# Recombinant Human APEX1 Protein (32-318 aa), His-tagged

**Cat. No.** APEX1-1330H **Lot. No.** (See product label)

## SPECIFICATION

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| **Product Overview** | Recombinant Human APEX1 Protein (32-318 aa) is produced by Yeast expression system. This protein is fused with a 6xHis tag at the N-terminal. Research Area: Epigenetics and Nuclear Signaling. Protein Description: Full Length of Mature Protein. |
| **Species** | Human |
| **Source** | Yeast |
| **ProteinLength** | 32-318 aa |
| **Description** | Multifunctional protein that plays a central role in the cellular response to oxidative stress. The two major activities of APEX1 in DNA repair and redox regulation of transcriptional factors. Functions as a apurinic/apyrimidinic (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 roving 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 |

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| | DNA dethylation. 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 elents (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. |
| **Form** | Tris-based buffer,50% glycerol |
| **Molecular Mass** | 34.2 kDa |
| **AA Sequence** | KNDKEAAGEGPALYEDPPDQKTSPSGKPATLKICSWNVDGLRAWIKKKGLDWVKEE APDILCLQETKCSENKLPAELQELPGLSHQYWSAPSDKEGYSGVGLLSRQCPLKVS YGIGDEEHDQEGRVIVAEFDSFVLVTAYVPNAGRGLVRLEYRQRWDEAFRKFLKGL ASRKPLVLCGDLNVAHEEIDLRNPKGNKKNAGFTPQERQGFGELLQAVPLADSFRH LYPNTPYAYTFWTYMMNARSKNVGWRLDYFLLSHSLLPALCDSKIRSKALGSDHCPI TLYLAL |

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| **Purity** | > 90% as determined by SDS-PAGE. |
| **Notes** | Repeated freezing and thawing is not recommended. Store working aliquots at 4 centigrade for up to one week. |
| **Storage** | The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20 centigrade/-80 centigrade. The shelf life of lyophilized form is 12 months at -20 centigrade/-80 centigrade. |
| **Concentration** | A hardcopy of COA with reconstitution instruction is sent along with the products. Please refer to it for detailed information. |

## GENE INFORMATION

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| **Gene Name** | APEX1 APEX nuclease (multifunctional DNA repair enzyme) 1 [ Homo sapiens ] |
| **Official Symbol** | APEX1 |
| **Synonyms** | APEX1; APE; APE 1; APEN; APX; HAP1; REF 1; REF1; AP lyase; APE1; APEX; |
| **Gene ID** | 328 |
| **mRNA Refseq** | NM_001244249 |
| **Protein Refseq** | NP_001231178 |
| **MIM** | 107748 |
| **UniProt ID** | P27695 |

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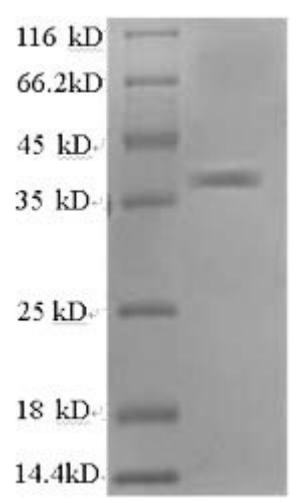


(Tris-Glycine gel) Discontinuous SDS-PAGE (reduced) with 5% enrichment gel and 15% separation gel.

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