TECHNICAL MANUAL

Maxwell® 16 Mouse Tail DNA Purification Kit

Instructions for Use of Product
AS1120

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

Revised 12/15
TM309

Maxwell® 16 Mouse Tail DNA Purification 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

1. Description

The Maxwell® 16 Mouse Tail DNA Purification Kit[a] is used with the Maxwell® 16 Instrument to provide an easy method for efficient, automated purification of genomic DNA from mouse tail tissue samples. The Maxwell® 16 Instrument is supplied with preprogrammed purification procedures and is designed for use with the predispensed reagent cartridges, maximizing simplicity and convenience. The instrument can process up to 16 samples in less than 45 minutes. The purified DNA can be used directly in a variety of downstream applications including PCR, restriction enzyme digestion and agarose gel electrophoresis.

The Maxwell® 16 Instrument purifies samples using MagneSil® Paramagnetic Particles (PMPs), which provide a mobile solid phase that optimizes capture, washing and elution of the target material. The Maxwell® 16 Instrument efficiently preprocesses liquid and solid samples, transports the MagneSil® PMPs through purification reagents in the prefilled cartridges, and mixes during processing. The magnetic particle-based methodology avoids common problems such as clogged tips or partial reagent transfers that result in suboptimal purification processing by other commonly used automated systems.

2. Product Components and Storage Conditions

PRODUCT	SIZE	CAT.#
Maxwell® 16 Mouse Tail DNA Purification Kit	**48 preps**	**AS1120**

Sufficient for 48 automated isolations from up to 50mg tissue samples. Includes:

- 48 Maxwell® 16 Cartridges (MCA)
- 50 Purification Plungers
- 50 Elution Tubes
- 20ml Elution Buffer

Storage Conditions: Store the Maxwell® 16 Mouse Tail DNA Purification Kit at 15–30°C.

Safety Information: The reagent cartridges contain ethanol, isopropanol and guanidine thiocyanate. These substances should be considered flammable, harmful and irritants.

The Maxwell® 16 reagent cartridges contain potentially hazardous chemicals. Users should wear gloves or other protective means when handling the reagent cartridges. Users should follow their institutional guidelines for disposal.

3. Before You Begin

Materials to Be Supplied by the User

- pipettors and pipette tips for sample transfer into prefilled reagent cartridges
- storage tubes for purified DNA samples
- RNase A (Cat.# A7973; optional)

3.A. Mouse Tail Sample Preparation

Tissue Sample Processing Capacity and Yield

The total yield of genomic DNA from mouse tail samples depends on the sample size (weight). The Maxwell® 16 Mouse Tail DNA Purification Kit is designed for purification of genomic DNA from up to 50mg of tissue. Exceeding this recommended sample size may adversely affect the yield and quality of the purified genomic DNA.

Note: Mouse-tail clippings longer than 0.5cm should be clipped in half to obtain maximal yield.

Optional RNase Treatment: In some cases, total RNA may copurify with genomic DNA from tissue samples. To remove copurified total RNA, an RNase treatment can be performed. Add 5µl of RNase A (Cat.# A7973) per milliliter of elution buffer (see Section 4, Step 9).

Table 1. Typical Yield of Genomic DNA from Mouse Tails.

Sample	Sample Size	Typical Yield	Typical Purity (A_{260}/A_{280})	Preprocessing Required
Mouse tail (first snip)	0.5cm	14µg	1.86	None
Mouse tail (second snip)	0.5cm	15µg	1.81	None

Mouse tails were obtained from Pel-Freez and frozen at –20°C. Two sequential 0.5cm tailsnips were taken from the first 1.0cm of tail, measured from the tip. The 0.5cm tail snips were placed directly in well #1 of the Maxwell® 16 Mouse Tail DNA Purification Kit cartridge, and processed using the DNA tissue method. Samples were eluted in 300µl and analyzed with the NanoDrop®-1000. Yield and purity are the averages of 8 separate preparations.

