

# TREVIGEN® Product Data

*For Research Use Only. Not For Use In Diagnostic Procedures*

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## Human Apurinic/Apyrimidinic Endonuclease (hAPE)

<b>Catalog #:</b>	4110-01K-EB		
<b>Contents:</b>	4110-01K-01	hAPE	<b>Size:</b> 1000 Units
	3900-500-07	10X REC™ Buffer 7	1 ml

**Description:** Human APE (also referred to as Ref-1) is a 37 kDa multifunctional enzyme. It is involved in both DNA repair and in facilitating the redox state for a number of DNA binding proteins.

**Source:** Purified from *E. coli* containing a recombinant plasmid harboring the hAPE gene.

**Unit Definition:** One unit cleaves 1 pmole of a labeled oligonucleotide probe containing an AP site within an oligonucleotide duplex at the rate of 1 pmol/hour at 37°C.

**Specificity:** Human APE is responsible for the repair of apurinic/apyrimidinic (AP) sites in the DNA base excision repair (BER) pathway. It catalyzes the cleavage of the phosphodiester bond immediately 5' to an AP site. APE also functions as a redox factor facilitating the DNA-binding capability of JUN, FOS, AP-1, NF-κB, and other transcription factors. The APE-related DNA repair activity has been demonstrated to be inactivated by phosphorylation, suggesting that this might be the mechanism by which the enzyme switches between the two functions.

**Assay Conditions:** 1X REC Buffer 7 (10 mM HEPES-KOH (pH 7.4), 100 mM KCl, 10 mM MgCl<sub>2</sub>), 4 pmole of a labeled AP oligonucleotide containing an AP site, annealed to a complement oligonucleotide, and serial dilutions of enzyme in a 20 µl reaction volume are incubated for 1 hour at 37°C. The cleavage products are resolved by 20% denaturing polyacrylamide gel electrophoresis, and the percent cleavage quantified.

**Storage Buffer:** 10 mM HEPES-KOH (pH 7.4), 100 mM KCl, 0.1 mg/ml BSA, 50% (v/v) glycerol.

**Storage Conditions:** Store at -20°C in a manual defrost freezer. For long-term storage, freeze at -80°C in working aliquots. Avoid repeated freeze-thawing.

**TREVIGEN®**

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**References:**

1. Hansen, W.K., W.A. Deutsch, A. Yacoub, Y. Xu, D.A. Williams, and M.R. Kelley. 1998. Creation of a fully functional human chimeric DNA repair protein. *J Biol Chem* 273:756-762.
2. Yacoub, A., M.R. Kelley, and W.A. Deutsch. 1997. The DNA repair activity of human redox/repair protein APE/Ref-1 is inactivated by phosphorylation. *Cancer Res* 57:5457-5459.
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4. Lieber, M.R. 2008. The Mechanism of Human Nonhomologous DNA End Joining. *J Biol Chem* 283:1-5.

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