

Product datasheet for **MR204563**

Apex1 (NM_009687) Mouse Tagged ORF Clone

Product data:

Product Type:	Expression Plasmids
Product Name:	Apex1 (NM_009687) Mouse Tagged ORF Clone
Tag:	Myc-DDK
Symbol:	Apex1
Synonyms:	APE; Apex; HAP1; Ref-1
Mammalian Cell Selection:	Neomycin
Vector:	pCMV6-Entry (PS100001)
E. coli Selection:	Kanamycin (25 ug/mL)
ORF Nucleotide Sequence:	>MR204563 ORF sequence Red=Cloning site Blue=ORF Green=Tags(s)

TTTTGTAATACGACTCACTATAGGGCGGCCGGAATTCGTCGACTGGATCCGGTACCGAGGAGATCTGCC
GCC**CGATCGCC**

ATGCCAAAGCGGGAAAGAAAGCGGGCCGACGACGGGAAGAACCAAGTCGGAGCCAGAGACCAAGA
AGAGTAAGGGGGCAGCAAAGAAAACCGAGAAGGAGGCCGCGGGAGAGGGCCCTGTCCTGTACGAGGACCC
TCCAGATCAGAAAACCTCACCCAGTGGCAAATCTGCCCACTCAAGATATGCTCCTGGAATGTGGATGGG
CTTCGAGCCTGGATTAAGAAAGGTTTGGATTGGGTAAGGAAGAAGCACCAGATATCTGTGCCTCC
AAGAGACCAAGTCTCGGAGAACAACCTCCCGGCTGAAGTGAAGAGCTGCCTGGACTCACCCATCAGTA
CTGGTCAGCTCCGTCAGACAAAGAAGGATACAGTGGTGTGGGCCTACTTCCCGCCAGTGCCCGCTAAAA
GTCTCTTATGGCATTGGCGAGGAAGAACATGATCAAGAAGGCCGGGTGATTGTGGCTGAATTTGAGTCTT
TTGTCTGGTAACAGCCTATGTTCCCAATGCAGGCAGGGGTCTGGTAAGACTGGAATACCGACAGCGTTG
GGATGAAGCCTTCCGAAAGTTTCTAAAGGACTTGGCTTCCAGAAAGCCTCTTGTGCTATGTGGGGATCTC
AATGTGGCTCATGAAGAAATTGACCTCCGTAACCCCAAAGGAAACAAAAGAATGCTGGCTTTACTCCCC
AGGAGCCCAAGGTTTTGGGAACTGCTACAAGCTGTACCATTGGCTGACAGCTTCCGGCATCTCTACCC
CAACTGCTTACGCTTACACTTTCTGGACTTACATGATGAATGCCCGCTCTAAGAATGTTGGTTGGCGC
CTTGATTACTTTTTGCTTCCACTCTTTTTACCTGCATTGTGTGACAGCAAGATCCGGTCCAAGGCTC
TTGGCAGTGACCCTGTCCCATCACCTTTACCTAGCACTG

ACGCGTACGCGGCCGCTCGAGCAGAAACTCATCTCAGAAGAGGATCTGGCAGCAAATGATATCCTGGATT
ACAAGGATGACGACGATAAGGTTTAA



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Protein Sequence: >MR204563 protein sequence
 Red=Cloning site Green=Tags(s)

MPKRGKAAADDGEEPKSEPETKKSFGAAKTEKEAAGEGPVLYEDPPDQKTSFSGKSATLKICSWNV
 LRAWIKKKGLDWVKEEAPDILCLQETKCSENKLPALQELPGLTHQYWSAPSDKEGYSVGLLSRQCPLK
 VSYGIGEEHDDQEGRVI VAEFESFVLVTAYVFNAGRGLVRLEYRQRWDEAFRKFLLKDLASRKPLVLCGDL
 NVAHEEIDLRNPKGNKKNAGFTPQERQGF GELLQAVPLADSFHLYPNTAYAYTFWTYMMNARSKNVGWR
 LDYFLLSHSLLPALCDKIRSKALGSDHCPITLYLAL

TRTRPLEQKLISEEDLAANDILDYKDDDDKV

Restriction Sites: SgfI-MluI

Cloning Scheme:

Cloning sites used for ORF Shuttling:



* The last codon before the Stop codon of the ORF

ACCN: NM_009687

ORF Size: 954 bp

OTI Disclaimer: Due to the inherent nature of this plasmid, standard methods to replicate additional amounts of DNA in E. coli are highly likely to result in mutations and/or rearrangements. Therefore, OriGene does not guarantee the capability to replicate this plasmid DNA. Additional amounts of DNA can be purchased from OriGene with batch-specific, full-sequence verification at a reduced cost. Please contact our customer care team at custsupport@origene.com or by calling 301.340.3188 option 3 for pricing and delivery.