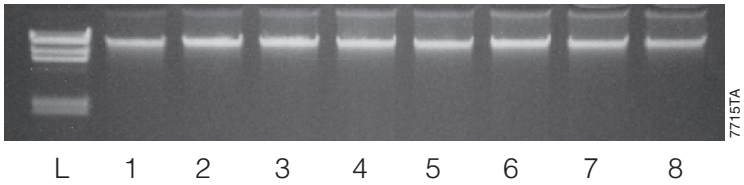


Figure 1. Consistent purification of DNA from mouse tails using the Maxwell® 16 Mouse Tail DNA Purification Kit. Lanes 1–8 each contain 1µl of genomic DNA purified from 1cm mouse tail samples. Lane L = Lambda/HindIII Ladder.

3.B. Maxwell® 16 Cartridge Preparation

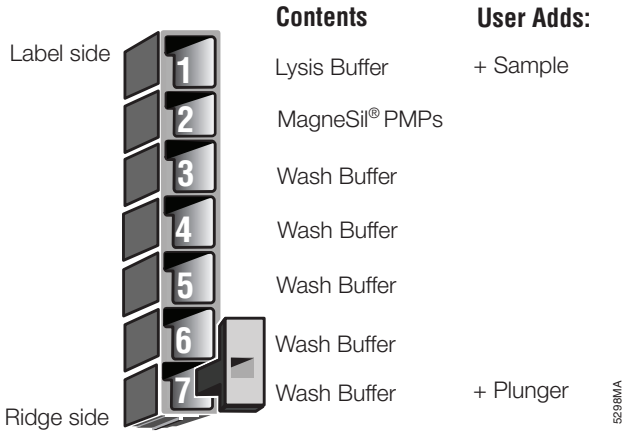
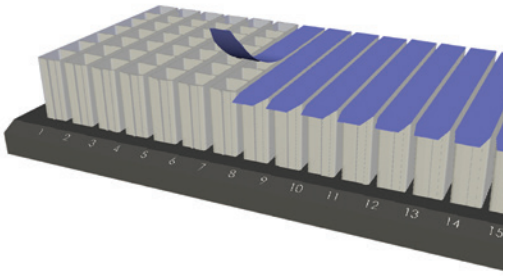
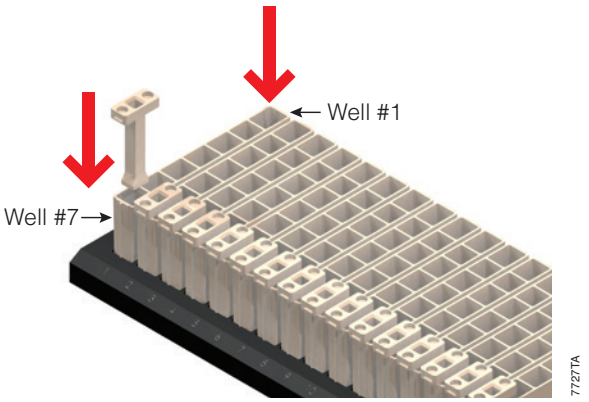


Figure 2. Maxwell® 16 Cartridge (MCA). This figure shows the contents of a cartridge for the Maxwell® 16 Mouse Tail DNA Purification Kit. The sample is added to well #1.



1. Place each cartridge to be used into the holder with the ridged side of the cartridge facing toward the numbered side of the rack. Remove the seal from each cartridge.



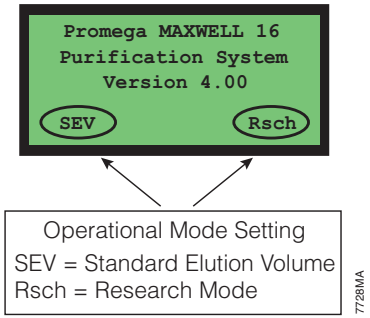
2. Place one plunger into well #7 of each cartridge such that the bottom of the plunger is at the bottom of the cartridge. (Well #7 is the well closest to the ridged side of the cartridge.)

   Note: The plunger will fit loosely in the cartridge.

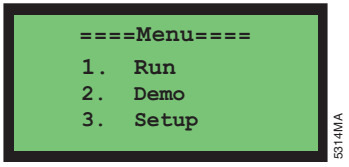
3. Transfer your sample into well #1. (Well #1 is the well closest to the cartridge label and furthest from the user.)

The Maxwell® 16 reagent cartridges contain potentially hazardous chemicals. Users should wear gloves or other protective means when handling the reagent cartridges. Users should follow their institutional guidelines for disposal.

