

## Product datasheet for **RC401661**

### 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:	P654L
Affected Codon#:	654
Affected NT#:	1961
Nucleotide Mutation:	MLH1 Mutant (P654L), 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:**

>RC401661 representing NM\_000249  
 Red=Cloning site Blue=ORF Green=Tags(s)

TTTTGTAATACGACTCACTATAGGGCGGCCGGGAATTCGTCGACTGGATCCGGTACCGAGGAGATCTGCC  
 GCC**CGGATCGCC**

ATGTCGTTCTGTCGAGGGGTTATTCGGCGGCTGGACGAGACAGTGGTGAACCGCATCGCGCGGGGGAAG  
 TTATCCAGCGGCCAGCTAATGCTATCAAGAGATGATTGAGAAGTGTAGATGCAAAATCCACAAGTAT  
 TCAAGTGATTGTTAAAGAGGGAGGCCTGAAGTTGATTCAGATCCAAGACAATGGCACCGGGATCAGGAAA  
 GAAGATCTGGATATTGTATGTGAAAGGTTCACTACTAGTAAACTGCAGTCCTTTGAGGATTTAGCCAGTA  
 TTTCTACCTATGGCTTTGAGGTGAGGCTTTGGCCAGCATAAGCCATGTGGCTCATGTTACTATTACAAC  
 GAAAACAGCTGATGGAAGTGTGCATACAGAGCAAGTACTCAGATGGAAAAGTAAAAGCCCTCTCTAAA  
 CCATGTGCTGGCAATCAAGGGACCCAGATCACGGTGGAGGACCTTTTTTACAACATAGCCACGAGGAGAA  
 AAGCTTTAAAAATCCAAGTGAAGAATATGGGAAAATTTGGAAGTTGTTGGCAGGTATTCAGTACACAA  
 TGCAGGCATTAGTTTCTCAGTTAAAAACAAGGAGAGACAGTAGCTGATGTTAGGACACTACCCAATGCC  
 TCAACCGTGGACAATATTCGCTCCATCTTTGGAATGCTGTTAGTTCGAGAAGTATAGAAATGGATGTG  
 AGGATAAAACCTAGCCTTCAAATGAATGGTTACATATCCAATGCAAACTACTCAGTGAAGAAGTGCAT  
 CTTCTTACTCTTCATCAACCATCGTCTGGTAGAATCAACTTCCTTGAGAAAAGCCATAGAAAACAGTGTAT  
 GCAGCCTATTTGCCCAAAAACACACACCATTCTGTACCTCAGTTTAGAAAATCAGTCCCCAGAATGTGG  
 ATGTTAATGTGCACCCCAAAAGCATGAAGTTCACTTCCTGCACGAGGAGAGCATCCTGGAGCGGGTGCA  
 GCAGCACATCGAGAGCAAGTCTCGGCTCCAATTCCTCCAGGATGACTTCACCCAGACTTTGTACCA  
 GGACTTGTGGCCCTCTGGGGAGATGGTTAAATCCACAACAAGTCTGACCTCGTCTTCTACTTCTGGAA  
 GTAGTGATAAGGTCTATGCCACCAGATGGTTCTGTACAGATTCGCGGGAACAGAAGCTTGATGCATTTCT  
 GCAGCCTCTGAGCAAACCCCTGTCCAGTCAGCCCAAGCCATTGTCACAGAGGATAAGACAGATATTTCT  
 AGTGGCAGGGCTAGGCAGCAAGATGAGGAGATGCTTGAACCTCCAGCCCTGCTGAAGTGGCTGCCAAAA  
 ATCAGAGCTTGGAGGGGGATACAACAAAGGGGACTTCAGAAAATGTGAGAGAAGAGAGGACCTACTCCAG  
 CAACCCAGAAAAGAGACATCGGGAAGATTCTGATGTGGAATGGTGAAGATGATTCCCGAAAAGGAAATG  
 ACTGCAGCTTGTACCCCGGAGAAGGATCATTAACTCACTAGTGTGTTTGTAGTCTCCAGGAAGAAATTA  
 ATGAGCAGGGACATGAGGTTCTCCGGGAGATGTTGCATAACCACTCCTTCGTGGGCTGTGTGAATCCTCA  
 GTGGCCCTTGGCACAGCATCAAACCAAGTTATACCTTCTCAACACCACCAAGCTTAGTGAAGAACTGTT  
 TACCAGATACTCATTTATGATTTTGCCAAATTTGGTGTCTCAGGTTATCGGAGCCAGCACCGCTCTTTG  
 ACCTTGCCATGCTTGCCTTAGATAGTCCAGAGAGTGGCTGGACAGAGGAAGATGGTCCCAAGAAGGACT  
 TGCTGAATACATTGTTGAGTTTCTGAAGAAGAAGGCTGAGATGCTTCGAGACTATTTCTCTTTGGAATT  
 GATGAGGAAGGGAACCTGATTGGATTACCCCTTCTGATTGACAACTATGTGCCCTTTGGAGGGACTGC  
 TTATCTTCATTCTCGACTAGCCACTGAGGTGAATTGGGACGAAGAAAAGGAATGTTTTGAAAGCCTCAG  
 TAAAGAATGCGCTATGTTCTATTCATCCGGAAGCAGTACATATCTGAGGAGTCGACCCTCTCAGGCCAG  
 CAGAGTGAAGTGCCTGGCTCCATTCAAACCTCTGGAAGTGGACTGTGGAACACATTGTCTATAAAGCCT  
 TGGCCTCACACATTCTGCCTCTAAACATTTACAGAAGATGGAATATCCTGCAGCTTGCTAACCTGCC  
 TGATCTATACAAAGTCTTTGAGAGGTGT

