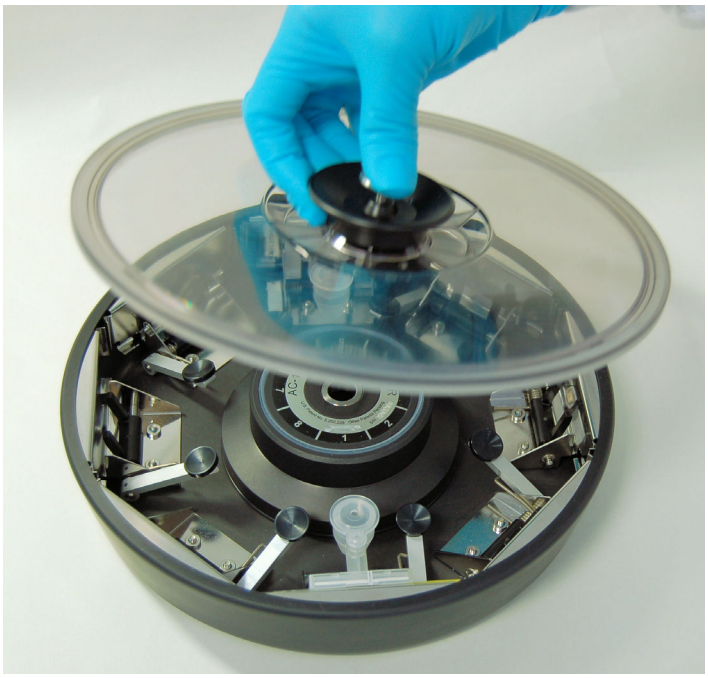
PREVI™ Color
Cytocentrifuge Rotor

for

PREVI™ Color Gram

USER'S MANUAL

EN



4501 – 1755 - en

BIOMÉRIEUX

CE

IVD

bioMérieux S.A. 69280 Marcy l'Etoile / France
Tel. 33 (0)4 78 87 20 00 - Fax 33 (0)4 78 87 20 90
http://www.biomerieux.com

Printed in France / 673 620 399 RCS Lyon

REF 29650
version A
09/2008

The performance characteristics and the results of the products presented are subject to a proper and skilled use of the product in strict conformance with the User's Manual.

Photo and illustration credit: bioMérieux.

Revisions

The list of revisions below summarizes replacements or additional pages in your User's Manual.

Version	Date of printing	Modifications	Pages modified
A	09/2008	Creation	All

Table of Contents

Note: Screenshots, figures, and messages are given for information purposes only.

1 How to use this manual

This manual provides the appropriate instructions to install, operate and maintain the ***PREVI™ Color Cytocentrifuge Rotor*** for use with the ***PREVI™ Color*** instruments.

Warnings

Different types of warnings are used throughout the manual:

- for safety reasons (***DANGER!***),
- to ensure that the instruments are maintained in good working condition (***CAUTION!***),
- for regulatory reasons (***WARNING!***) or,
- for optimum performance of operations, procedures, etc. (***IMPORTANT!***).

Before using your instrument, please also read the **"General safety and regulatory information"** booklet, provided with the instrument, and the above mentioned warnings

Specific warnings

DANGER! ***Lid and rotor gaskets and related components are intended to be part of biosafety systems such as are specified in international and national biosafety guidelines, and cannot be relied on as the only means of safeguarding workers and the environment when handling pathogenic micro-organisms.***

IMPORTANT! ***PREVI™ Color Cytocentrifuge Rotor is compatible with the PREVI™ Color instruments. It is advisable to check the availability of the instruments.***

If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

2 General

Functional description

The cytocentrifuge function of the ***PREVI™ Color*** instrument allows to rapidly sediment sample cells onto microscope slides for staining or other purposes.

Up to 8 disposable/reusable sample chamber assemblies with absorbent pads and glass microscope slides can be loaded into the ***PREVI™ Color Cytocentrifuge Rotor***.

Cytocentrifuge and staining functions described in the ***PREVI™ Color*** User's Manuals are independent of one another.

The ***PREVI™ Color Cytocentrifuge Rotor***'s patented features reduce cell loss during collection and prevent accidental damage to the collected sample. The rotor is sealed to control aerosol release during cytocentrifugation.

