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RNase R

Catalog #RNR-EE001

Product Information

Name	Catalog	Sizes
RNase R	RNR-EE001-B	2000 U
	RNR-EE001-C	20 KU

Product Description

RNase R is an *E. coli* exoribonuclease that exhibits 3'-to-5' exonuclease activity, efficiently digesting nearly all linear RNA species but does not digest lariat or circular RNA structures or double-stranded RNA with 3´ overhangs shorter than seven nucleotides. Most cellular RNAs will be digested completely by RNase R, with the exception of tRNAs, 5S RNA, and intron lariats. RNase R is often used in alternative splicing for the isolation of circular or lariat RNA from a mixture of total RNA.

Specifications

Product Component	RNR-EE001-B (2000 U)	RNR-EE001-C (20 KU)
RNase R (20U/μL)	RNR-EE001-B1 (100 μl)	RNR-EE001-C1 (1 ml)
10X RNase R Reaction Buffer	RNR-EE001-B2 (4 ml)	RNR-EE001-C2 (2x20 ml)
0.5M EDTA	RNR-EE001-B3 (800 μl)	RNR-EE001-C3 (8 ml)

Storage/Transportation Condition Store at -20°C ± 5°C for 24 months. Avoid repeated freeze/thaw cycles. Transport on dry ice.
Form Liquid
Source *E. Coli*
Storage Buffer 50 mm Tris-HCl, 100 mM NaCl, 0.1 mM EDTA, 1 mM DTT, 0.1% Triton X-100, 50% glycerol, pH 7.5
10X RNase R Reaction Buffer 200 mM Tris-HCl,1 M KCl, 8 mM $MgCl_2$, pH 8.0
Concentration 20U/μL
Unit Definition One unit is defined as the amount of RNase R that converts 1 μg of poly(A) into acid-soluble nucleotides in 10 minutes at 37°C.

Quality Statement

This product is GMP-Ready, indicating that it is currently manufactured at industrial-grade and can be moved to GMP-Grade manufacturing standards as necessary.

Applications

- Alternative splicing and gene expression studies
- Intron cDNA production
- Intronic screening of cDNA libraries

Protocol

(1) Set up the following reaction on ice

COMPONENTS	AMOUNT
RNA	To 1 μg
10×RNase R Reaction Buffer	2 μl
RNase R (20 U/μl)	2 U/ug RNA
RNase-free Water	To 20 μl

(2) Incubate at 37°C for 30 minutes.
(3) Stop the reaction by adding 1-2 μl EDTA.
(4) Continue incubating at RT for 5 mins.
(5) Run electrophoresis.

Notes:

1. RNase R requires low (0.1-1.0 mM) magnesium concentrations for activity. Substrate RNA should be purified to remove Mg2+ from IVT systems.
2. The effect of RNase R on the digestion of linear RNA was related to that of RNA sequence and secondary structure. For the first time, the concentration of RNase R is recommended with 2 U/μg RNA, and it can be used for serial dilution and exploration.
3. EDTA is not enough to completely terminate the reaction, purification should be carried out as soon as possible. Purification: Digested RNA can be extracted using Phenol:Chloroform: Isoamyl Alcohol (25:24:1, v/v) followed by precipitation of ethanol, or by RNA purification column or magnetic beads.
4. After adding the loading buffer for electrophoresis analysis, it is recommended to incubate the reaction at 65°C for 5 minutes and ice bath for 3 minutes to fully terminate the reaction, and open RNA polymers.
5. For research use only.