AG**CGGACCG**ACGCGTACGCGGCCGCTCGAGCAGAACTCATCTCAGAAGAGGATCTGGCAGCAAATGATATCC  
 TGGATTACAAGGATGACGACGA TAAGGTTTAA

**Protein Sequence:** >RC401661 representing NM\_000249  
 Red=Cloning site Green=Tags(s)

MSFVAGVIRRLDETVVNRIAAGEVIQRPANAIEKMIENCLDAKSTSIQVIVKEGGLKLIQIQDNGTGIRK  
 EDLDIVCERFTTSKLSQSFEDLASISTYGRGEALASISHVAHVTTITTKTADGKCAFRASYSDGKLGKAPPK  
 PCAGNQGTQITVEDLFYNIATRRKALKNPSEYKILEVVGGRYSVHNAGISFSVKKQGETVADVRTLPNA  
 STVDNIRSIIFGNAVSRELIEIGCEDKTLAFKMNGYISNANYSVKCKIFLLFINHRLVESTSLRKAIVTVY  
 AAYLPKNTHPFLYLSEISPNQVVDVNVHPTKHEVHFLHEESILERVQQHIESKLLGNSSSRMFTQTLLP  
 GLAGPSGEMVKSTTSLTSSSTSGSSDKVYAHQMVRTDSREQKLDLQPLSKPLSSQPQAIIVTEDKTDIS  
 SGRARQDEEMLELPAPAEVAANKQSLEGDTTKGTSEMSEKRGPTSSNPKRHRESDVEMVEDDSRKEM  
 TAACTPRRRIINLTSVLSLQEEINEQGHEVLEMLHNHSFVGCVPQWALAQHQTKLYLLNNTKLEELF  
 YQILYDFANFVLRLEPAPLFDLAMLALDSPESGWTEEDGPKKEGLAEYIVEFLKKAEMLADYFSLEI  
 DEEGLNIGLPLLIDNYVPPLEGLLIFILRLATEVNWDEEKECFESLSKECAMFYIIRKQYISEESTLSGQ  
 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>	<u>NP_000240</u>
<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]