Key features

With this rotor, the ***PREVI™ Color*** instruments become a standard cytocentrifuge with:

- single and dual chambers
- reusable disposable
- capacity of 8 slides
- 9 user-programmable memory locations for settings (speed, acceleration rate and time)*
- easy switch between the STAINING mode and the cytocentrifuge mode
- autoclavable rotor.

Note: *Pressing* CYTO *brings up the cytocentrifugation mode.*

You can return to staining mode by simply pressing STOP

* *Program no.1 qualified by bioMérieux.*

Intended use

The ***PREVI™ Color Cytocentrifuge Rotor*** is an *in vitro* diagnostic medical device for professional use only.

It is an accessory for fixing biological cell suspensions on a glass microscope slide for cytological examination.

The ***PREVI™ Color Cytocentrifuge Rotor*** has been qualified by bioMérieux according to program no.1 with the following cell suspensions:

- bronchoalveolar liquid (BAL)
- cerebrospinal fluid (CSF)
- urine
- synovial fluid.

WARNING! ***bioMérieux disclaims any responsibility for the use of the PREVI™ Color Cytocentrifuge Rotor with biological cell suspensions other than those mentioned above.***

Specifications

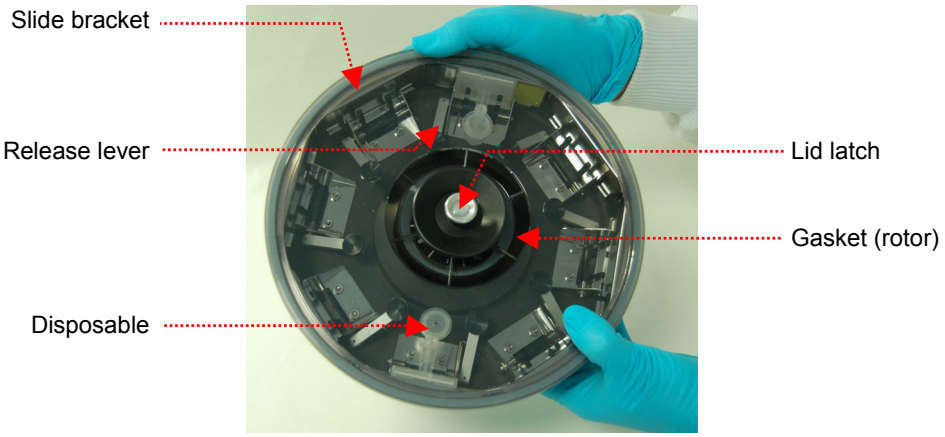
PARAMETERS	CHARACTERISTICS
Sample well capacity	
Single chambers	500 µl
Dual chambers	2 x 300 µl
Cell deposit area (spot):	
Single chambers	38.5 mm² (diameter: 7 mm)
Dual chambers	77 mm² (diameter: 2 x 7 mm)
Rotor	
Capacity	up to 8 slides and cytocentrifuge chambers
Speed range	100 to 2000 rpm (revolutions per minute)
Acceleration rate	Low, Medium, High
Cycle time range	1 to 99 minutes
Instrument outside dimensions:	
Diameter	226 mm (8.9 inches)
Height	62 mm (2.4 inches)
Weight including the lid	1.1 kg (2.5 lbs)

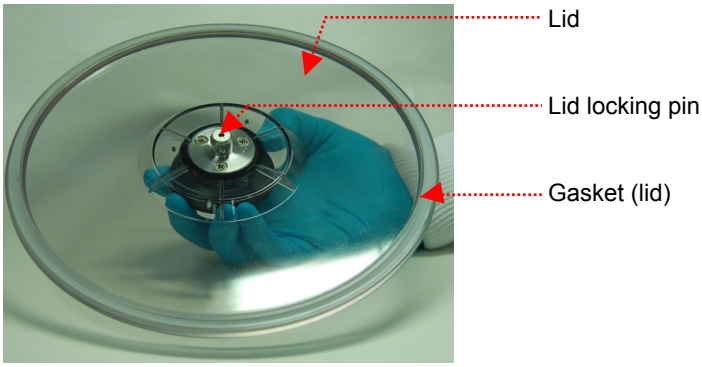
References

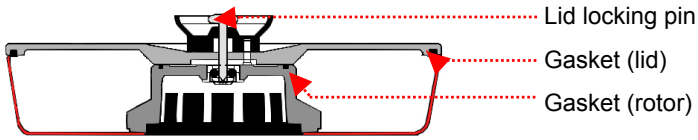
PRODUCTS	REFERENCES
Poly-L-Lysine slides	
• **for single sample chamber**	29563
• **for dual sample chamber**	29662
Single sample chamber	
• **fast**	29564
• **slow**	29565
Dual sample chamber	
• **fast**	29560
• **slow**	29561
Fast white	
• **single cytopads**	29725
• **dual cytopads**	29727
Slow tan	
• **single cytopads**	29726
• **dual cytopads**	29728
Cyto slide protection	29670

