August 2023

Quick-Start Protocol

RNase A MBG

The Ribonuclease A (RNase A) (cat. nos. RP 14, RP145) is used to remove RNA during the isolation procedures of plasmid and genomic DNA. It is a 13.7 kDa (monomer) endoribonuclease isolated from bovine pancreas, which selectively cleaves single-stranded RNA 3′ next to pyrimidine residues (cytosine, uracil).

The RNase A MBG should be shipped at room temperature (15–25°C). When stored at 4°C, the enzyme can last for up to several weeks. When stored at –20°C (lyophilized or in a glycerol solution), the enzyme remains stable for several years.

Further information

- Safety Data Sheets: **www.qiagen.com/safety**
- Technical assistance: **support.qiagen.com**

Notes before starting

- The enzyme is very active under a wide range of reaction conditions and difficult to inactivate:
    - **At low salt concentrations (up to 100 mM NaCl)**: the RNase A cleaves single- and double-stranded RNA as well as an RNA strand in RNA-DNA hybrids.
    - **Under high salt concentrations (>300 mM NaCl)**: the RNase A specifically cleaves single-stranded RNA.
- The RNase A has a high affinity to glass surfaces.

- At neutral pH and high concentrations (>10 mg/mL) the enzyme will precipitate.
- The enzyme is inhibited by diethylpyrocarbonate (DEPC), guanidinium salts (4 M GuSCN), β-mercaptoethanol, heavy metals, and RNase inhibitors.
- To remove the enzyme from a sample, perform a separation with spin columns or several phenol/chloroform extractions

Procedure

Prepare a final concentration of 1–10 mg/mL by resuspending in any of the following:

1a. In 10mM Tris-HCl (pH 7.5); 15 mM NaCl; 50% (v/v) glycerol

1b. In TE buffer

Table 1. Recommended working solution concentration depending on application

Application	Concentration	Time and Temperature
Removal of RNA from plasmid preparations	10 µg/mL	Incubate for 1 h at room temperature
Preparation of "blunt ends" of double-stranded cDNA	100 ng/mL	–

Document Revision History

Date	Changes
08/2023	Initial release

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