



## One-Step RNA Removal Kit

### Introduction

**One-Step RNA Removal Kit** uses Ribonuclease A immobilized magnetic beads to efficiently remove RNA from the sample using a single step protocol. Ribonuclease A is an endoribonuclease that originates from the bovine pancreas. RNase A is a single chain polypeptide with a molecular mass of 13.7 kDa. RNase A is an endoribonuclease that unspecific ally degrades ribonucleic acid (RNA) into smaller components. The magnetic bead immobilized with RNase A can efficiently remove RNA from biological samples with no nucleases remaining in the solution due to the nuclease stably and covalently conjugated with the magnetic beads.

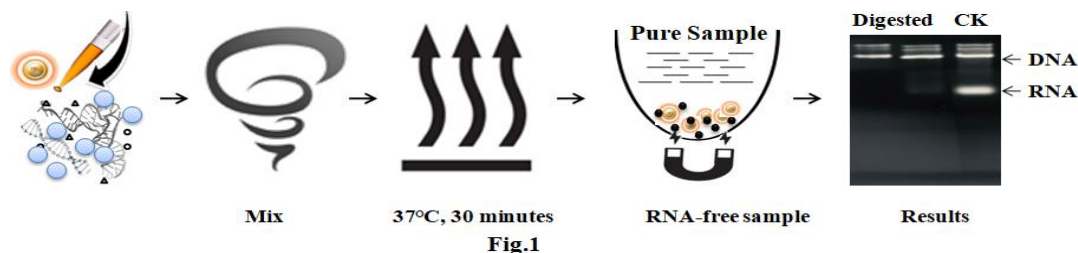
### Applications

- For analytical purposes
- Plasmid and genomic DNA preparation
- For cell cycle analysis by flow cytometry and propidium iodide (PI) staining
- Removal of RNA from recombinant protein preparations
- Ribonuclease protection assays. Used in conjunction with RNase T1
- Mapping single-base mutations in DNA or RNA

### Features and Advantages

- Efficient one-tube and extraction-free protocol (Fig.1).
- Ultrafast: Process 96 samples in less than 30 minutes with <10-second Hands-on Time
- Nuclease Recovered at the end of the reaction thereby can be reused.
- Easy separation of the endonuclease from the reaction.
- Stability of the immobilized nuclease increases.
- Cost-effective: Eliminates columns, filters, laborious, organic reagents, and minimal plasticware required.
- High throughput: Compatible with many different automated liquid handling systems.

### Workflow



**Formulation:** Liquid (Supplied in 50 mM Tris-HCl, pH 8.0, 50% Glycerol.)

**Activity:** 1 µl Magnetic Beads will digest 0.5µg of yeast RNA (Sigma, Catalog # R9001) in 50 mM Tris-HCl, pH 8.0 in 15 minutes at 37 °C.

**Shipping:** Shipped at ambient temperature. Upon receipt, store nuclease magnetic Beads at -20°C. Aliquot to avoid repeated freezing and thawing.

| Products                        | Catalog # AU-101 | Catalog # AU-102 |
|---------------------------------|------------------|------------------|
| BcMag™ One-Step RNA Removal Kit | 1 ml             | 3 ml             |

### PROTOCOL

#### A. Accessory equipment

Magnetic Rack

| Item                              | Source   |
|-----------------------------------|--|
| Magnetic Rack for centrifuge tube | <ul style="list-style-type: none"> <li>• BcMag Rack-2 for holding two individual 1.5 ml centrifuge tubes (Bioclone, Cat. # MS-01)</li> </ul> |



|  |   |
|--|---|
| ** Based on sample volume, the user can choose one of the following magnetic Racks | <ul style="list-style-type: none"> <li>• BcMag Rack-6 for holding six individual 1.5 ml centrifuge tubes (Bioclone, Cat. # MS-02)</li> <li>• BcMag Rack-24 for holding twenty-four individual 1.5-2.0 ml centrifuge tubes (Bioclone, Cat. # MS-03)</li> <li>• BcMag Rack-50 for holding one 50 ml centrifuge tube, one 15 ml centrifuge tube, and four individual 1.5 ml centrifuge tubes (Bioclone, Cat. # MS-04)</li> </ul> |
| BcMag 96-well Plate Magnetic Rack.   | <ul style="list-style-type: none"> <li>• BcMag 96-well Plate Magnetic Rack (side-pull) compatible with 96-well PCR plate and 96-well microplate or other compatible Racks (Bioclone, Cat#: MS-05)</li> </ul>  |

**B. Procedure**

- Do not use buffers containing organic solvents.
- Typically, the bead is added directly into any standard buffer at the desired amount of the beads based on the concentration of the RNA (1 µl Magnetic Beads will digest 10µg of yeast RNA).