Description

Rotor







Cytocentrifuge slides

IMPORTANT! ***Pre-coated slides with Poly-L-Lysine MUST be used to reduce cell loss during wet fixation and staining.***

Cytocentrifuge coated slides are available in two formats:

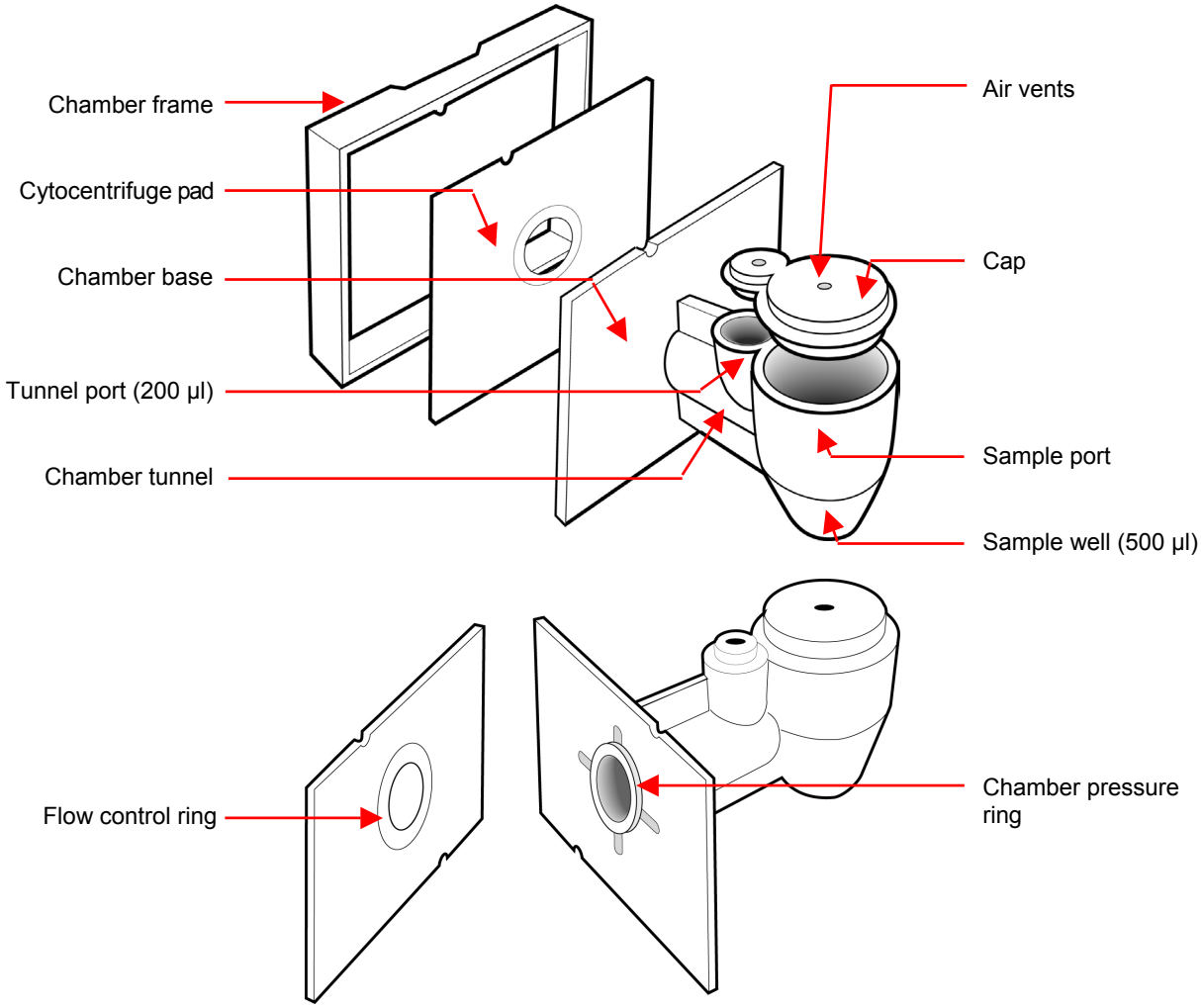
- slide for dual sample chamber

- slide for single sample chamber

See “References”, page 2-2.

