TECHNICAL MANUAL

Maxwell® 16 LEV RNA FFPE Kit

Instructions for Use of Products
AS1260

Note: To run the RNA FFPE protocol you must have Maxwell® 16 firmware ≥4.95 (for use with Cat.# AS2000) or ≥1.50 (for use with Cat.# AS3000) installed on your instrument, and you must use the Maxwell® 16 High Strength LEV Magnetic Rod and Plunger Bar Adaptor (Cat.# SP1070). Using the original LEV magnetic rod will result in low yields.

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TM408

Maxwell® 16 LEV RNA FFPE Kit

All technical literature is available at: www.promega.com/protocols/
Visit the web site to verify that you are using the most current version of this Technical Manual.
E-mail Promega Technical Services if you have questions on use of this system: techserv@promega.com

Caution: Handle cartridges with care; seal edges may be sharp.

1. Description

The Maxwell® 16 LEV RNA FFPE Kit in combination with the Maxwell® 16 Instrument provides easy, efficient, automated purification of RNA from formalin-fixed, paraffin-embedded (FFPE) mammalian tissue samples for research use only. The Maxwell® 16 Instrument (AS2000 or AS3000) is supplied with preprogrammed purification methods. The instrument and methods are designed for use with the predispensed reagent cartridges and additional reagents supplied in the kit, thereby maximizing simplicity and convenience. The instrument can process up to 16 samples in less than 60 minutes, and the purified RNA can be used directly in a variety of downstream applications such as RT-PCR.

The Maxwell® 16 LEV RNA FFPE Kit purifies nucleic acid using paramagnetic particles, which provide a mobile solid phase to optimize sample capture, washing and purification of RNA. The Maxwell® 16 Instrument is a magnetic particle-handling instrument. This system allows efficient binding of RNA to the paramagnetic particles in the first well of a prefilled cartridge and moves the sample through the wells of the cartridge, mixing during processing. This approach to magnetic capture avoids common problems such as clogged tips or partial reagent transfers, which result in suboptimal purification processing by other commonly used automated systems.

2. Product Components and Storage Conditions

PRODUCT	SIZE	CAT.#
Maxwell® 16 LEV RNA FFPE Kit	**48 preps**	**AS1260**

For in vitro Research Use Only. Not for use in diagnostic procedures. Sufficient for 48 automated isolations from FFPE samples. The Maxwell® Cartridges are single-use only. Includes:

- 25ml Mineral Oil
- 20ml Lysis Buffer
- 2 × 1ml Proteinase K
- 100µl Blue Dye
- 2 × 1ml $MnCl_2$, 0.09M
- 1ml DNase Buffer
- 3 vials DNase I (lyophilized)
- 48 Maxwell® FFPE Cartridges
- 50 LEV Plungers
- 50 Elution Tubes (0.5ml)
- 25ml Nuclease-Free Water

Storage Conditions: Store the Maxwell® 16 LEV RNA FFPE Kit at ambient temperature (15–30°C). Store reconstituted DNase at –30°C to –10°C.

Safety Information: The reagent cartridges contain ethanol and isopropanol. These substances should be considered flammable, harmful and irritants. The Maxwell® FFPE Cartridges are designed to be used with potentially infectious substances. Users should wear appropriate personal protective equipment (e.g., gloves and goggles) when handling infectious substances. Users should adhere to their institutional guidelines for the handling and disposal of all infectious substances used with this system.

Caution: Handle cartridges with care; seal edges may be sharp.

3. Before You Begin

Materials to Be Supplied By the User

- microcentrifuge
- pipettors and pipette tips for sample preprocessing and transfer into prefilled reagent cartridges
- 1.5–2.0ml tubes for incubation of samples [e.g., Microtubes, 1.5ml (Cat.# V1231)]
- one 5–15ml tube for the master mix
- heat blocks set at 56°C and at 80°C.
  Note: The heat block should be set to the needed temperature. Actual heat block temperature should be verified to be at the desired temperature within the calibration specifications of the thermometer used for the measurement.
- FFPE tissue sections (5–10 microns thick with a size range of 20mm^2 to 200mm^2 for a total of up to 2.0mm^3 of tissue)
- razor blades
  Note: Use caution when using razor blades to scrape sample from the slide.

3.A. Sample Information

The Maxwell® 16 LEV RNA FFPE kit is only intended for use with FFPE tissue samples. It not intended for use with non-FFPE tissue samples, such as fresh or frozen tissue samples.

