

Product datasheet for **RC401681**

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:	W712X
Affected Codon#:	712
Affected NT#:	2136
Nucleotide Mutation:	MLH1 Mutant (W712X), 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:	2133 bp
Restriction Sites:	Sgfl-MluI



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**ORF Nucleotide
Sequence:**

>RC401681 representing NM_000249
 Red=Cloning site Blue=ORF Green=Tags(s)

TTTTGTAATACGACTCACTATAGGGCGGCCGGGAATTCGTCGACTGGATCCGGTACCGAGGAGATCTGCC
 GCC**CGGATCGCC**

ATGTCGTTCTGTCAGGGGTTATTTCGGCGGCTGGACGAGACAGTGGTGAACCGCATCGCGCGGGGAAG
 TTATCCAGCGGCCAGCTAATGCTATCAAAGAGATGATTGAGAAGTGTGTTAGATGCAAAATCCACAAGTAT
 TCAAGTGATTGTTAAAGAGGGAGGCTGAAGTTGATTGATCCAAGACAATGGCACCGGGATCAGGAAA
 GAAGATCTGGATATTGTATGTGAAAGGTTCACTACTAGTAACTGCAGTCCTTTGAGGATTTAGCCAGTA
 TTTCTACCTATGGCTTTCGAGGTGAGGCTTTGGCCAGCATAAGCCATGTGGCTCATGTTACTATTACAAC
 GAAAACAGCTGATGAAAGTGTGCATACAGAGCAAGTTACTCAGATGGAAAAGTAAAGCCCTCTCTAA
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 TCAACCGTGGACAATATTCGCTCCATCTTTGAAATGCTGTTAGTCGAGAAGTATAGAAATGGATGTG
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 CTTCTTACTCTTCATCAACCATCGTCTGGTAGAATCAACTTCCTTGAGAAAAGCCATAGAAAACAGTGTAT
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 TAAAGAATGCGCTATGTTCTATTCCATCCGGAAGCAGTACATATCTGAGGAGTCGACCCTCTCAGGCCAG
 CAGAGTGAAGTGCCTGGCTCCATTCCAACTCC

AG**CGGACCG**ACGCGTACGCGGCCGCTCGAGCAGAACTCATCTCAGAAGAGGATCTGGCAGCAATGATATCC
 TGGATTACAAGGATGACGACGA TAAGGTTTAA

Protein Sequence: >RC401681 representing NM_000249
Red=Cloning site Green=Tags(s)

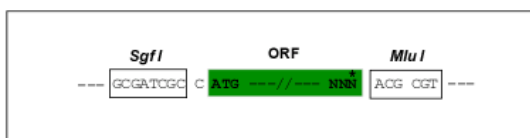
MSFVAGVIRRLDETVVNRIAAAGEVIQRPANA IKEMIENCLDAKSTSIQVI VKEGGLKLIQIQDNGTGIRK
EDLDIVCERFTTSKLQSFEDLASISTYGRGEALASISHVAHVTTITKTADGKCAYRASYS DGKLKAPPK
PCAGNQGTQITVEDLFYNIATRRKALKNPSEEY GKILEVVG RYSVHNAGISF SVKKQGETVADVRTL PNA
STVDNIRSI FGNAVSRELIEIGCEDKTLAFKMNGYISNANYSVKKCI FLLFINHRLVESTSLRKA IETVY
AAYLPKNTHPFLYL SLETS PQNV DNVNHP TKHEVHFLHEESILERVQQHIESKLLGSNSSRMYFTQTLLP
GLAGPSGEMVKSTTSLTSSSTS GSSDKVYAHQMVRTDSREQKLDAFLQPLSKPLSSQPQAI VTEDKTDIS
SGRARQQDEEMLELPAPAEVAAKNQSL EGDTTKGTSEMSEKRGPTSSNPRKRHRESDVEMVEDDSRKEM
TAACTPRRRIINLTSVLSLQEEINEQGHEVLREMLHNHSFVGCVPNPQWALAQHQTKLYLLNTTKLSEELF
YQILYIDFANFGLVRLSEPAFLFDLAMLALDSPESGWTEEDGPKEGLAEYIVEFLKKKAEMLADYFSLEI
DEEGLNIGLPLNIDNYVPPL EGLPIFILRLATEVNWDEEKECFESLSKECAMFY SIRQYI SEESTLSGQ
QSEVPGPSIPNS

SGPTRRRL EOKLISEEDLAANDILDYKDDDDKV

Restriction Sites: SgfI-MluI

Cloning Scheme:

Cloning sites used for ORF Shuttling:



EcoRI *BamHI* *KpnI* *RBS* *Kozac Consensus* *SgfI*
 CTATAGGGCGGCGCGGGGAATCTGTCGACTGGATCCGGTACCGAGGAGATCTGCGCGCGCGATCGC C ATG 

ORF   *MluI* *NotI* *XhoI* *Myc.Tag*
 ACG CGT ACG CGG CCG CTC GAG CAG AAA CTC ATC TCA GAA GAG
 T R T R P L E Q K L I S E E

EcoRV *Flag.Tag* *PmeI* *FseI*
 GAT CTG GCA GCA AAT GAT ATC CTG GAT TAC AAG GAT GAC GAC GAT AAG GTT TAA ACGGCGCGCG
 D L A A N D I L D Y K D D D D K V stop

* The last codon before the Stop codon of the ORF

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).
Note:	Plasmids are not sterile. For experiments where strict sterility is required, filtration with 0.22um filter is required.
RefSeq:	<u>NP_000240</u>
RefSeq Size:	2133 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:	78.2 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]