

TECHNICAL MANUAL

# MaxSpin™ 96 Preprocessing of the Maxwell® RSC Buccal Swab DNA for the Maxprep™ Liquid Handler

Instructions for Use of Products  
**AS9100, AS9101, AS9200 and AS9201**

Use in combination with the *Preprocessing Methods for the Maxprep™ Liquid  
Handler Technical Manual #TM529*.

# MaxSpin™ 96 Preprocessing of Maxwell® RSC Buccal Swab DNA for the Maxprep™ Liquid Handler

All technical literature is available at: [www.promega.com/protocols/](http://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](mailto:techserv@promega.com)

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## 1. Description

The MaxSpin™ 96 Buccal Swab DNA preprocessing protocol for the Maxprep™ Liquid Handler is divided into two Maxprep™ methods:

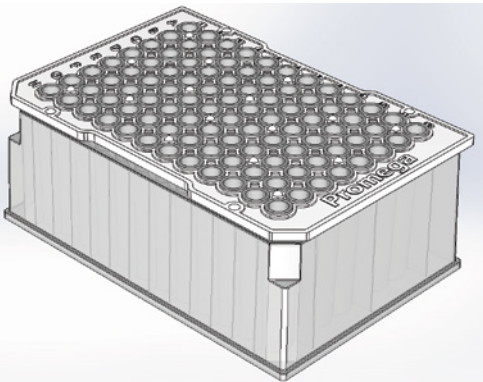
- The MaxSpin™ 96 Buccal Swab DNA Lysis Preparation method prepares buccal swab lysates in the MaxSpin™ 96.
- The Maxwell® RSC Buccal Swab DNA from MaxSpin™ 96 method prepares Maxwell® deck trays for the Maxwell® RSC Buccal DNA Kit using buccal swab lysates in the MaxSpin™ 96 plate.

The Maxprep™ Liquid Handler can perform the heated lysis of the buccal samples, add lysed samples to Maxwell® RSC Cartridges, transfer plungers to Maxwell® RSC Cartridges and dispense Elution Buffer to elution tubes. Administrators can create variant methods in the Maxprep™ software that specify preprocessing options to meet the needs of the laboratory. Creating variant preprocessing methods is described in the *Maxprep™ Liquid Handler Technical Manual #TM529*.

## 2. Materials to Be Supplied by the User

- Maxwell<sup>®</sup> RSC Buccal Swab DNA Kit (Cat.# AS1640)
- Tissue Lysis Buffer (Cat.# A5091)
- MaxSpin<sup>™</sup> 96 Kit (Cat.# AS9040)
- Maxprep<sup>™</sup> 1000µl Conductive Disposable Tips, Filtered (Cat.# AS9303)
- Maxprep<sup>™</sup> 300µl Conductive disposable Tips, Filtered (Cat.# AS9302)
- Maxprep<sup>™</sup> Reagent Reservoir, 50ml (Cat.# AS9304)
- Maxprep<sup>™</sup> 3-Position Reagent Tube Holder (Cat.# AS9409)
- Maxprep<sup>™</sup> Plunger Holder (Cat.# AS9408)
- **Optional:** RNase A Solution, 4mg/ml (Cat.# A7973)

## 3. MaxSpin<sup>™</sup> 96 Buccal Swab Setup



**Figure 1. The assembled MaxSpin<sup>™</sup> 96 in the sample lysis configuration.**

1. To begin, set aside the collar until ready for centrifugation, and align the frame with the plate.
2. Each buccal swab can be placed head-down into a basket either before or after that basket is placed into a position in the MaxSpin<sup>™</sup> 96. Cut or snap off the swab handle close to the swab head and, if needed, the remaining stick can be used to push the head to the bottom of the basket.
3. Using Portal Access, enter a plate map of swab bar codes as the dry swabs are placed into the MaxSpin<sup>™</sup> 96. Scanning the MaxSpin<sup>™</sup> 96 bar code will automatically populate the associated swab bar codes from Portal into the Lysis Preparation and Cartridge Preparation methods.
4. Once the MaxSpin<sup>™</sup> 96 is full or all the swabs are placed, proceed to the Lysis Preparation method.

#### 4. MaxSpin™ 96 Buccal Swab DNA Lysis Preparation

1. In the Maxprep™ software, touch **Start** to access the 'Methods' screen. On the 'Methods' screen, select a method using one of the two options below:
  - a. Touch the MaxSpin™ 96 Buccal Swab DNA Lysis Preparation.
  - b. Use a bar code reader to scan the 2D bar code on the kit box to filter the available methods for the Maxwell® RSC Buccal Swab DNA Kit. Touch the MaxSpin™ 96 Buccal Swab DNA Lysis Preparation method.
2. Verify that the appropriate preprocessing method or variant method has been selected and touch the **Proceed** button. Touch the **Run** button on the method run screen to start the run.
3. To gather information about the MaxSpin™ 96 plate in the first method screen, scan or enter the unique identifier of the MaxSpin™ 96 plate. Select the plate icon to verify or manually enter the location and IDs of the swabs in the plate.
4. Uncheck the "On Deck Incubation" check box if the plate will be incubated on a different device.
 