Single sample chamber

The reusable single chamber features a dual-port sample loading port system that places a spot on the microscope slide.



The **tunnel port** allows up to 200 µl of fluid to be placed directly in the chamber tunnel. This allows flexibility in sample treatment, including *in situ* fixation and pad prewetting.

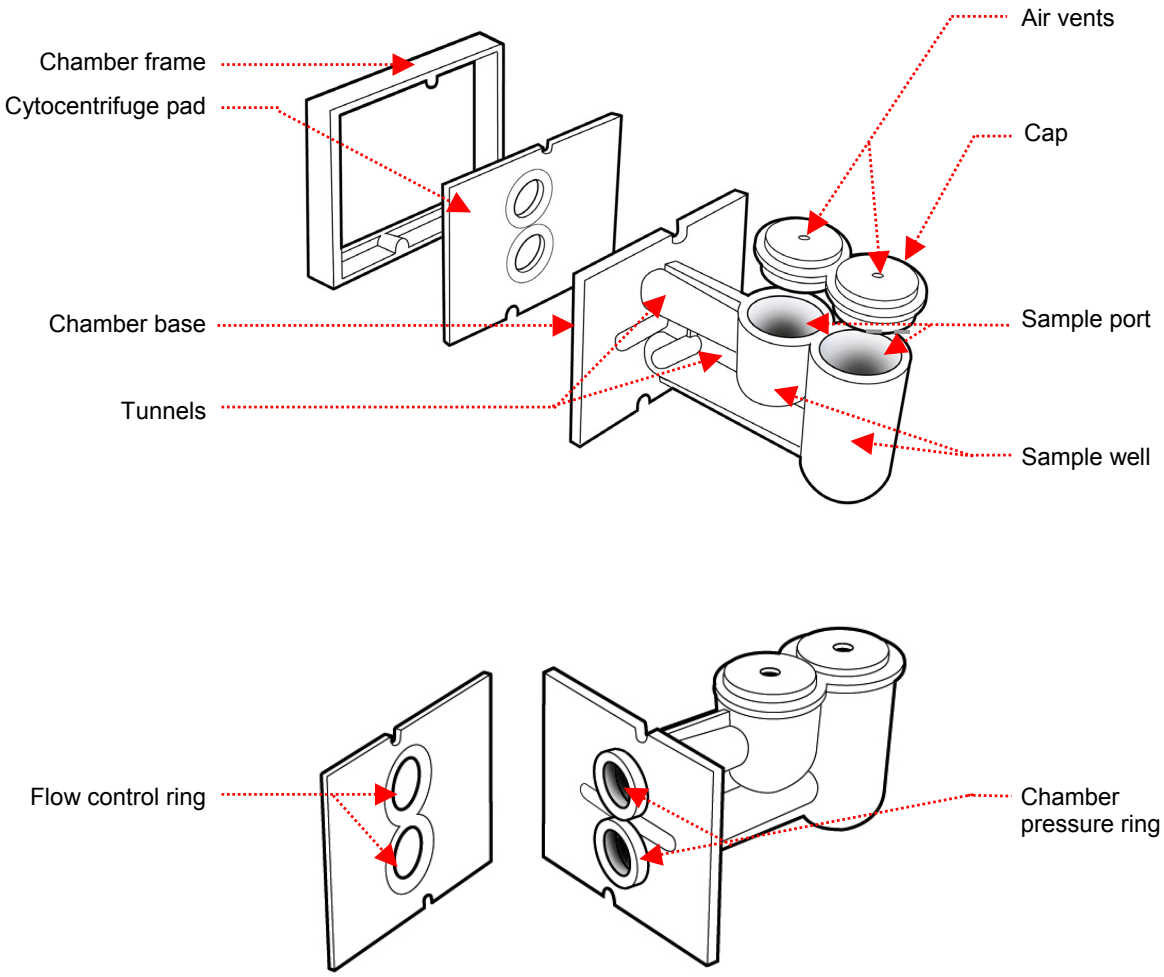
The **sample port** holds up to 500 µl of fluid placed in the sample well. Use a pipette to load sample fluid through the open ports or through air vents in the chamber cap.