The Maxwell® 16 LEV RNA FFPE kit is not intended for use with tissue samples that have been prepared with fixatives other than 10% neutral-buffered formalin.

The Maxwell® 16 LEV RNA FFPE Kit performance has been evaluated by isolating RNA from FFPE mammalian (mouse and human) tissue samples ranging in thickness from 5–10 microns with a size range of 20mm^2 to 200mm^2 for a total of up to 2.0mm^3.

3.B. Maxwell® 16 Instrument Hardware and Firmware Setup

To use the Maxwell® 16 LEV RNA FFPE Kit, the Maxwell® 16 Instrument must be configured with LEV hardware. If your Maxwell® 16 Instrument contains standard elution volume (SEV) hardware or the original LEV Magnetic Rod, it must be reconfigured using the Maxwell® 16 High Strength LEV Magnetic Rod and Plunger Bar Adaptor (Cat.# SP1070; Figure 1). Using the original LEV magnetic rod will result in low yields. Reconfiguring the instrument is simple. Refer to the *Maxwell® 16 Instrument Operating Manual* specific for your instrument for directions.

3.B. Maxwell® 16 Instrument Hardware and Firmware Setup (continued)

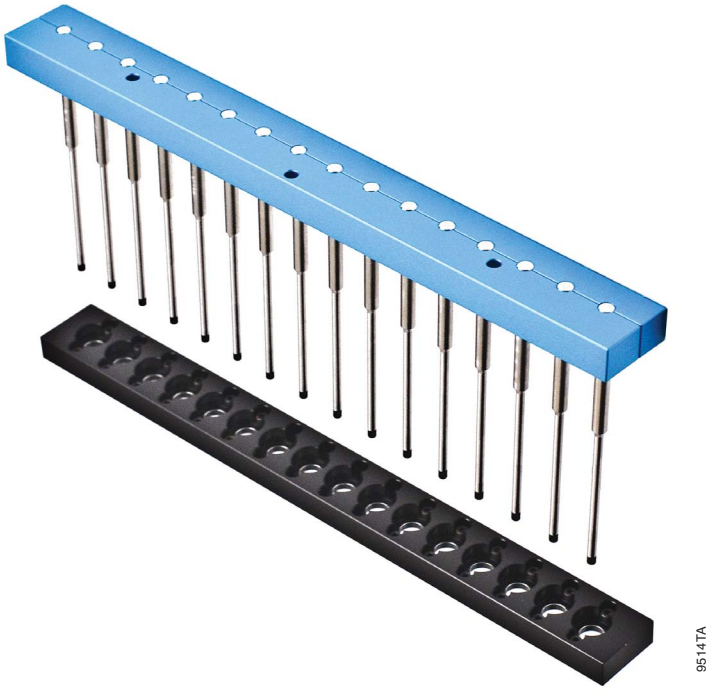


Figure 1. Maxwell® 16 High Strength LEV Magnetic Rod and Plunger Bar Adaptor (Cat.# SP1070).

Failure to change the Maxwell® 16 Instrument hardware to the LEV configuration and LEV mode could result in instrument damage. Using the standard elution volume (SEV) hardware configuration with the LEV-configured reagent products will cause damage to the instrument.

Important: To run the RNA FFPE protocol, you must have Maxwell® 16 firmware version ≥4.95 (Cat.# AS2000) or ≥1.50 (Cat.# AS3000) installed on your instrument.

3.C. DNase I Preparation

Add 275µl of Nuclease-Free Water to the vial of lyophilized DNase I prior to use. Invert the vial to rinse DNase I off the underside of the cap and swirl gently to mix; do not vortex. Store reconstituted DNase I at –10°C to –30°C after use. DNase I solution maintains activity for up to 10 freeze-thaw cycles.

3.D. FFPE Sample Preparation

Preprocessing Section Samples

1. Place section into 1.5ml microcentrifuge tube. If using slide-mounted tissue sections, scrape section off of slide using a clean razor blade.

   Note: 5–10 micron-thick tissue sections ranging in size from 20mm^2 to 200mm^2 for a total of up to 2.0mm^3 of tissue can be used.