**Note:** Do not shake the MaxSpin™ 96 during incubation. Keep the MaxSpin™ 96 still and uncovered.
5. Follow instrument setup instructions displayed in the method. The Maxprep™ software will direct you where to place the MaxSpin™ 96.



**Figure 2. Reagent Detail pop up screen for the Digestion Mix.** The details window will specify how much volume of Tissue Lysis Buffer or Proteinase K (in ml or µl, respectively) to combine and place in a trough.

6. Select the **Enter Reagent Details** button to determine what volumes of Tissue Lysis Buffer and Proteinase K to add to a tube. Invert to mix the components before placing into the reagent trough. Do **not** vortex.
 

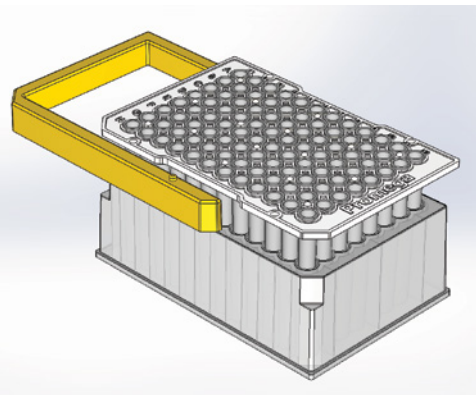
**Note:** Tissue Lysis Buffer (Cat.# A5091) should be purchased separately. Do not use the Lysis Buffer (Part# MC501C) supplied with the Maxwell® RSC Buccal Swab DNA Kit.
7. Add Maxprep™ 1,000µl Conductive Disposable Tips, Filtered (two tip racks; one rack may be partially full).
8. Close the instrument door and touch the **Next** button to start the automated preprocessing of samples.
9. **Optional:** If on-deck incubation is deselected, proceed to heated incubation after the method run is completed.
 

**Note:** Do not shake the MaxSpin™ 96 during incubation. Keep the MaxSpin™ 96 still and uncovered.

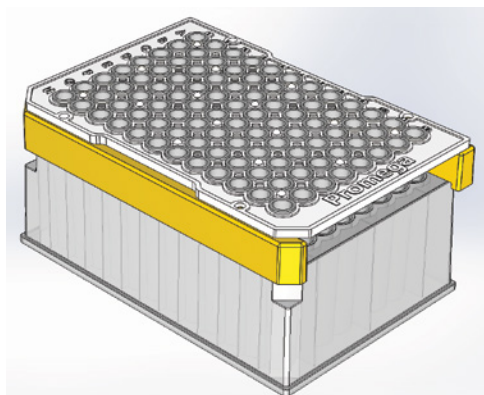
## 5. MaxSpin™ 96 Centrifugation

1. Add the MaxSpin™ 96 collar under the frame. Do not lift the baskets completely out of the wells, but instead lift the frame just enough to slide the collar into place. Match the alignment features on the collar with the holes in the frame to properly seat the collar.

A.



B.



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**Figure 3. MaxSpin™ 96 collar inserted to prepare the MaxSpin™ 96 for centrifugation. Panel A.** After the heated incubation, lift the frame just high enough to slide the collar into place. Do not lift the baskets completely out of the plate. **Panel B.** When the collar is aligned with the holes in the frame, the MaxSpin™ 96 is ready to centrifuge.

2. Centrifuge the MaxSpin™ 96 for 3 minutes at  $\geq 500 \times g$ .
3. Discard the collar, frame, baskets and swab heads.

## 6. Maxwell® RSC Buccal Swab DNA from MaxSpin™ 96

Prior to running this method, samples must be prepared using the MaxSpin™ 96 Buccal Swab DNA Lysis Preparation method. MaxSpin™ 96 plates should have the lysate centrifuged through and the dry swabs removed.

1. In the Maxprep™ software, touch **Start** to access the 'Methods' screen. On the 'Methods' screen, select a method using one of the two options below:
  - a. Touch the Maxwell® RSC Buccal Swab DNA from MaxSpin™ 96 method.
  - b. Use a bar code reader to scan the 2D bar code on the kit box to filter the available methods for the Maxwell® RSC Buccal Swab DNA Kit. Touch the Maxwell® RSC Buccal Swab DNA from MaxSpin™ 96 method.
2. Verify that the appropriate preprocessing method or variant method has been selected and touch the **Proceed** button. Touch the **Run** button on the method run screen to start the run.
3. Enter any method-specific variables (Elution Volume, Maxwell® Instrument Type) on the initial method screen.
4. Scan or enter the unique identifier of the MaxSpin™ 96 plate. Select the "Process Previously Run Samples" check box to see and process samples that have already been run through the method. Select **Exit**.

