RNase III

Product description

Ribonuclease III (RNase III), is a double-stranded RNA (dsRNA) -specific ribonuclease derived from *Escherichia coli*. RNase III cannot hydrolyze DNA or single-stranded RNA. In the presence of manganese ions (Mn^{2+}), RNase III can specifically clease longer dsRNA into interfering RNA (siRNA) with 2-3 protruding bases at the 3' hydroxyl end, with a length of approximately 18-25bp. This product is similar to the substrate produced by Dicer digestion, and is often used in various studies such as RNA interference, gene expression regulation, gene silencing, and target confirmation.

Composition and storage conditions

Components \ Size	200 U	1000 U	Storage
RNase III (2 U/μL)	100 μL	500 μL	-20°C
10× RNase III Reaction Buffer	0.2 mL	1 mL	-20°C
10× $MnCl_2$	0.2 mL	1 mL	-20°C
10× EDTA	0.2 mL	1 mL	-20°C
Shipping: Dry Ice	**Shelf life:** 2 years		

Experimental operation

1. Prepare the reaction system according to the table below:

Reagent	Volume
10× RNase III Reaction Buffer	10 μL
dsRNA sample	X μL (10 μg)
RNase III	10 μL (20 U)
10× $MnCl_2$	10 μL
Nuclease-free Water	To 100 μL
Total Reaction Volume	100 μL

*Note: To achieve optimal substrate digestion, enzyme amounts can be adjusted appropriately during experiments to determine the best reaction conditions.

2. Incubate at 37℃ for 20 minutes to digest dsRNA.

*Note: Reaction time can be adjusted according to specific experimental conditions.

3. Add 10 μL of 10×EDTA to stop the reaction.

*Note: Do not heat-inactivate RNase III, as heat inactivation will reduce siRNA yield.

Notes

1. RNA is highly susceptible to degradation. Avoid RNase contamination throughout the entire procedure.
2. Keep RNase III on ice during use and immediately return it to -20°C storage after use.
3. The amount of RNase III and reaction volume should be adjusted according to specific experimental conditions.
4. This product is for scientific use only.

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