The **chamber pressure** raised ring at the end of the chamber tunnel seals the cytocentrifuge pad against the glass slide to restrict fluid flow during cytocentrifugation.

WARNING! ***If you intend to reuse the chamber, you must thoroughly clean and decontaminate it using the methods described in "Reusing the chamber", page 4-7.***

Dual sample chamber

The reusable dual sample chamber allows two spots of specimen to be placed on the same microscope slide.



Dual chambers are designed to operate in the same way as single chambers.

The **sample port** holds up to 300 µl of fluid (600 µl per slide) placed in the sample well. Use a pipette to load sample fluid through the open ports or through air vents in the chamber cap.

WARNING! ***If you intend to reuse the chamber, you must thoroughly clean and decontaminate it using the methods described in "Reusing the chamber", page 4-7.***

Cytocentrifuge pads

Cytocentrifuge pads are available in two absorption rates:

- the SLOW (tan) pad is for rapidly absorbed fluids of low viscosity, low cellularity and low turbidity.
- the FAST (white) pad is for more viscous suspensions.

Slide protection

To avoid breakage of the slide, a protective covering can be inserted between the metal part of the rotor and the slide itself. This protective covering is available from bioMérieux, see "References", page 2-2.

3 Preparing the *PREVI™ Color* instrument for cytocentrifugation

The ***PREVI™ Color Cytocentrifuge Rotor*** is intended for use with the ***PREVI™ Color*** instruments. For further details, please see "Intended use", page 2-1.

General information

Sample Preparation	Cytopad Type*	Sample Vol. µl	Prewet µl**
Bronchoalveolar liquid (BAL)	Tan/White	200	0 to 100
Cerebrospinal fluid (CSF)	Tan		
Synovial fluid	Tan		
Urine	Tan		

It is possible to prewet fluids that are too concentrated.

* Thin sample : slow (tan)
Thick sample : fast (white)

** Load up to 100 µl
balanced saline in tunnel

Cytocentrifuge: 1st use

WARNING! ***This procedure is very important for the bioMérieux instrument settings. bioMérieux cannot guarantee the performance of the PREVI™ Color Cytocentrifuge Rotor if this procedure is not performed beforehand.***

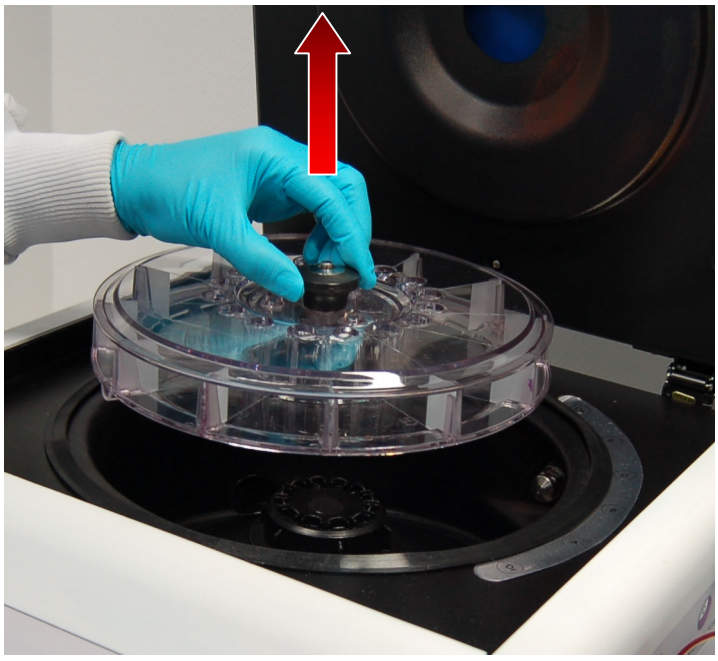
1 **You must see this display before using the instrument.**

