KORNBERG™ Endonuclease

Catalog Number: KS61

Synonym: Nuclease, Serratia marcescens' extracellular endonuclease.

Protein Construction: KORNBERG™ Endonuclease is a recombined Serratia marcescens' extracellular endonuclease.

Source: Aequorea victoria

Expression Host: E.*coli*

Protein Description

The KORNBERG™ Endonuclease is a nonspecific nuclease with high activity, capable of completely digesting RNA and DNA (single stranded, double stranded, linear, circular and super coiled forms, that no fewer than five phosphate residues) into 5'-monophosphate-terminated oligonucleotides of 3-5 bases in length. KORNBERG™ Endonuclease requires divalent cation, preferably Mg2+ for activity, displays a broad pH tolerance (range from 6 to 10, optimal at 8-8.5) and has a wide temperature optimum between 35ºC and 44ºC. The nuclease is a homodimer (the dimer form is physiologic and functions more progressively than the monomer). Two disulfide bonds in the nuclease are crucial to its activity and stability. It does not have typical protease activity detected by azocasein assay. Its high intrinsic activity and broad substrate tolerance make the endonuclease an ideal tool in a variety of biotechnological and pharmaceutical applications. KORNBERG™ Endonuclease can be removed by various purification methods.

Purity: > 99%, as determined by SDS-PAGE.

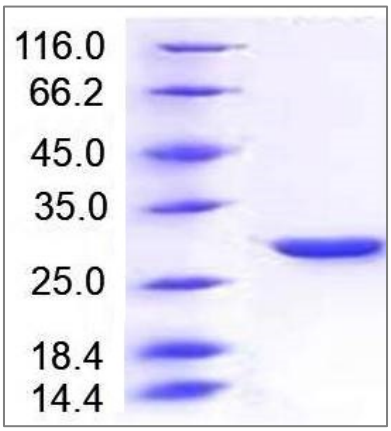
Endotoxin: < 0.05 EU/1000 units as determined by the LAL method.

Stability: Samples are stable for up to twelve months from date of receipt -70ºC.

Predicted N terminal: Three isoforms with different N terminal may be found from the compound - Sm1 (22D-266N), Sm2 (23T-266N) and Sm3 (25E-266N), the activity analysis shows that they were functionally equivalent.

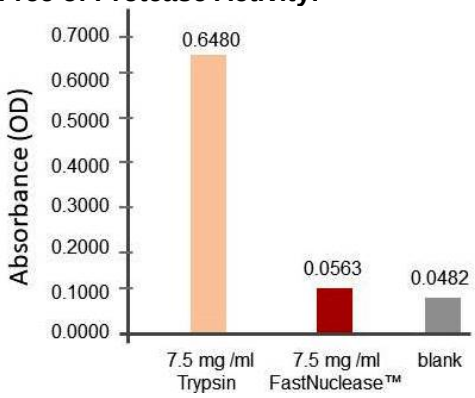
Molecular Mass: The KORNBERG™ Endonuclease comprises 266 amino acids and has a calculated molecular mass of Sm1 (26708.2 Da), Sm2 (26591.8 Da) and Sm3 (26376.4 Da). The apparent molecular mass of KORNBERG™ Endonuclease is approximately 26.5 KDa.

SDS-PAGE:
Fig.1.



KDa Marker 98%
Fig. 1. Purity analysis by SDS-PAGE Detection

Free of Protease Activity:



Protease activity was monitored by Azocasein assay. Fig. 2.
Fig. 2. Protease activity analysis by azocasein assay.

Shipping: Shipped at Ambient Temperature. The liquid or lyophilized enzyme is stable for at least 21days when stored at 37ºC (or ambient temperature).

Formulation: KORNBERG™ Endonuclease is sterile, lyophilized with pH at 8.0 containing -
50 mM Tris-HCl
20 mM NaCl
2 mM MgCl2
5 % trehalose
5 % mannitol, and
0.01 % Triton® (Triton® is a trademark of Dow Chemical, USA). Follow the instructions on the vial.

Centrifuge the vial at 4ºC before opening to recover the entire contents. Please contact us for any concerns or special requirements at +91-22-49198700 | Email: sales@krishgen.com

Reconstitution: Being enzymes, the concentrations may differ from lot to lot produced by us. We always recommend referring the accompanying data sheet to view the exact concentration and the recommended dilution schemata.

Pack Size	Particulars
10 KU	Add Sterile Water 100 ul to obtain a Stock Solution of 100 U/ul
25 KU	Add Sterile Water 250 ul to obtain a Stock Solution of 100 U/ul
500 KU	Add Sterile Water 5 ml to obtain a Stock Solution of 100 U/ul
	the Working Solution is recommended at 25 u/ul

Centrifuge the vial at 4ºC before opening to recover the entire contents.
Normally 25 U/ul is recommended as the final concentration.

Storage: Store it under sterile conditions at -20ºC to -80ºC upon receiving for at least 12 months. Recommend to aliquot the protein into smaller quantities for optimal storage. Avoid repeated freeze-thaw cycles.

Applications:
Cell Lysis:
FastNuclease™ endonuclease helps to reduce viscosity due to its ability to quickly hydrolyze nucleic acids.
The enzyme may also be used with all methods of cell lysis, including lysozyme treatment, freeze-thawing procedures, and high-pressure homogenization.

Particle Processing:
FastNuclease™ endonuclease helps facilitate particle purification. Nucleic acids may adhere to cell-derived particles, such as viruses or inclusion bodies. This adhesion may interfere with separation due to agglomeration, change in particle size or change in particle charge, resulting in a reduced product yield. FastNuclease™ endonuclease is suitable for reducing the nucleic acid load during purification, thus eliminating interferences and improving both yield and purity of the end product.

Bioanalytical Applications:
Sample preparation and treatment for ELISA, chromatography or two-dimensional electrophoresis (protein mapping), and footprint analysis. Benefits of sample treatment include improved resolution and increased recovery of samples.

Comparator Data
Salmon Sperm DNA Cleavage Assay
The substrate Deoxyribonucleic acid sodium salt from salmon testes (Sigma, Catalog # D1626) was diluted with assay buffer (50 mM Tris-HCl, pH 8.0, 5 mM MgCl2, 100 ug/ml bovine serum albumin) into 1 mg/ml. Incubate the substrate with different units of KORNBERG™ Endonuclease as well as other nucleases at 37ºC for 30 min. The DNA fragment was analysed by agarose gel electrophoresis, and photographed (Fig.3).

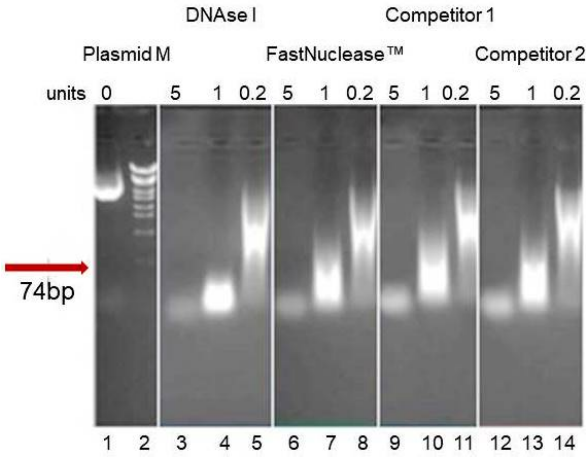


Fig. 3. Comparison of the KORNBERG™
Endonuclease and other nucleases in different amount of nuclease by plasmid DNA cleavage assay.
*The DNase I's activity unit is decided by the DNase I's definition.

References:
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