2. Add 300µl of Mineral Oil to the sample tubes. Vortex for 10 seconds.

3. Heat the samples at 80°C for 2 minutes. Place the samples at room temperature while the master mix is prepared.

4. Prepare a master mix of the Lysis Buffer, Proteinase K and Blue Dye as shown below:

Reagent	Amount/reaction	Reactions (number to be run + 2)	Total
Lysis Buffer	224µl	n + 2	224 × (n + 2)µl
Proteinase K	25µl	n + 2	25 × (n + 2)µl
Blue Dye	1µl	n + 2	1 × (n + 2)µl

   For fewer than six samples, prepare enough master mix for n + 1 samples.

   Note: Use the master mix within 1 hour of preparation. Master mix cannot be stored for later use.

5. Add 250µl of master mix to each sample tube, and vortex for 5 seconds.

6. Centrifuge sample tubes at 10,000 × *g* for 20 seconds to separate layers. If a pellet is present in the aqueous layer (lower, blue layer), gently mix aqueous phase with pipet to resuspend the pellet.

7. Transfer the sample tubes to 56°C heat block and incubate for 15 minutes.

8. Transfer the sample tubes to 80°C heat block and incubate for 1 hour.

9. Remove the sample tubes from the heat block, and allow the samples to cool to room temperature for 15 minutes.

10. Prepare a DNase cocktail containing $MnCl_2$, DNase Buffer and reconstituted DNase I (see Section 3.C for DNase I preparation) in the order shown below:

Reagent	Amount/reaction	Reactions (number to be run + 2)	Total
$MnCl_2$, 0.09M	26µl	n + 2	26 × (n + 2)µl
DNase Buffer	14µl	n + 2	14 × (n + 2)µl
DNase I	10µl	n + 2	10 × (n + 2)µl

    For fewer than six samples, prepare enough master mix for n + 1 samples.

3.D. FFPE Sample Preparation (continued)

Notes:

a. If DNase cocktail reagents are added individually to sample tubes, be certain to add them in the order shown above. Incorporate each reagent by thoroughly pipetting.

b. Store remaining reconstituted DNase I at –30°C to –10°C.

c. DNase Buffer can precipitate if stored below freezing for extended periods of time. If the buffer has precipitated, it can be solubilized by heating to 56°C for 2 minutes, followed by vortexing briefly to mix.

11. Add 50µl DNase cocktail to the aqueous (blue) phase in each sample tube. Mix by pipetting 10 times.

12. Incubate sample tubes for 15 minutes at room temperature (15–30°C).

13. Centrifuge sample tubes at full speed in a microcentrifuge for 2 minutes.

14. Immediately transfer the blue, aqueous phase to well #1 of a Maxwell® FFPE Cartridge. See Section 3.E for cartridge preparation instructions.

3.E. Maxwell® FFPE Cartridge Preparation

1. To maintain an RNase-free environment during processing, change gloves before handling Maxwell® FFPE Cartridges, LEV Plungers and Elution Tubes. Cartridges are set up on the Maxwell® LEV Cartridge Rack outside of the instrument, and the cartridge rack containing the cartridges and samples is then transferred to the instrument for purification. Place the cartridges to be used in the Maxwell® LEV Cartridge Rack (Figure 3). Place each cartridge in the cartridge rack with well #1 (the largest well in the cartridge) farthest away from the Elution Tubes. Press down on the cartridge to snap it into position. Ensure both cartridge ends are fully seated in the cartridge rack. Carefully peel back the seal so that the entire seal is removed from the top of the cartridge. Ensure that all sealing tape and any residual adhesive are removed from the cartridges. **Caution:** Handle cartridges with care. Seal edges may be sharp.

2. Place one plunger into well #8 of each cartridge.

   Note: Use only the plungers provided in the Maxwell® 16 LEV RNA FFPE Kit. Plungers for the Maxwell® CSC kits are not compatible with the Maxwell® 16 Instrument.

3. Place an empty Elution Tube into the Elution Tube position for each cartridge in the Maxwell® LEV Cartridge Rack.

   Note: Use only the elution tubes provided in the Maxwell® 16 LEV RNA FFPE Kit. Other elution tubes may not be compatible with the Maxwell® 16 Instrument and may affect RNA purification performance.

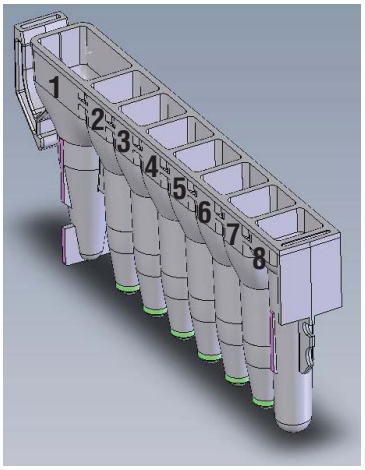
4. Add 50µl of Nuclease-Free Water to the bottom of each Elution Tube. The elution tubes must stay open during the RNA purification.