PRESS
CLEAN TO REPRIME

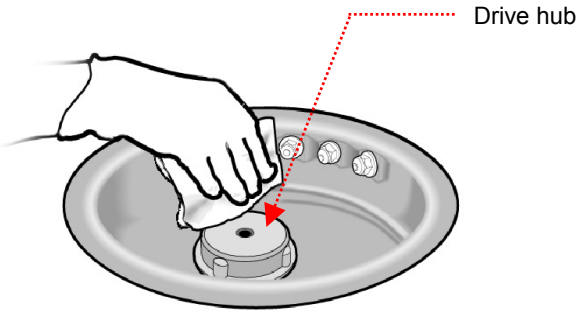
⚠ **DO NOT PRESS** CLEAN

To bring up the cytocentrifugation mode, press CYTO

2 **Open the lid and remove the staining carousel.**



3 **Carefully wipe the inside of the instrument with a dry or moist cloth.**



Note: The STAINING mode can be reactivated by pressing STOP

4 **Enter the program number:**

press 1 PROG

5 **Enter the speed:**

press 1 0 0

for 1000 rpm.

6 **Enter the time:**

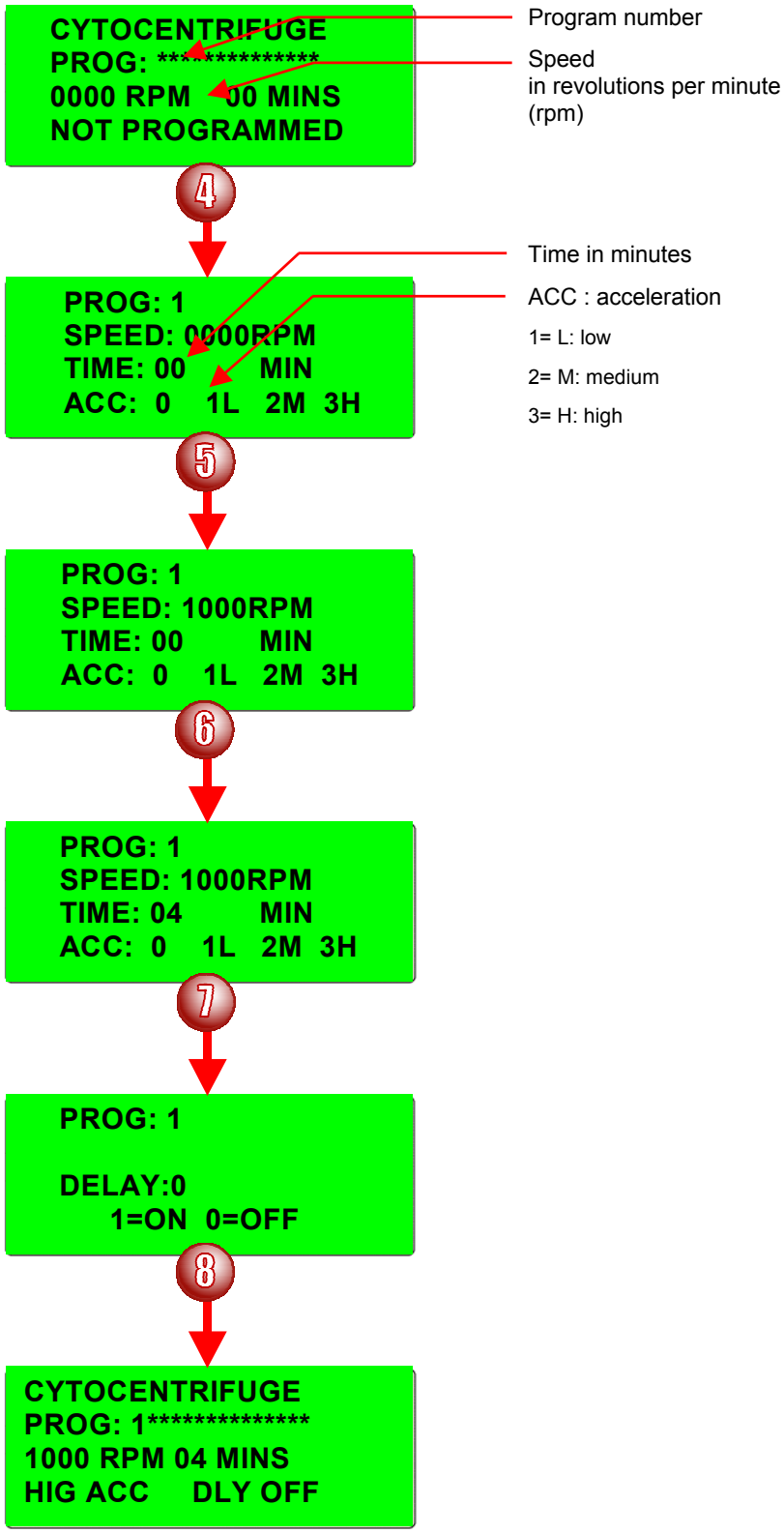
press 0 4

for 4 minutes.

