

PrecisionPak for RNA Extraction from Animal Tissue

Summary

The Next Advance PrecisionPak™ is a complete set of kits and reagents that simplifies the homogenization and extraction workflow, while also enabling excellent results. Several different packs are available, with protocols tailored for the specific tissue and type of biomolecule extraction. These Animal RNA extraction packs also contain reagents typically not included in extraction kits: Proteinase K and DNase I to remove DNA molecules. They also contain an optimized protocol for your specific tissue.

Key Benefits

- Superior Yield and Quality
- Simplified Workflow
- No Organic Solvents
- Saves Time
- High Value

Step 1. Homogenization

The bead lysis kits in the PrecisionPak have been used and cited by researchers worldwide for over a dozen years. They contain a combination of bead sizes for thorough tissue homogenization without degradation of the nucleic acids. Mouse kidney pieces floating in the buffer above the pre-filled beads in the bead lysis tubes (Figure 1A) were homogenized using the recommended settings to achieve thorough homogenization of the sample tissues (Figure 1B).

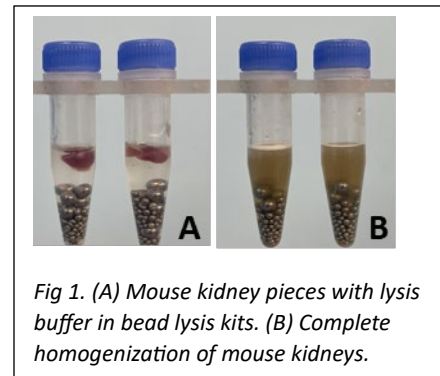


Fig 1. (A) Mouse kidney pieces with lysis buffer in bead lysis kits. (B) Complete homogenization of mouse kidneys.

Step 2. Extraction of RNA

These RNA extraction kits use state-of-the-art magnetic bead technology rather than spin columns to provide optimum results. Mixing magnetic beads with the homogenate offers more contact time for interaction between the RNA and the active surface. This also avoids high shear stresses on the RNA, which would occur during centrifugation with the spin columns, and cuts the processing time and effort in half. Additionally, no organic solvents are used. Figure 2 compares our extraction kits with those from the leading Qompetitor and Trizol.

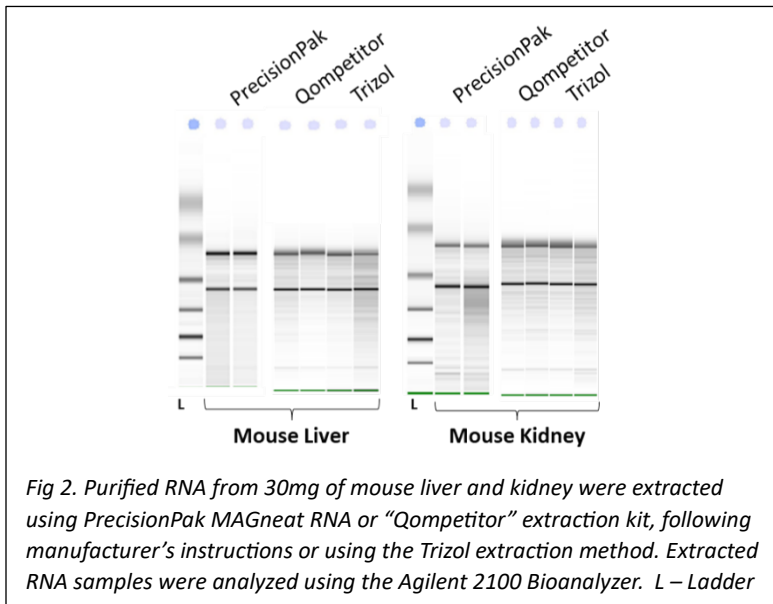


Fig 2. Purified RNA from 30mg of mouse liver and kidney were extracted using PrecisionPak MAGneat RNA or “Qompetitor” extraction kit, following manufacturer’s instructions or using the Trizol extraction method. Extracted RNA samples were analyzed using the Agilent 2100 Bioanalyzer. L – Ladder

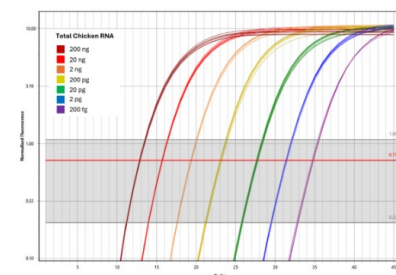


Fig 3. One-step RT-qPCR amplification from RNA isolated using PrecisionPak Animal tissue kit. Total RNA extracted from chicken pectoral muscle was used as template for the dynamic range setup targeting GAPDH fragment. The reaction was set up using eight 10-fold serial dilutions (200 ng – 200 fg, six replicates at each concentration) of total RNA. The amplification plot shows reproducibility and accuracy across a wide dynamic range.

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extraction. The quality of extracted RNA is suitable for RT-qPCR amplification, RNA-Seq, Micro-array analysis, northern blotting and cloning. Figure 3 shows RT-qPCR amplification of RNA isolated using our PrecisionPak kits, confirming the high quality of extracted total RNA.

Ordering Information

We have PrecisionPak kits tailored to extract RNA from your specific tissue sample. We currently have protocols for over thirty animal tissues. To order, select the part number based upon the toughness of your tissue type and desired sample tube from the table below. If you are unsure of the toughness of your tissue type, refer to our webpage, <https://www.nextadvance.com/precisionpak/animal-tissue/>. If you do not see the specific tissue and animal you are working with, we can work with you to provide a protocol in a day or two, at no charge.

cat. no.:	Homogenization lysis kit specifics
PP-ARGS	1.5 mL snap cap tubes used in Bullet Blenders – for soft tissues
PP-ARGT	1.5 mL snap cap tubes used in Bullet Blenders – for tough tissues
PP-ARRS	1.5 mL screw cap tubes used in Bullet Blenders – for soft tissues
PP-ARRT	1.5 mL screw cap tubes used in Bullet Blenders – for tough tissues
PP-AR2S	2 mL screw cap tubes for all other homogenizers – for soft tissues
PP-AR2T	2 mL screw cap tubes for all other homogenizers – for tough tissues

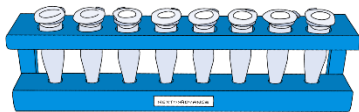
Magnetic Rack Assembly (MAGRACK)

Designed for the PrecisionPak, our Magnetic Rack Assembly allows easy processing of up to eight sample at a time for nucleic acid extraction. The assembly is optimized for the three types of steps in the magnetic bead extraction protocols: sample handling, magnetic separation, and mixing. The assembly consists of 3 parts: a tube rack, a magnetic stand, and a mixing base.

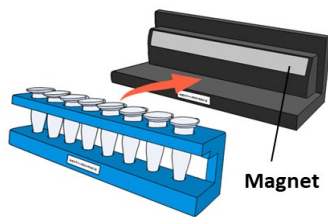


Video on using the magnetic rack assembly.

Tube Rack: Holds up to eight 1.5 mL or 2 mL tubes.



Magnetic Stand: To separate magnetic beads.



Mixing Base: To mix tube contents.

