

# Monarch<sup>®</sup> RNA Cleanup Kit Protocol Card

## NEB #T2030, #T2040, and #T2050

To download the full manual or view a detailed protocol (including guidance on RNA gel extraction or fractionation into small and large RNA pools), please visit:

Monarch RNA Cleanup Kit (10 µg): [www.neb.com/T2030](http://www.neb.com/T2030)

Monarch RNA Cleanup Kit (50 µg): [www.neb.com/T2040](http://www.neb.com/T2040)

Monarch RNA Cleanup Kit (500 µg): [www.neb.com/T2050](http://www.neb.com/T2050)

### BEFORE YOU BEGIN:

- Add 4 volumes of ethanol ( $\geq 95\%$ ) to one volume of RNA Cleanup Wash Buffer.
- If a precipitate has formed in the RNA Cleanup Binding Buffer, warm to room temperature to re-dissolve before use.
- All centrifugation steps should be carried out at room temperature at  $16,000 \times g$  (~13,000 RPM).
- The standard protocol outlined below will purify RNA  $\geq 25$  nt. A simple modification in step 2 can allow for the purification of RNA as small as 15 nt.

### PROTOCOL STEPS:

1. **Add 100 µl RNA Cleanup Binding Buffer to the 50 µl sample.** A starting sample volume of 50 µl is recommended. For smaller samples, nuclease-free water can be used to adjust the volume. For samples larger than 50 µl, scale buffer volumes accordingly. Samples with a starting volume > 150 µl will require reloading of the column during step 3.
2. **Add 150 µl (1 volume) of ethanol ( $\geq 95\%$ ) to your sample and mix by pipetting or flicking the tube. Do not vortex.** This will enable the binding of RNA  $\geq 25$  nt. If you wish to bind RNA as small as

15 nt, add 2 volumes (300 µl) of ethanol to your sample instead of 1 volume (150 µl). The addition of 2 volumes of ethanol shifts the cutoff size of RNA binding from 25 nt down to 15 nt.

- 3. Insert column into collection tube, load sample onto column and close the cap. Spin for 1 minute, then discard flow-through.** For diluted samples > 900 µl, load a portion of the sample, spin, and then repeat as necessary.
- 4. Re-insert column into collection tube. Add 500 µl RNA Cleanup Wash Buffer, spin for 1 minute, then discard the flow-through.**
- 5. Repeat step 4.**
- 6. Transfer column to an RNase-free 1.5 ml microfuge tube (not provided).** Use care to ensure that the tip of the column does not come into contact with the flow-through. If in doubt, re-spin for 1 minute to ensure traces of salt and ethanol are not carried over.

## 7. Elute in nuclease-free water according to the table below.

The eluted RNA can be used immediately or stored at -70°C.

KIT	ELUTION VOLUME**	INCUBATION TIME	SPIN TIME
T2030	6-20 µl	n/a	1 minute
T2040	20-100 µl	n/a	1 minute
T2050*	50-100 µl	5 minutes (room temp)	1 minute

\* When cleaning up large amounts of RNA (> 100 µg, #T2050), some precipitation may occur following the addition of the Monarch RNA Cleanup Binding Buffer and ethanol to the sample (Steps 1 and 2). A pellet containing the RNA of interest may form on the side of the column following the first binding spin (Step 3). To maximize recovery of this RNA, a second elution is recommended.

\*\* Yield may slightly increase if a larger volume is used, but the RNA will be less concentrated.

## Questions?

Our tech support scientists would be happy to help.

Email us at [info@neb.com](mailto:info@neb.com)

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