# 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.

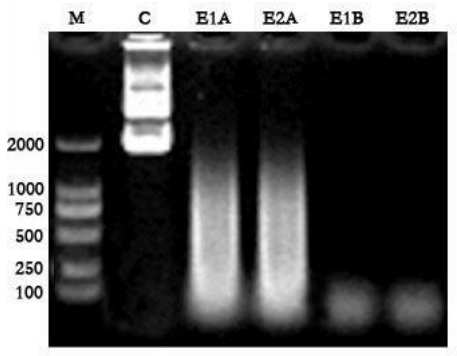
## UNIT DEFINITION

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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