   Note: Use only the Nuclease-Free Water provided in the Maxwell® 16 LEV RNA FFPE Kit. Use of other elution buffers may impact RNA purification performance or downstream use.

Maxwell® FFPE Cartridge Preparation Notes

a. If you are processing fewer than 16 samples, center the cartridges on the cartridge rack.

b. Specimen or reagent spills on any part of the Maxwell® LEV Cartridge Rack should be cleaned as indicated in the *Maxwell® 16 Operating Manual*, #TM295. Do not use bleach on any instrument parts.



1. Binding Buffer
2. Magnetic Particles
3. Wash Solution
4. Wash Solution
5. Wash Solution
6. Wash Solution
7. Empty
8. Empty

Well Content User Adds:

1. Preprocessed sample
8. LEV Plunger

Figure 2. Maxwell® FFPE Cartridge contents. Preprocessed FFPE sample is added to well #1, and a plunger is added to well #8.

Figure 3. Setup and configuration of the Maxwell® LEV Cartridge Rack. Nuclease-Free Water is added to the Elution Tubes as indicated.

4. Instrument Run: AS2000 and AS3000 Instruments

4.A. Setup for AS2000 Maxwell® 16 Instruments

Refer to the *Maxwell® 16 Instrument Operating Manual* #TM295 for more detailed information.

Important: To run the RNA FFPE protocol, you must have Maxwell® 16 firmware version 4.95 or higher installed on your instrument, and you must use the Maxwell® 16 High Strength LEV Magnetic Rod and Plunger Bar Adaptor (Cat.# SP1070). Using the original LEV magnetic rod will result in low yields.

1. Turn on the Maxwell® 16 Instrument. The instrument will power up, display the firmware version number, proceed through a self-check and home all moving parts.
2. Verify that the instrument settings indicate an "LEV" hardware configuration and "Rsch" operational mode setting.

   Note: Failure to change the Maxwell® 16 Instrument hardware to the LEV configuration could result in instrument damage.

3 Select "Run" on the Menu screen, and press the Run/Stop button to select the method.

4. Select "RNA" then select "RNA FFPE" on the Menu screen. Next select "OK" at the Verification screen.
5. Open the door when prompted. Press the Run/Stop button to extend the platform.

Warning: Pinch point hazard.

6. Transfer the Maxwell® 16 LEV Cartridge Rack containing the prepared cartridges to the Maxwell® 16 Instrument platform. Ensure that the rack is placed in the Maxwell® 16 Instrument with the Elution Tubes closest to the door. The rack will only fit in the instrument in this orientation. If you have difficulty fitting the rack on the platform, check that the rack is in the correct orientation. Ensure that the cartridge rack is level on the instrument platform.

   Note: Hold the Maxwell® 16 LEV Cartridge Rack by the sides to avoid dislodging cartridges from the rack.

7. Verify that samples were added to well #1 of the cartridges, cartridges in the rack are loaded on the instrument, Elution Tubes are present and uncapped with 50µl of Nuclease-Free Water and LEV Plungers are in well #8.
8. Press the Run/Stop button. The platform will retract. Close the door.

Warning: Pinch point hazard.

9. The Maxwell® 16 Instrument will immediately begin the purification run. The screen will display the steps performed and the approximate time remaining in the run.

Notes:

a. Pressing the Run/Stop button or opening the door will pause the run.

b. If the run is abandoned before completion, the instrument will wash the particles off the plungers and eject the plungers into well #8 of the cartridge. To continue processing the samples, rinse any particles off the plunger into the last well used. Discard the used plungers. Put new plungers into well #8, and start the run from the beginning.

10. When the automated purification run is complete, the LCD screen will display a message that the method has ended.

End of Run

11. Follow the on-screen instructions at the end of the method to open door. Verify that the plungers are located in well #8 of the cartridge at the end of the run. If the plungers are not removed from the magnetic plunger bar, push them down by hand to remove them.

12. Press the Run/Stop button to extend the platform out of the instrument.

13. Remove the Maxwell® 16 LEV Cartridge Rack from the instrument. Remove Elution Tubes containing total RNA, and close the tubes.