4. Automated DNA Purification on the Maxwell® 16 Instrument

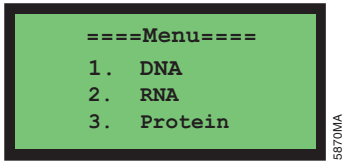


1. Verify that the instrument operational mode is set to Standard Elution Volume (SEV) and Research (Rsch). Do this by closing the door and turning the Maxwell® 16 Instrument off and then on again. The instrument will power up and display the firmware version number and current mode setting. Verify that "SEV" and "Rsch"are displayed as shown. If not, refer to the instrument Technical Manual for instructions on how to change the operational mode.

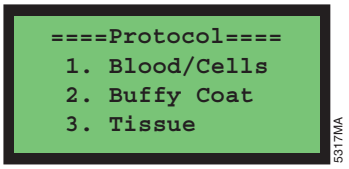


2. Use one of the scroll buttons to move the cursor to "Run" to perform a purification run. Press "Run/Stop" to select.

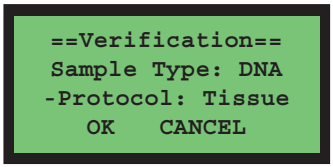
   Note: "Demo" is an abbreviated purification run for demonstration purposes. "Setup" is used only to change the run mode of the instrument, which is not required for this procedure.



3. Use one of the scroll buttons to move the cursor to "DNA". Press "Run/Stop" to select



4. Use one of the scroll buttons to move the cursor to the tissue protocol. Press "Run/Stop" to select.



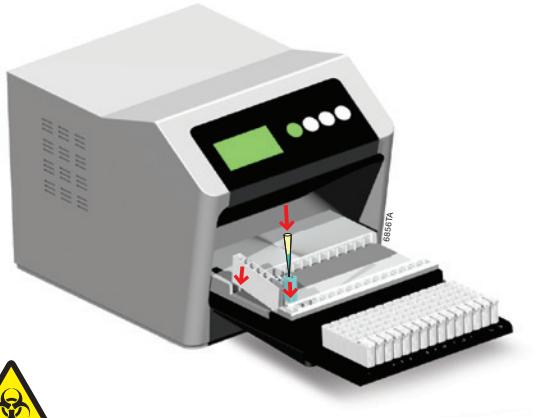
5. Verify that you have selected the correct protocol. Use one of the scroll buttons to move the cursor to "OK".

   Press the "Run/Stop" button to continue with a purification run. Select "Cancel" if the information displayed is not correct.

6. Open the door when prompted to do so on the LCD display. Press the "Run/Stop" button to extend the platform out of the instrument for easy insertion of the cartridges.

 Warning: Pinch point hazard

4. Automated DNA Purification on the Maxwell® 16 Instrument (continued)



7. Transfer cartridges containing samples and plungers from the cartridge preparation rack onto the Maxwell® 16 platform. **Ensure that the cartridges are placed into the instrument with the ridged side of the cartridge closest to the door.**

   Notes:

   If you have difficulty fitting the cartridge in the platform, check the cartridge orientation.

   Insert the cartridge by first inserting the ridged side, then pressing down on the back of the cartridge to "click" it into place.

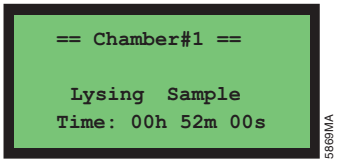
   If you are processing less than 16 samples, center the reagent cartridges on the platform, spacing them evenly outwards from the center.

8. Place one blue elution tube for each cartridge into the elution tube slots at the front of the platform.

9. Add 300µl of elution buffer to each blue elution tube.

10. Press the "Run/Stop" button. The platform will retract. Close the door.

Warning: Pinch point hazard



11. The Maxwell® 16 Instrument will begin the purification run. The LCD screen displays the steps performed and the approximate time remaining in the run.

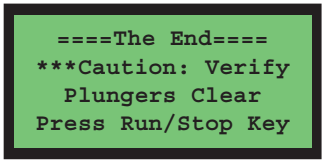
Notes:

Pressing the "Run/Stop" button or opening the door will pause the run. Close the door if open and select whether to "continue" or "terminate" the run.