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](#)

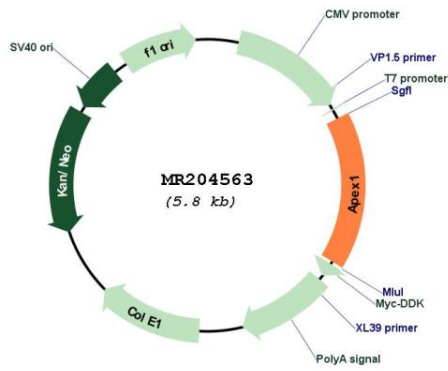
OTI Annotation: This clone was engineered to express the complete ORF with an expression tag. Expression varies depending on the nature of the gene.

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).
Reconstitution Method:	<ol style="list-style-type: none">1. Centrifuge at 5,000xg for 5min.2. Carefully open the tube and add 100ul of sterile water to dissolve the DNA.3. Close the tube and incubate for 10 minutes at room temperature.4. Briefly vortex the tube and then do a quick spin (less than 5000xg) to concentrate the liquid at the bottom.5. Store the suspended plasmid at -20°C. The DNA is stable for at least one year from date of shipping when stored at -20°C.
RefSeq:	<u>NM_009687.2</u>
RefSeq Size:	1307 bp
RefSeq ORF:	954 bp
Locus ID:	11792
UniProt ID:	<u>P28352</u>
Cytogenetics:	14 26.3 cM
MW:	35.5 kDa

Gene Summary:

Multifunctional protein that plays a central role in the cellular response to oxidative stress. The two major activities of APEX1 are DNA repair and redox regulation of transcriptional factors. Functions as a apurinic/aprimidinic (AP) endodeoxyribonuclease in the DNA base excision repair (BER) pathway of DNA lesions induced by oxidative and alkylating agents. Initiates repair of AP sites in DNA by catalyzing hydrolytic incision of the phosphodiester backbone immediately adjacent to the damage, generating a single-strand break with 5'-deoxyribose phosphate and 3'-hydroxyl ends. Does also incise at AP sites in the DNA strand of DNA/RNA hybrids, single-stranded DNA regions of R-loop structures, and single-stranded RNA molecules. Has a 3'-5' exoribonuclease activity on mismatched deoxyribonucleotides at the 3' termini of nicked or gapped DNA molecules during short-patch BER. Possesses a DNA 3' phosphodiesterase activity capable of removing lesions (such as phosphoglycolate) blocking the 3' side of DNA strand breaks. May also play a role in the epigenetic regulation of gene expression by participating in DNA demethylation. Acts as a loading factor for POLB onto non-incised AP sites in DNA and stimulates the 5'-terminal deoxyribose 5'-phosphate (dRp) excision activity of POLB. Plays a role in the protection from granzymes-mediated cellular repair leading to cell death. Also involved in the DNA cleavage step of class switch recombination (CSR). On the other hand, APEX1 also exerts reversible nuclear redox activity to regulate DNA binding affinity and transcriptional activity of transcriptional factors by controlling the redox status of their DNA-binding domain, such as the FOS/JUN AP-1 complex after exposure to IR. Involved in calcium-dependent down-regulation of parathyroid hormone (PTH) expression by binding to negative calcium response elements (nCaREs). Together with HNRNPL or the dimer XRCC5/XRCC6, associates with nCaRE, acting as an activator of transcriptional repression. Stimulates the YBX1-mediated MDR1 promoter activity, when acetylated at Lys-6 and Lys-7, leading to drug resistance. Acts also as an endoribonuclease involved in the control of single-stranded RNA metabolism. Plays a role in regulating MYC mRNA turnover by preferentially cleaving in between UA and CA dinucleotides of the MYC coding region determinant (CRD). In association with NMD1, plays a role in the rRNA quality control process during cell cycle progression. Associates, together with YBX1, on the MDR1 promoter. Together with NPM1, associates with rRNA. Binds DNA and RNA.[UniProtKB/Swiss-Prot Function]

Product images:



Circular map for MR204563