14. If paramagnetic particles are present in the elution tubes, centrifuge at maximum speed for 5 minutes.

    Alternatively, an additional particle capture step may be performed using the 0.5ml MagneSphere® Technology Magnetic Separation Stand (Cat.# Z5341) or Maxwell® 16 LEV Magnet (Cat.# AS1261). Transfer the supernatant to a clean tube (not provided). Avoid transferring paramagnetic particles.

15. Remove the cartridges and plungers from the Maxwell® 16 LEV Cartridge Rack, and discard following recommended guidelines. Do not reuse reagent cartridges, LEV Plungers or Elution Tubes.

Storing Eluted RNA

If sample eluates are not processed immediately, the eluted RNA should be stored at –20°C or at –70°C. Consult the protocol for your downstream application for specific storage and handling recommendations.

4.B. Setup for AS3000 Maxwell® 16 MDx Instruments

Refer to the *Maxwell® 16 MDx Instrument Technical Manual* #TM320 for detailed information.

Important: To run the Maxwell® 16 LEV RNA FFPE Kit protocol, you must have Maxwell® 16 firmware version 1.50 or higher installed on your instrument, and you must use the Maxwell® 16 High Strength LEV Magnetic Rod and Plunger Bar Adaptor (Cat.# SP1070). Using the original LEV magnetic rod will result in low yields.

1. Turn on the Maxwell® 16 MDx Instrument. The instrument will power up, display the firmware version number, proceed through a self-check and home all moving parts.
2. Verify that the Home screen indicates "LEV" and the LEV hardware is present. Press "Run" to continue.

   Note: Failure to change the Maxwell® 16 Instrument hardware to the LEV configuration could result in instrument damage.
3. Enter user and PIN if this option is enabled.
4. At the Protocols screen, select "RNA", then select "RNA FFPE".
5. On the next screen, verify that the correct method and user were chosen. Select "Run/Stop" to continue.
6. Open the door when prompted on the screen, then select "Run/Stop".

Warning: Pinch point hazard.

7. Follow on-screen instructions for bar code reader input if this option is enabled.
8. Transfer the Maxwell® 16 LEV Cartridge Rack containing the prepared cartridges on the Maxwell® 16 Instrument platform. Ensure that the rack is placed in the Maxwell® 16 Instrument with the Elution Tubes closest to the door. The rack will only fit in the instrument in this orientation. If you have difficulty fitting the rack on the platform, check that the rack is in the correct orientation. Ensure the rack is level on the instrument platform.

   Note: Hold the Maxwell® 16 LEV Cartridge Rack by the sides to avoid dislodging cartridges from the rack.
9. Verify that samples were added to well #1 of the cartridges, cartridges in the rack are loaded on the instrument, Elution Tubes are present and uncapped with 50µl of Nuclease-Free Water and LEV Plungers are in well #8.
10. Press the Run/Stop button. The platform will retract. Close the door.

Warning: Pinch point hazard.

The Maxwell® 16 MDx Instrument will immediately begin the purification run. The screen will display the approximate time remaining in the run.

Notes:

a. Pressing the Run/Stop button or opening the door will pause the run.

b. If the run is abandoned before completion, the instrument will wash the particles off the plungers and eject the plungers into well #8 of the cartridge. To continue processing the samples, rinse any particles off the plunger into the last well used. Discard the used plungers. Put new plungers into well #8, and start the run from the beginning.

11. When the automated purification run is complete, follow instructions on the screen for data transfer. For detailed instructions, refer to the *Maxwell® 16 MDx Instrument Technical Manual* #TM320 and *Maxwell® Sample Track Software Technical Manual* #TM314.

End of Run

12. Follow on-screen instructions at the end of the method to open door. Verify that plungers are located in well #8 of the cartridge at the end of the run. If plungers are not removed from the magnetic plunger bar, push them down gently by hand to remove them.

13. Press the Run/Stop button to extend the platform out of the instrument.

14. Remove the Maxwell® 16 LEV Cartridge Rack from the instrument. Remove Elution Tubes containing RNA, and close the tubes.

15. If paramagnetic particles are present in the elution tubes, centrifuge at 10,000 × *g* for 2 minutes.

    Alternatively, if desired, an additional particle capture step may be performed using the 0.5ml MagneSphere® Technology Magnetic Separation Stand (Cat.# Z5341) or Maxwell® 16 LEV Magnet (Cat.# AS1261). Transfer the supernatant to a clean tube (not provided). Avoid transferring paramagnetic particles.