If you select to "terminate "the run before completion, the instrument will wash the particles off the plungers, remove the plungers into well #7 of the cartridge, and **your sample will be lost.**

For instructions on recovering sample after a temporary power outage, please see the *Maxwell® 16 Instrument Technical Manual.*

4. Automated DNA Purification on the Maxwell® 16 Instrument (continued)



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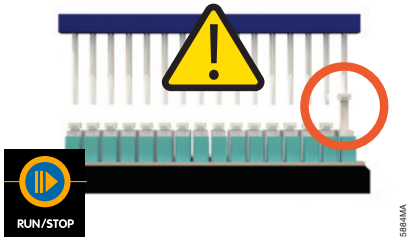

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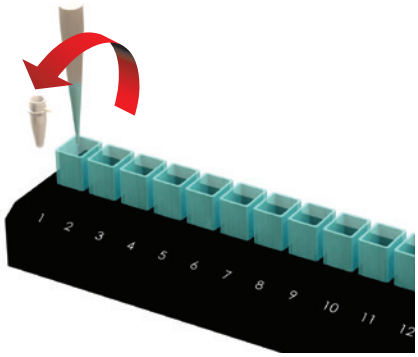
12. When purification is complete, the LCD screen will display a message that the method has ended.

    Upon completion, open the instrument door. Check to make sure that all of the plungers have been removed from the magnetic rod assembly. If the plungers have not been removed, push them down gently by hand to remove them.

13. Press the "Run/Stop" button to extend the platform out from inside the instrument.



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14. Remove the elution tubes from the platform-heated elution tube slots, and place them into the Magnetic Elution Tube Rack. Allow the residual magnetic particles to collect on the magnetized side of the tube. The amount of particles will vary with sample size and composition. Transfer the eluted samples into the storage tube by pipetting.

    Note: To avoid particle transfer, use a pipette tip to aspirate samples away from the captured particles on the side of the blue elution tube.

5320MA

15. Remove cartridges and plungers from the instrument platform and discard them. Do **not** reuse reagent cartridges, plungers or elution tubes

5. 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	Possible Causes and Comments
Lower than expected A_{260} (lower than expected yield)	Tissues that have undergone multiple freeze-thaw cycles may have degraded DNA. Use fresh tissue samples whenever possible or avoid multiple freeze-thaw cycles of tissue.
	Tissue sample was not efficiently ground by the instrument, resulting in inefficient sample lysis. Grinding and lysis of large chunks of tissue by the instrument can be improved by slicing or cutting a larger tissue chunk into smaller pieces and adding the smaller pieces to the first well of the DNA purification cartridge.
	Too much sample was processed. Processing greater than the recommended maximum amounts of sample type will not necessarily provide increased yields. Exceeding sample size limits may result in suboptimal yield and purity of the DNA.
No yield	Sample was placed into well #7 instead of well #1 of the DNA purification cartridge.Ensure that you have properly oriented the DNA purification cartridge so that you are adding the sample to well #1. Well #1 is the well closest to the labeled side of the cartridge.
RNA contamination	In some cases, total RNA can be copurified with the genomic DNA. To remove copurified total RNA, an RNase treatment can be performed. Add 5µl of RNase A (Cat.# A7973) per milliliter of elution buffer.

6. Related Products

Product	Size	Cat.#
Maxwell® 16 Instrument	1 each	AS2000
Maxwell® 16 SEV Hardware Kit	1 each	AS1200
Maxwell® 16 LEV Hardware Kit	1 each	AS1250
Maxwell® 16 Flexi Method Firmware	1 each	AS6411
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 Tissue LEV Total RNA Purification Kit	48 preps	AS1220
Maxwell® 16 Cell LEV Total RNA Purification Kit	48 preps	AS1225
DNA IQ™ Casework Pro Kit for Maxwell® 16	48 preps	AS1240
DNA IQ™ Reference Sample Kit for Maxwell® 16	48 preps	AS1040
Maxwell® 16 Polyhistidine Protein Purification Kit	48 preps	AS1060
RNase A Solution, 4mg/ml	1ml	A7973

[a]U.S. Pat. Nos. 6,027,945 and 6,368,800.