5. Optionally, Select the **Add Sample** or **Remove Sample** button to manually change which samples should be processed. Choose the **Requery Portal** button to reimport the MaxSpin™ 96 plate layout from Portal or to process a different MaxSpin™ 96 plate.
6. Prior to placing Maxwell® deck tray(s) on the Maxprep™ Liquid Handler, prepare the deck tray(s) with cartridges and elution tubes. Change gloves before handling Maxwell® RSC Cartridges and Elution Tubes (0.5ml). Place the cartridges to be used in the deck tray(s) with well #1 (the largest well in the cartridge) facing away from the elution tubes. Press down on the cartridge to snap it into position. Carefully peel back the seal so that all plastic comes off the top of the cartridge. Ensure that all sealing tape and any residual adhesive are removed before placing cartridges in the instrument. Place an open, empty elution tube into the elution tube position for each cartridge in the deck tray(s). The elution tube cap should open outwards and away from the cartridges.

**Notes:**

1. Specimen or reagent spills on any part of the deck tray should be cleaned with a detergent-water solution, followed by a bactericidal spray or wipe and then water. Do **not** use bleach on any instrument parts.
  2. Use only the 0.5ml Elution Tubes provided in the kit; other tubes may be incompatible with the Maxwell® Instrument.
7. Follow instrument setup instructions displayed in the method. You will be directed by the Maxprep™ software where to place the following items on the instrument:
    - Maxprep™ Plunger Holders and Maxwell® RSC Plunger Packs (two Plunger Packs; one may be partially full)
    - 24-position Maxwell® Front Deck Tray or 16-position Maxwell® Deck Tray containing Maxwell® RSC Cartridges with seals removed and open elution tubes
    - 24-position Maxwell® Back Deck Tray or 16-position Maxwell® Deck Tray containing Maxwell® RSC Cartridges with seals removed and open elution tubes
    - **Optional:** Maxprep™ 3-Position Reagent Tube Holder with up to three RNase A tubes
    - Maxprep™ Reagent Reservoir, 50ml, with Lysis Buffer
    - Maxprep™ Reagent Reservoir, 50ml, with Elution Buffer
    - centrifuged MaxSpin™ 96 Plate (baskets removed)
    - Maxprep™ 1000µl Conductive Disposable Tips, Filtered (two tip racks; one rack may be partially full)
    - Maxprep™ 300µl Conductive Disposable Tips, Filtered (one tip rack; rack may be partially full)
  8. Close the instrument door and touch the **Next** button to start the automated preprocessing of samples.
  9. The Maxprep™ Liquid Handler will prepare samples prior to extraction using a Maxwell® Instrument. The Maxprep™ Liquid Handler performs the following steps:
    - a. Plungers are transferred to each of the cartridges in the Maxwell® deck tray(s). The specified volume of Elution Buffer is transferred to the elution tubes for each position in the Maxwell® deck tray(s).
    - b. Lysis buffer is added to each sample then the lysed sample is transferred from the MaxSpin™ 96 plate to its corresponding Maxwell® RSC Cartridge.

When the method is complete, open the instrument door and move the deck tray(s) to the Maxwell® Instrument for extraction. Remove processing plate and used tips from the waste bin of the instrument and discard as hazardous waste following your institution's recommended guidelines. Either discard or tightly cap and store remaining reagents.

## 6. Maxwell® RSC Buccal Swab DNA from MaxSpin™ 96 (continued)

Consumables for Maxprep™ preprocessing methods are designed to be used with potentially infectious substances. Use appropriate protective equipment (e.g., gloves and safety glasses) when handling infectious substances. Adhere to your institutional guidelines for the handling and disposal of all infectious substances when used with this system.

For information on running the deck trays on a Maxwell® Instrument, see the *Maxwell® RSC Buccal Swab DNA Kit Technical Manual #TM479*.

## 7. Variant Method Variables

Administrators should create laboratory-specific variants of the Maxwell® RSC MaxSpin™ 96 Buccal Swab methods for each unique preprocessing and Maxwell® setup they wish to create. The following sections describe the variables that can be adjusted by administrators. By default, users can modify some of these variables at run time; toggle the “User Modifiable” check box to allow or prevent user access at run time. The administrator has the ability to define the default value for the variable within the displayed minimum and maximum allowable values.

### 7.A. Variant Variables for MaxSpin™ 96 Buccal Swab DNA Lysis Preparation

These variables define how a method should lyse samples.

Setting	Details
Heated Incubation on Deck?	Checking this box will run the MaxSpin™ 96 heated incubation on the HHS heater on the Maxprep™ Liquid Handler. Unchecking will cause the method to prompt the user to incubate the MaxSpin™ 96 on a different device.
Incubation Time (min)	This variable defines the duration of the incubation, in minutes, starting once the heater reaches temperature.

### 7.B. Variant Variables for Maxwell® RSC Buccal Swab DNA from MaxSpin™ 96

These variables define how a method should process samples for the cartridge setup.

Setting	Details
Limit to Single Deck Tray?	Checking this box will limit the maximum sample number to what can fit on one deck tray.
Maxwell RSC (16 Sample) Instrument	This check box defines the default deck tray that will be selected during the preprocessing method setup.
Add RNase to well 3?	This specifies whether or not to add RNase to the cartridge.
Elution Volume (µl)	This variable defines the default volume that will be dispensed into the Elution Tube.

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