCCCTCTCTAAA  
CCATGTGCTGGCAATCAAGGGACCCAGATCACGGTGGAGGACCTTTTTTACAACATAGCCACGAGGAGAA  
AAGCTTTAAAAATCCAAGTGAAGAATATGGGAAAATTTGGAAGTTGTTGGCAGGTATTCAGTACACAA  
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TCAACCGTGGACAATATTCGCTCCATCTTTGAAATGCTGTTAGTCGAGAAGTATAGAAATGGATGTG  
AGGATAAAACCCTAGCCTTCAAATGAATGGTTACATATCCAATGCAAACTACTCAGTGAAGAAGTGCAT  
CTTCTTACTCTTCATCAACCATCGTCTGGTAGAATCAACTTCCTTGAGAAAAGCCATAGAAAACAGTGTAT  
GCAGCCTATTTGCCCAAAAACACACACCATTCTGTACCTCAGTTTAGAAAATCAGTCCCAGAAATGTGG  
ATGTTAATGTGCACCCCAAAAGCATGAAGTTCACCTCCTGCACGAGGAGAGCATCCTGGAGCGGGTGCA  
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GTAGTGATAAGGTCTATGCCACCAGATGGTTCGTACAGATTCGCGGGAACAGAAGCTTGATGCATTTCT  
GCAGCCTCTGAGCAAACCCCTGTCCAGTCAGCCCAAGCCATTGTCACAGAGGATAAGACAGATATTTCT  
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CAACCCAGAAAAGAGACATCGGGAAGATTCTGATGTGGAATGGTGAAGATGATCCCGAAAAGGAAATG  
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ATGAGCAGGGACATGAGGTTCTCCGGGAGATGTTGCATAAACCCTCCTCGTGGCTGTGTGAATCCTCA  
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ACCTTGCCATGCTTGCTTAGATAGTCCAGAGAGTGGCTGGACAGAGGAAGATGGTCCCAAGAAGGACT  
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GATGAGGAAGGGAACCTGATTGGATTACCCCTTCTGATTGACAACTATGTGCCCTTTGGAGGGACTGC  
CTATCTTCATTCTCGACTAGCCACTGAGGTGAATTGGGACGAAGAAAAGGAATGTTTTGAAAGCCTCAG  
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CAGAGTGAAGTGCCTGGCTCCATTCAAACCTCTGGAAGTGGACTGTGGAACACATTGTCTATAAAGCCT  
TGGCCTCACACATTCTGCCTCTAAACATTTACAGAAGATGGAATATCCTGCAGCTTGCTAACCTGCC  
TGATCTATACAAAGTCTTTGAGAGGTGT

AG**CGGACCG**ACGCGTACGCGGCCGCTCGAGCAGAACTCATCTCAGAAGAGGATCTGGCAGCAAATGATATCC  
TGGATTACAAGGATGACGACGA TAAGGTTTAA

**Protein Sequence:** >RC401513 representing NM\_000249  
 Red=Cloning site Green=Tags(s)

```
MSFVAGVIRRLDETVVNRIAAGEVIQRPANAIEKEMENCLDAKSTSIQVIVKEGGLKLIQIQDNGTGIRK
EDLDIVCERFTTSKLSQSFEDLASISTYGFRGKALASISHVAHVTTITTKTADGKCAFRASYSDGKLGKAPPK
PCAGNQGTQITVEDLFYNIATRRKALKNPSEEYKILEVVGRYSVHNAGISFSVKKQGETVADVRTLPNA
STVDNIRSIIFGNAVSRELIEIGCEDKTLAFKMNGYISNANYSVKCKIFLLFINHRLVESTSLRKAIVTVY
AAYLPKNTHPFLYLSEISPNQVNDVNVHPTKHEVHFLHEESILERVQQHIESKLLGNSSSRMFTQTLLP
GLAGPSGEMVKSTTSLTSSSTSGSSDKVYAHQMVRTDSREQKLDLQPLSKPLSSQPQAIIVTEDKTDIS
SGRARQDEEMLELPAPAEVAANKQSLEGDTTKGTSEMSEKRGPTSSNPRKRHRESDVEMVEDDSRKEM
TAACTPRRRIINLTSVLSLQEEINEQGHEVLREMLHNHSFVGCVPQWALAQHQTKLYLLNNTKLEELF
YQILYDFANFVLRLEPAPLFDLAMLALDSPESGWTEEDGPKKEGLAEYIVEFLKKAEMLADYFSLEI
DEEGLNIGLPLLIDNYVPPLEGLPIFILRLATEVNWDEEKECFESLSKECAMFYIIRKQYISEESTLSGQ
QSEVPGSIPNSWKWTVEHIVYKALRSHILPPKHFTEGNIQLANLPDLYKVFERC
```

SGPTRRRRLEQKLISEEDLAANDILDYKDDDDKV

**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]