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APEX1 Polyclonal Antibody

(Catalog #A68301)

Background
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 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.

Description
APEX1 Polyclonal Antibody. Unconjugated. Raised in: Rabbit.

Formulation
Liquid. 0.03% Proclin 300. 50% Glycerol, 0.01M PBS, PH 7.4.

Specificity
Human, Mouse

Isotype
IgG

Uniprot ID
P27695

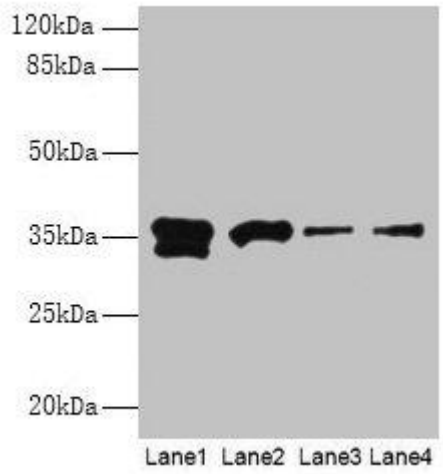
Purification
Protein G purified

Immunogen
Recombinant Human DNA-(apurinic or apyrimidinic site) lyase protein (32-318AA)

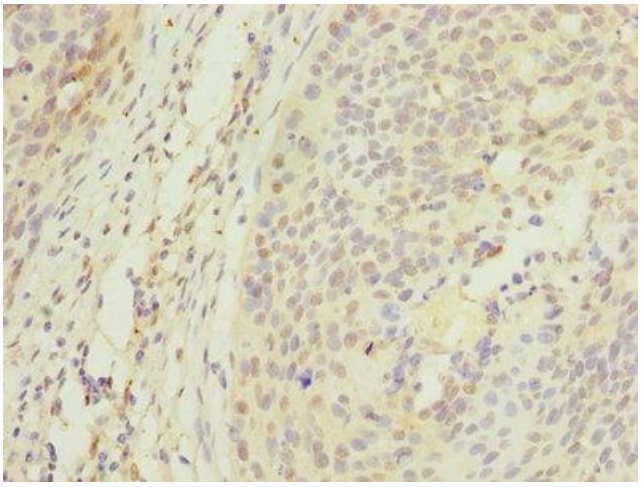
Storage
Shipped at 4°C. Upon delivery aliquot and store at -20°C (short-term) or -80°C (long-term). Avoid repeated freeze.

Alternative Names
APEX nuclease, Apurinic-apyrimidinic endonuclease 1, REF-1, Redox factor-1, APEX1, APE, APE1, APEX, APX, HAP1, REF1

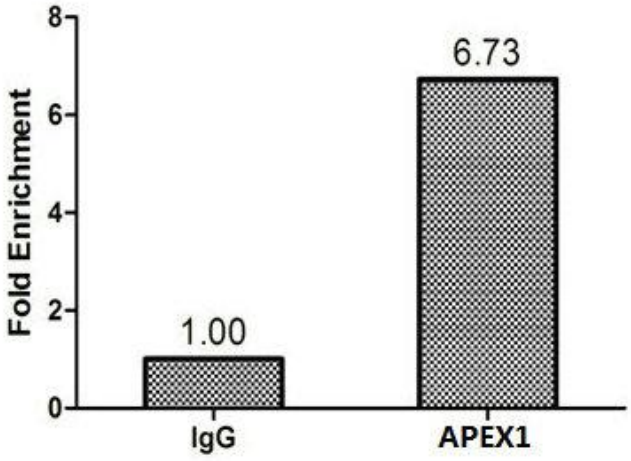
Application
ELISA, WB, IHC, ChIP; Recommended dilution: WB:1:1000-1:5000, IHC:1:20-1:200



Western blot
All lanes: APEX1 antibody at 2µg/ml
Lane 1: Hela whole cell lysate
Lane 2: Mouse brain tissue
Lane 3: MCF-7 whole cell lysate
Lane 4: A431 whole cell lysate
Secondary
Goat polyclonal to rabbit IgG at 1/15000 dilution
Predicted band size: 36 kDa
Observed band size: 36 kDa



Immunohistochemistry of paraffin-embedded human cervical cancer using APEX1 Antibody at dilution of 1:100



Chromatin Immunoprecipitation MCF-7 ($1.1*10^6$) were cross-linked with formaldehyde, sonicated, and immunoprecipitated with 4µg anti-APEX1 or a control normal rabbit IgG. The resulting ChIP DNA was quantified using real-time PCR with primers against the MDR1 promoter.