**Table1. Working Condition**

| Conditions       | Optimal Function   | Functional Range | Inhibitory Action            |
|------------------|--|------------------|------------------------------|
| Temperature      | 60 °C  | 15–70 °C         | N/A                          |
| pH               | 7.6  | 6.0–10.0         | N/A                          |
| Zn <sup>2+</sup> |  |                  | Yes                          |
| Cu <sup>2+</sup> | N/A  | N/A              | Yes                          |
| 0-100 mM NaCl    | Preferentially cleave single-stranded and double-stranded RNA and the RNA strand in RNA-DNA hybrids. | N/A              |                              |
| >300 mM NaCl     | Preferentially cleave single-stranded RNA  |                  |                              |
| Guanidine HCl    | N/A  | N/A              | 4M + 0.1 M 2-mercaptoethanol |
| SDS              |  |                  | Yes                          |

1. Shake the bottle to resuspend the Magnetic beads until it is homogeneous entirely.

**IMPORTANT! It is essential to mix the beads before dispensing. Do not allow the beads to sit for more than 2 minutes before dispensing. Resuspend the magnetic beads every 2 minutes.**

2. Add an appropriate amount of the magnetic Beads to a reaction.
3. Mix the sample with beads for 1-2 minutes by slowly pipetting up and down 20-25 times *or* Vortex the sample for 2 minutes at 2000 rpm.
4. Incubate at 37°C with continuous rotation for 15 minutes.
5. Place the sample plate or tube on the magnetic Rack for 30 seconds or until the solution is clear.  
(Option: centrifuge at 3500 rpm for 45 seconds)
6. Transfer the supernatant to a clean plate /tube while the sample plate remains on the magnetic separation plate. The sample is ready for downstream applications.

**Reference**

1. Molecular Cloning, A Laboratory Manual (3rd ed). Cold Spring Harbor Laboratory Press (Cold Spring Harbor, NY), Volume 1, 1.78-1.79 (2001).

**Related products**

| Products and Catalog Number                                  |  |
|--|--|
| Genomic DNA and RNA Purification                             |  |
| One-Step Mammalian Cell DNA Purification Kit, Cat. No. AA101 | One-Step Saliva Viral RNA-DNA Purification Kit, Cat. No. AR101 |
| Cell-Free DNA Purification Kit, Cat. No. AC101               | Bone-Teeth DNA Purification Kit, Cat. No. AB101                |
| One-Step FFPE & FNA DNA purification Kit, Cat. No. AJ-101    | Rootless Hair DNA Purification Kit, Cat. No. AD101             |
| One-Step Bacteria DNA Purification Kit, Cat. No. AE101       | One-Step Buccal Cell DNA Purification Kit, Cat. No. AG101      |
| One-Step Blood DNA Purification Kit, Cat. No. AF101          | One-Step Touch DNA Purification Kit, Cat. No. AS101            |
| One-Step Fungi & Yeast DNA Purification Kit, Cat. No. AL101  | Sexual Assault Casework DNA Purification Kit, Cat. No. AT101   |
| One-Step Insect DNA Purification Kit, Cat. No. AM101         | One-Step Fingerprint DNA Purification Kit, Cat. No. AZ101      |
| One-Step Mouse Tail DNA Purification Kit, Cat. No. AN101     | One-Step Dandruff DNA Purification Kit, Cat. No. AAA101        |



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| One-Step Plant DNA Purification Kit, Cat. No. AQ101 | Quick mRNA Purification Kit, Cat. No. MMS101               |
| <b>DNA &amp; RNA Sample Preparation</b>             |  |
| One-Step NGS Cleanup Kit, Cat. No. AO101            | One-Step DNA-RNA Removal Kit, Cat. No. CA103               |
| One-Step RNA Removal Kit, Cat. No. AU101            | One-Step DNA/RNA Cleanup Kit, Cat. No. AH101               |
| One-Step PCR Cleanup Kit, Cat. No. AP101            | One-Step Sequencing Cleanup Kit, Cat. No. AI101            |
| Quick Oligo-DNA Conjugation Kit, Cat. No. CA101     | One-Step Fluorescent Labeling Cleanup Kit, Cat. No. AK101  |
| One-Step DNA-RNA Removal Kit, Cat. No. AV101        | One-Step Single-Stranded DNA Removal Kit, Cat. No. AW101   |
| One-Step PCR Inhibitor Removal Kit, Cat. No. AX101  | Pure Miniprep Plasmid DNA Purification Kit, Cat. No. AY101 |