Micrococcal Nuclease (Catalog# TBS6020)

DESCRIPTION

Micrococcal Nuclease is a recombinant non-specific endonuclease, which originally comes from Staphylococcus aureus. It is produced and purified from recombinant *E. coli*. The enzymatic protein is a monomer of 245 amino acids. The molecular weight is about 17kDa. This enzyme requires Ca^{2+} and is completely inactivitated by EDTA or EGTA.

FEATURES AND BENEFITS

■ Degrade all forms of DNA and RNA (single-stranded, double-stranded, linear and circular nucleic acids).
■ Completely digest nucleic acids to 5'-monophosphate terminated oligonucleotides 2-5 bases in length.
■ No protease activity and viral contaminant.
■ Perfect for a wide variety of applications where complete digestion of nucleic acids is desirable.

APPLICATION

■ Eliminate DNA/RNA remnants in protein expression products. Under proper conditions, the nucleic acid level could be reduced to less than 10pg/ml.
■ Reduce the viscosity of the lysed host cell (e.g. E. coli.), improving the recovery in the purification of bio-products.
■ Chromatin structure analysis.

CONCENTRATION AND PURITY

10,000 U/1mL; Purity: >95%

STORAGE BUFFER

50% Glycerol
50 mM Tris-HCl pH 8.0
20 mM NaCl
10 mM $CaCl_2$

STORAGE

The enzyme is stable in pH 7.0-9.5 for 2 years when stored at –20°C. DO NOT store at –70°C as freezing may cause the loss of activity.

REACTION CONDITIONS

Digesting about 1 µg DNA in 100 µl reaction volume: 10 U Micrococcal Nuclease, 50 mM Tris-HCl(pH 8.0), 9 mM CaCl2, 350 mM NaCl. Incubate at 37°C for 30 min. Stop reaction by addition of 3 µl of 0.5 M EDTA. The reaction conditions will vary with different applications. To remove DNA/RNA in bioproducts, the temperature shall be 8-12°C, and the duration is 72 hours to reduce the remnant nucleic acid to pictogram level.

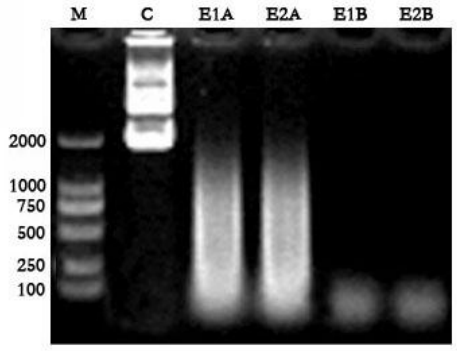
UNIT DEFINITION

One unit of Micrococcal Nuclease is defined as the amount of enzyme that causes a ΔA260 of 1.0 in 30 min, which corresponds to complete digestion of 37 µg of DNA.

REMOVE ENZYME FROM PRODUCTS

■ Cation Ion Exchange Chromatography, set the mobile phase pH=7-8.5, Ion concentration less than 150mM.
■ Gel filtration chromatography could be well applied to the Micrococcal Nuclease elimination.

Enzyme Activity



M: Marker; C: Control DNA sample; E1A/E1B: Micrococcal Nuclease 1U/10U digested DNA(37°C, 5min); E2A/E2B: A commercialized Nuclease 1U/10U digested DNA(37°C, 5min)

RELATED PRODUCTS

Blood DNA Extraction Kit (catalog# TBS6004)

Cell DNA Extraction Kit (catalog# TBS6007)

qPCR Superkit (catalog# TBS4001)

REFERENCES

David Shortle and Alan K. Meeker. Residual structure in large fragments of staphylococcal nuclease: effects of amino acid substitutions, Biochemistry, 1989. 28 (3), 936-94

This product is for *in vitro* research use only and is not intended for use in humans or animals in therapeutic or diagnostic procedures.

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