Technical Data Sheet

GENERAL INFORMATION

PRODUCT	DNase I from *Bos taurus,* expressed in yeast. Lyophilized. RNase-free.
Cat. No.	MT01U-L1DNAIHA-RF
UNITS	1,000 U
DESCRIPTION	DNase I from *Bos taurus* is an endonuclease enzyme that non-specifically digests both single- and double-stranded DNA, chromatin and RNA:DNA hybrids. It hydrolyzes phosphodiester bonds, generating di-, tri- and oligo-deoxyribonucleotide products with 5´-phosphorylated and 3´-hydroxylated ends. Its enzymatic activity is strictly dependent on Ca^{2+} and Mg^{2+} or Mn^{2+}. This lyophilized product is a freeze-dried version of its well-characterized liquid equivalent. This product is free from RNases.

PRODUCTS PROVIDED

Component		Amount
01U-L1DNAIHA-RF	DNase I from *Bos taurus*. Lyophilized. RNase-free.	1 vial

DELIVERY CONDITIONS

01U-L1DNAIHA-RF	1,000 U of freeze-dried DNase I from *Bos taurus*. RNase-free.
SHIPPING CONDITIONS	This lyophilized product can be handled and store at Room Temperature for at least 24 months.
SUGGESTED RECONSTITUTION BUFFERS	20 mM Tris pH 7.5, 10 mM $MgCl_2$, 0.1 mM $CaCl_2$, 50% (v/v) glycerol. Due to its sensitivity to agitation, this protein should be reconstituted using a pipette.
RECONSTITUTION INSTRUCTIONS	1. Add 500 µL of the suggested Reconstitution Buffer to reconstitute the enzyme at 2 U/µL. 2. Gently pipette up and down to dissolve the solid powder. Avoid resuspending by vortexing or agitation. 3. Place on ice and aliquot into smaller volumes to avoid multiple freeze/thaw cycles. 4. Store from -20 °C to -80 °C.

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STORAGE CONDITIONS	This lyophilized product can be handled and stored at Room Temperature for at least 24 months. After reconstitution, the shelf life is 12 months if stored from -20 °C to -80 °C. Short-term storage at 4 °C is possible. To avoid multiple freeze/thaw cycles, store in multiple aliquots.
SUGGESTED 10X REACTION BUFFER	200 mM Tris pH 7.5, 100 mM $MgCl_2$, 1 mM $CaCl_2$.

ADDITIONAL INFORMATION

ACTIVITY UNIT DEFINITION

One Unit of activity is defined as an increase in absorbance at 260 nm of 0.001 per minute at 25 °C on the assay conditions (50 µg/mL calf thymus DNA in buffer 20 mM Tris, 10 mM $MgCl_2$, 0.1 mM $CaCl_2$, pH 7.5).

RECOMMENDED REACTION CONDITIONS

1- The protocol varies slightly depending on the nature of the starting material:

A) **For purified RNA**: mix the reaction mixture on ice:

Components	50 µL reaction
RNA sample	~ 1 µg
DNase I Reaction Buffer (10X)	5 µL
DNase I	2 U
Nuclease-free H_2O	To 50 µL

B) **For cell lysates**: Mix the sample (i.e., cell lysate) with the DNase I from *Bos taurus* in the reaction buffer provided (*BDNAIHA*). It is recommended to add 2 U of DNase I and 5 µL of 10X DNase I* per 50 µL of sample.

*If using any other buffer, please ensure the addition of 1-10 mM Mg^{2+} or Mn^{2+} and 0.1-1 mM Ca^{2+} to activate the enzyme.

2- Incubate at 37 °C for 30 minutes.

3- Add EDTA to a final concentration of 5 mM to chelate the cations and inactivate the enzyme.

4- Heat inactivate at 75 °C for 10 minutes.

SPECIAL CONSIDERATIONS

This protein is sensitive to agitation; do not vortex. If agitation is necessary, gently use the pipette.

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QUALITY CONTROL

To perform quality control of the protein, it is first resuspended in the suggested reconstitution buffer, which also serves as a negative control in the quality control process.

DNase ACTIVITY ASSAY

DNase activity is measured for each batch by incubating DNase with calf thymus DNA. For that purpose, 1 U of DNase is incubated with 50 µg/mL of thymus DNA at 25 °C and the release of DNA is monitored at 260 nm. The resulting units are then compared with the theoretical units, with an accepted 8% deviation from reference units.

RNase ACTIVITY

A 50 µL reaction containing 0.5 µg of RNA and 5 U of DNase I is incubated at 37 °C for 4 hours, and RNA degradation is determined by agarose gel electrophoresis. It is considered acceptable when no RNA degradation is detected.

TECHNICAL SUPPORT

If you have any questions, feel free to contact us at
support@levprot.com

Consult the Safety Data Sheet for information regarding hazards and safe handling practises.

THIS PRODUCT IS INTENDED FOR RESEARCH USE ONLY.

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