16. Remove cartridges and plungers from the Maxwell® 16 LEV Cartridge Rack, and discard following recommended guidelines. Do not reuse reagent cartridges, LEV Plungers or Elution Tubes.

    For the Maxwell® 16 MDx Instrument, ensure samples are removed before the UV light treatment to avoid damage to the nucleic acid.

Storing Eluted RNA

If sample eluates are not processed immediately, the eluted RNA should be stored at –20°C or at –70°C. Consult the protocol for your downstream application for specific storage and handling recommendations.

5. Post-Purification

Determine that the purified RNA sample yield and purity meets the input requirements for the downstream assay prior to use in that assay. Kit performance was evaluated based on the purification of amplifiable RNA. Other means of quantification, including absorbance or fluorescent dye binding, may not correlate with amplification (1). Absorbance readings for FFPE samples may over estimate yield; we recommend using more specific methods for determining yield (1).

6. Troubleshooting

For questions not addressed here, please contact your local Promega Branch Office or Distributor. Contact information available at: **www.promega.com** E-mail: **techserv@promega.com**

Symptoms	Causes and Comments
Lower than expected concentration of RNA in eluate	A typical FFPE section should yield amplifiable RNA depending on tissue size, cellularity, formalin fixation condition and handling.
	Kit performance has been evaluated by isolating RNA from FFPE tissue samples ranging in size from 0.1mm^3 to 2.0mm^3. It was not designed for samples outside this range.
	This kit is intended for use with FFPE mammalian tissue samples. It is not intended for use with non-FFPE tissue samples, such as fresh or frozen tissue samples or with FFPE tissue samples collected from non-mammalian tissues.
	This kit is not intended for use with tissue samples that have been prepared with fixatives other than 10% neutral-buffered formalin.
	RNases may have been introduced during sample processing or quantitation. See Section 7 for information on creating a ribonuclease-free environment.
	No claims are made for stained slides or sections. Repeat the purification with an unstained slide or section.
	Kit performance was evaluated based upon the purification of amplifiable RNA. Other means of quantitation including absorbance or fluorescent dye binding may not correlate with amplification. Use an amplification-based quantitation method to assess yield.

Symptoms	Causes and Comments
Lower than expected quality (the eluate contains highly fragmented RNA or inhibitors of downstream assays)	Formalin fixation and subsequent crosslink reversal will fragment RNA. If the RNA is fragmented prior to extraction and purification, fragmented RNA will be purified with this kit. Repeat with an adjacent section to assess whether the fragmentation is inherent to the sample or if the RNA is fragmented during purification.
	Some amplification assays are particularly sensitive to the presence of inhibitors. Downstream assay controls should identify the presence of an amplification inhibitor in the eluate. It is the user's responsibility to verify the compatibility of this product with downstream assays.
DNA present in eluates	The DNase cocktail added to the sample provides an excess of DNase activity when used with FFPE tissue samples ranging in size from 0.1mm^3 to 2.0mm^3. It was not designed for samples outside this range. Use sample amounts that will fall within this range.
	The sample must be cooled to room temperature before the DNase cocktail is added. Do not cool the sample on ice. High or low temperature will result in poor DNase activity.
	Insufficient mixing of the DNase cocktail into the sample during preprocessing can result in incomplete degradation of DNA. Be sure to mix the DNase cocktail thoroughly into the sample.
	If the DNase cocktail components are added to the sample separately, be sure to add them in the order indicated in Section 4.C, Step 10. In addition, be sure to mix each component thoroughly as it is added. Adding the components in a different order or mixing incompletely can inactivate DNase.

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7. Appendix

7.A. Creating a Ribonuclease-Free Environment

Ribonucleases are extremely difficult to inactivate. Take care to avoid introducing RNase activity into your RNA samples during and after isolation. This is especially important if the starting material was difficult to obtain or is irreplaceable. The following notes may help prevent accidental RNase contamination of your samples.

