

## Product datasheet for **MC206686**

### Apex1 (BC052401) Mouse Untagged Clone

#### Product data:

**Product Type:** Expression Plasmids  
**Product Name:** Apex1 (BC052401) Mouse Untagged Clone  
**Tag:** Tag Free  
**Symbol:** Apex1  
**Synonyms:** Apex, APE, HAP1, Ref-1  
**Mammalian Cell Selection:** Neomycin  
**Vector:** PCMV6-Kan/Neo (PCMV6KN)  
**E. coli Selection:** Kanamycin (25 ug/mL)

**Fully Sequenced ORF:** >BC052401  
AACAGGCAGACTCCATTCTTTGTGCCGTGAGGGTCTCTGGCTTCGTTGGGAGGCAGCGCAGTAAACACTG  
CTTCGGTGCTCCAGGAGCCTAAGGGCTTTCGTACAGCGATGCCAAAGCGGGGAAAGAAAGCGGCGGCCG  
ACGACGGGGAAGAACCCAAGTCGGAGCCAGAGACCAAGAAGAGTAAGGGGGCAGCAAAGAAAACCGAGAA  
GGAGGCCGCGGGAGAGGGCCCTGTCTGTACGAGGACCCTCCAGATCAGAAAACCTCACCCAGTGGCAAA  
TCTGCCCACTCAAGATATGCTCCTGGAATGTGGATGGGCTTCGAGCCTGGATAAAAAGAAAGTTTGG  
ATTGGGTAAAGGAAGAAGCACCAGATATCTTGTGCCTCCAAGAGACCAAGTGTCTCGGAGAACAACCTCC  
GGCTGAACTGCAAGAGCTGCCTGGACTCACCCATCAGTACTGGTCAGCTCCGTGAGACAAAGAAGGATAC  
AGTGGTGTGGCCTACTTCCCAGCAGTCCCGCTAAAAGTCTCTTATGGCATTGGCGAGGAAGAACATG  
ATCAAGAAGGCCGGGTGATTGTGGCTGAATTTGAGTCCTTTGTCCTGGTAACAGCCTATGTTCCCAATGC  
AGGCAGGGGTCTGGTAAGACTGGAATACCGACAGCGTTGGGATGAAGCCTTCGAAAAGTTTCTAAAGGAC  
TTGGCTTCCAGAAAGCCTTTGTGCTATGTGGGATCTCAATGTGGCTCATGAAGAAATTGACCTCCGTA  
ACCCCAAAGGAAACAAAAGAATGCTGGCTTTACTCCCCAGGAGCGCAAGGTTTTGGGGAAGTGTACA  
AGCTGTACCATTGGCTGACAGCTTCCGGCATCTACCCCAACTGCTTACGCTTACACTTTCTGGACT  
TACATGATGAATGCCCGCTTAAGAAATGTTGGTTGGCGCCTTGATTACTTTTTGCTTTCCCACTCTCTTT  
TACCTGCATTGTGTGACAGCAAGATCCGGTCCAAGGCTCTTGGCAGTGACCACTGTCCCATACCCCTTTA  
CCTAGCACTGTGATACCTCCTGCAGTAGCTTCTGCCTGGGAGATGGCTCTCTGTCAGAAGTCTGGTG  
TTTTAGCCTTCAGGTGTTTGGTTTTGTATGTGCTCCCTCATTTTAAACATTAACCAAACTTCTGGTTTC  
CTTTAGACAATCCAAGAGAAATAAAAGGCCCTACTTTCAAAAAAAAAAAAAAAAAAAAA

**Restriction Sites:** EcoRI-NotI  
**ACCN:** BC052401  
**Insert Size:** 954 bp



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<b>OTI Disclaimer:</b>	Our molecular clone sequence data has been matched to the reference identifier above as a point of reference. Note that the complete sequence of our molecular clones may differ from the sequence published for this corresponding reference, e.g., by representing an alternative RNA splicing form or single nucleotide polymorphism (SNP).
<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>Reconstitution Method:</b>	<ol style="list-style-type: none"><li>1. Centrifuge at 5,000xg for 5min.</li><li>2. Carefully open the tube and add 100ul of sterile water to dissolve the DNA.</li><li>3. Close the tube and incubate for 10 minutes at room temperature.</li><li>4. Briefly vortex the tube and then do a quick spin (less than 5000xg) to concentrate the liquid at the bottom.</li><li>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.</li></ol>
<b>RefSeq:</b>	<u><a href="#">BC052401</a></u> , <u><a href="#">AAH52401</a></u>
<b>RefSeq Size:</b>	1247 bp
<b>RefSeq ORF:</b>	954 bp
<b>Locus ID:</b>	11792
<b>Cytogenetics:</b>	14 26.3 cM

**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]