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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* - originated exoribonuclease that exhibits 3' to 5' exonuclease activity, efficiently and exclusively digesting linear RNAs without affecting lariat loops or circular RNAs, or small double-strand RNAs (shorter than 7 nucleotides) with 3´ overhangs. In cells, linear RNAs will be digested completely by RNase R while tRNAs, 5S RNA, and intron lariats remain intact. Therefore, RNase R is widely used in circular RNA isolation and purification, alternative splicing research and gene expression studies, etc.

Product 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, 1 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. It is currently manufactured at industrial grade and can be escalated to GMP-Grade manufacturing standard when 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 0.5M EDTA.
(4) Incubate at room temperature for 5 minutes
(5) Run electrophoresis.

Notes:

1. RNase R requires low (0.1-1.0 mM) magnesium concentrations for activity. Substrate RNAs 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. Purification should be carried out as soon as possible after the stopping reaction completes. For 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.