1. Two of the most common sources of RNase contamination are the user's hands and bacteria or molds that may be present on airborne dust particles. To prevent contamination from these sources, use sterile technique when handling the reagents supplied with this system. Wear gloves at all times. Change gloves whenever ribonucleases may have been contacted.
2. Whenever possible, use sterile, disposable plastic ware for handling RNA. These materials are generally RNase-free and do not require pretreatment to inactivate RNase.
3. Treat nonsterile glassware and plastic ware before use to ensure that they are RNase-free. Bake glassware at 200°C overnight, and thoroughly rinse plastic ware with 0.1N NaOH, 1mM EDTA, followed by RNase-free water. Commercially available RNase removal products also may be used, following the manufacturer's instructions.
4. Treat solutions not supplied with the system by adding diethyl pyrocarbonate (DEPC) to 0.1% in a fume hood. Incubate overnight with stirring at room temperature in the hood. Autoclave for 30 minutes to remove any trace of DEPC.

   Caution: DEPC is a suspected carcinogen and should only be used in a chemical fume hood. DEPC reacts rapidly with amines and cannot be used to treat Tris buffers.
5. If you suspect that your instrument is contaminated with RNase, clean the instrument prior to running it using a detergent solution such as Steris® LpH®. Follow instructions in the Cleaning and Maintenance Section of the *Maxwell® 16 Instrument Operating Manual*, #TM295 or the *Maxwell®* 1*6 MDx Instrument Technical Manual* #TM320.

   Note: For all downstream applications, it is essential that you continue to protect your RNA samples from RNases. Continue to wear clean gloves and use solutions and centrifuge tubes that are RNase-free.

7.B. Reference

1. Bonin, S. *et al*. (2010) Multicentre validation study of nucleic acids extraction from FFPE tissues. *Virchows Arc*. **425**, 309-17.

7.C. Related Products

Instrument /Instrument Accessories Products

Product	Size	Cat.#
Maxwell® 16 Instrument	1 each	AS2000
Maxwell® 16 MDx Instrument	1 each	AS3000
Maxwell® 16 SEV Hardware Kit	1 each	AS1200
Maxwell® 16 LEV Hardware Kit	1 each	AS1250
Maxwell® 16 LEV Cartridge Rack	1 each	AS1251
Maxwell® 16 High Strength LEV Magnetic Rod and Plunger Bar Adaptor	1 each	SP1070

For Research Use Only. Not for use in diagnostic procedures.

LEV Reagent Kits

Product	Size	Cat.#
Maxwell® 16 LEV simplyRNA Cells Kit	48 preps	AS1270
Maxwell® 16 LEV simplyRNA Tissue Kit	48 preps	AS1280
Maxwell® 16 LEV simplyRNA Blood Kit*	48 preps	AS1310
Maxwell® 16 FFPE Tissue LEV DNA Purification Kit	48 preps	AS1130
Maxwell® 16 FFPE Plus LEV DNA Purification Kit	48 preps	AS1135
Maxwell® 16 Cell LEV DNA Purification Kit	48 preps	AS1140
Maxwell® 16 Viral Total Nucleic Acid Purification Kit	48 preps	AS1150
Maxwell® 16 Tissue LEV Total RNA Purification Kit	48 preps	AS1220
Maxwell® 16 Cell LEV Total RNA Purification Kit	48 preps	AS1225
Maxwell® 16 LEV Blood DNA Kit	48 preps	AS1290
Maxwell® 16 Buccal Swab LEV DNA Purification Kit	48 preps	AS1295
DNA IQ™ Casework Pro Kit for Maxwell® 16**	48 preps	AS1240

*AS1310 For in vitro Research Use Only. Not for Use in Diagnostic Procedures. **AS1240 Not For Medical Diagnostic Use.

7.C. Related Products (continued) Standard Elution Volume (SEV)

Product	Size	Cat.#
Maxwell® 16 Blood DNA Purification Kit	48 preps	AS1010
Maxwell® 16 Cell DNA Purification Kit	48 preps	AS1020
Maxwell® 16 Tissue DNA Purification Kit	48 preps	AS1030
Maxwell® 16 Total RNA Purification Kit	48 preps	AS1050
Maxwell® 16 Mouse Tail DNA Purification Kit	48 preps	AS1120
DNA IQ™ Reference Sample Kit for Maxwell® 16*	48 preps	AS1040
Maxwell® 16 Polyhistidine Protein Purification Kit	48 preps	AS1060

*Cat.# AS1040, AS1060 For Research Use Only. Not for use in diagnostic procedures.

Accessory Products

Product	Size	Cat.#
Cell Lysis Solution (Genomic Purification)	1L	A7933
MagneSphere® Technology Magnetic Separation Stand (twelve-position)	1 each	Z5341

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