Technical Data Sheet

GENERAL INFORMATION

PRODUCT	Thermolabile dsDNase I, expressed in yeast. RNase-free.
Cat. No.	MT01U-S1DNATXA-RF
UNITS	1,000 U
DESCRIPTION	Thermolabile double-strand DNase I (dsDNase I) is an endonuclease that cleaves phosphodiester bonds in DNA to release oligonucleotides with 5′-phosphorylated and 3′-hydroxylated ends. Thermolabile dsDNase I has a particularly strong preference for double-stranded DNA (dsDNA). In the presence of Mg^{2+} as the only divalent cation, the activity towards ssDNA is minimal compared to dsDNA. This is why the enzyme can be used to specifically degrade dsDNA, leaving ssDNA and RNA intact. This enzyme is easily inactivated by heat treatment at 55 °C and can be irreversibly inactivated by adding DTT to a final concentration of 1 mM while heating. This product is free from RNases.

PRODUCTS PROVIDED

Component		Amount
01U-S1DNATXA-RF	Thermolabile dsDNase I. RNase-free.	1 vial x 500 µL
BDNATXA	10X Thermolabile dsDNase I Reaction Buffer.	2 vials x 1.5 mL

DELIVERY CONDITIONS

01U-S1DNATXA-RF	500 µL of thermolabile dsDNase I at 2 U/µL in 20 mM Tris pH 7.5, 10 mM $MgCl_2$, 50% glycerol. RNase-free.
BDNATXA	2 vials x 1.5 mL of 200 mM Tris pH 7.5, 100 mM $MgCl_2$. RNase-free.
SHIPPING CONDITIONS	This product requires cold shipment conditions. Store the protein from -20 °C to -80 °C upon arrival.
STORAGE CONDITIONS	Store at a temperature range from -20 °C to -80 °C for medium and long term. Storage at 4 °C is possible for short term. Avoid multiple freeze/thaw cycles by storing multiple aliquots.

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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 pH 7.5, 10 mM $MgCl_2$).

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
Thermolabile dsDNase I Reaction Buffer (10X)	5 µL
Thermolabile dsDNase I	1 µL (2 U)
Nuclease-free H_2O	To 50 µL

   B) **For cell lysates**: mix the sample with the Thermolabile dsDNase I in the reaction buffer provided (*BDNATXA*). It is recommended to add 2 U of Thermolabile dsDNase I and 5 µL of 10X Thermolabile dsDNase I* per 50 µL of sample.
   *If using any other buffer, please ensure the addition of Mg^{2+} and avoid the use of monovalent cations since they inactivate the enzyme.

2- Incubate at 37 °C for 30 minutes.
3- Heat inactivate at 55 °C for 15 minutes.
   Optional: add DTT at a final concentration of 1 mM for an irreversible inactivation.

SPECIAL CONSIDERATIONS

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

QUALITY CONTROL

DNase ACTIVITY ASSAY

Thermolabile dsDNase I activity is measured for each batch by incubating dsDNase I with calf thymus DNA. For that purpose, 1 U of dsDNase I is incubated with 50 µg/mL of calf thymus DNA at 25 °C and the release of dsDNA I 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 thermolabile dsDNase I or Reaction Buffer at 1X 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.

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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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