PRODUCT INFORMATION

FEN1 (human, recombinant)

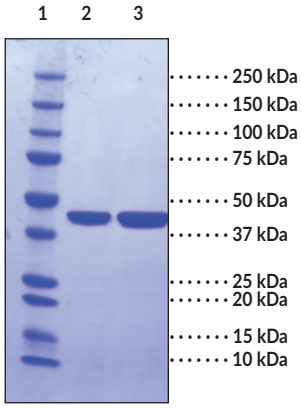
Item No. 14199

Overview and Properties

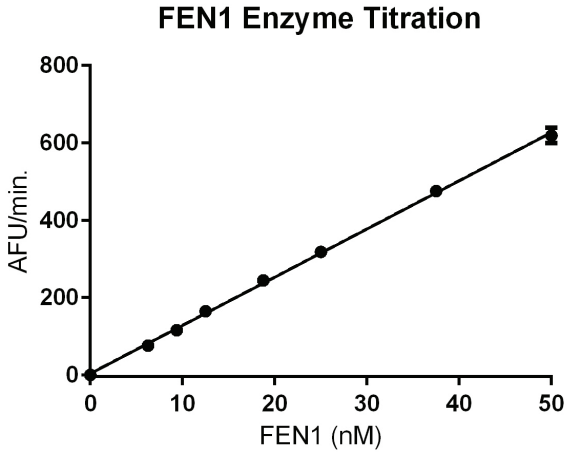
Synonyms:	Flap Endonuclease 1, hFEN1
Source:	Active recombinant C-terminal His-tagged protein expressed in *E. coli*
Amino Acids:	2-380 (full length)
Molecular Weight:	43.8 kDa
Storage:	-80°C (as supplied); avoid freeze/thaw cycles by aliquoting protein.
Stability:	≥1 year
Purity:	***batch specific*** (≥85% estimated by SDS-PAGE)
Supplied in:	50 mM Tris, pH 8.0, containing 1 mM DTT and 10% glycerol
Protein Concentration:	***batch specific*** mg/ml
Activity:	***batch specific*** U/ml
Specific Activity:	***batch specific*** U/mg
Unit Definition:	One unit is defined as the amount of enzyme to produce 1 pmol of FLAP per minute at 25°C in 50 mM Tris, pH 8.0, 10 mM $MgCl_2$, 1 mM DTT, and 0.01% Tween 20.

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Images



Lane 1: MW Markers
Lane 2: FEN1 (2 µg)
Lane 3: FEN1 (4 µg)



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Description

Flap endonuclease 1 (FEN1), a RAD2 Class II nuclease, plays a crucial role in DNA repair, replication, and genomic stability.[1] FEN1 removes the 5'-unannealed flap during Okazaki fragment processing in lagging strand DNA synthesis.[2] Removal of the DNA flap is also critical in long-patch base excision repair and regulation of recombination.[3] In yeast, FEN1 mutants display sensitivity to UV irradiation, deficient chromosome segregation, and cell cycle arrest in S phase.[4] Furthermore, haploinsufficiency of FEN1 in mice leads to rapid tumor progression.[4] FEN1 is overexpressed in many forms of cancer, including lung, gastric, prostate, pancreatic, brain, and breast.[3]

References

1. Lee, B.-I. and Wilson, D.M.I. *J. Biol. Chem.* The RAD2 domain of human exonuclease 1 exhibits 5' to 3' exonuclease and flap structure-specific endonuclease activities. **274(53)**, 37763-37769 (1999).
2. Jagannathan, I., Pepenella, S., and Hayes, J.J. Activity of FEN1 endonuclease on nucleosome substrates is dependent upon DNA sequence but not flap orientation. *J. Biol. Chem.* **286(20)**, 17521-17529 (2011).
3. Dorjsuren, D., Kim, D., Maloney, D.J., *et al*. Complementary non-radioactive assays for investigation of human flap endonuclease 1 activity. *Nucleic Acids Res.* **39(2)**, (2011).
4. Sakurai, S., Kitano, K., Yamaguchi, H., *et al*. Structural basis for recruitment of human flap endonuclease 1 to PCNA. *EMBO J.* **24(4)**, 683-693 (2005).

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