7 **Enter the acceleration:**

press 3 for High.

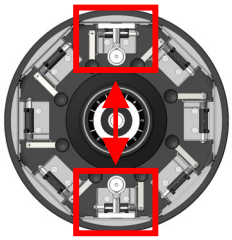
8 **Press** 0



4 Operating the *PREVI™ Color Cytocentrifuge Rotor*

DANGER! ***The rotor should always be opened and closed in a biological safety hood.***

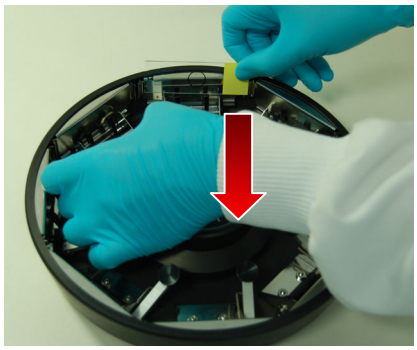
Loading the rotor



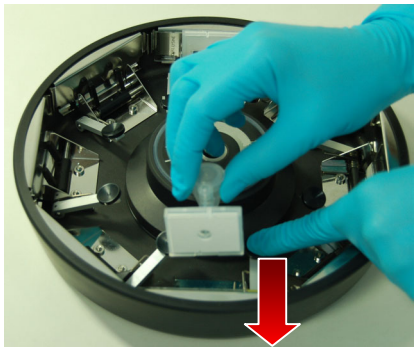
IMPORTANT! ***The rotor must be balanced by placing the chambers and slides in opposing stations (using an empty chamber and slide if necessary), see picture on the left.***

bioMérieux strongly recommends the use of pre-coated slides with Poly-L-Lysine to reduce cell loss during wet fixation and staining.

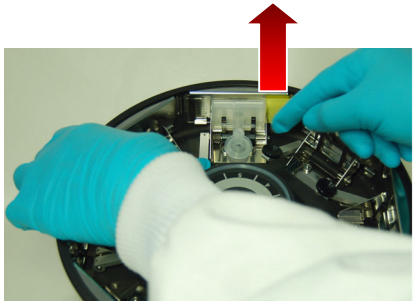
1. **Place each slide into a slide bracket with the labeled side facing the rotor.**



2. **Depress the release lever and insert a chamber assembly.**

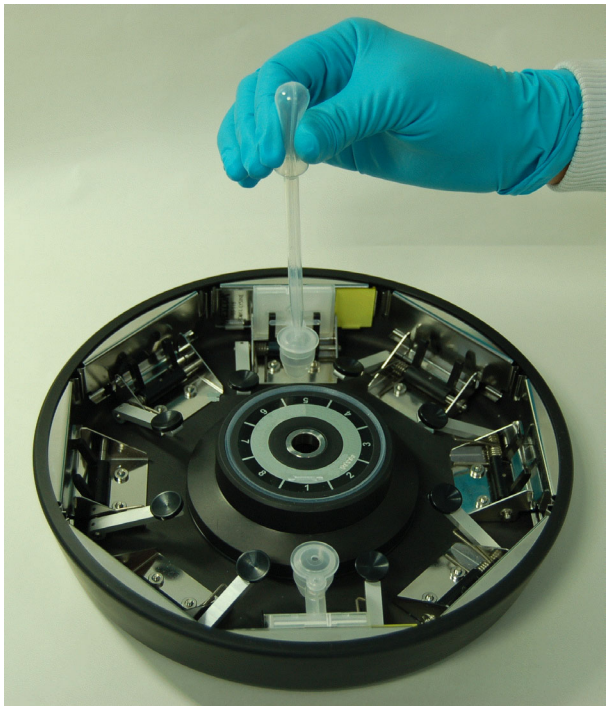


3. **Release the lever while gently pressing down on the top of the chamber frame.**

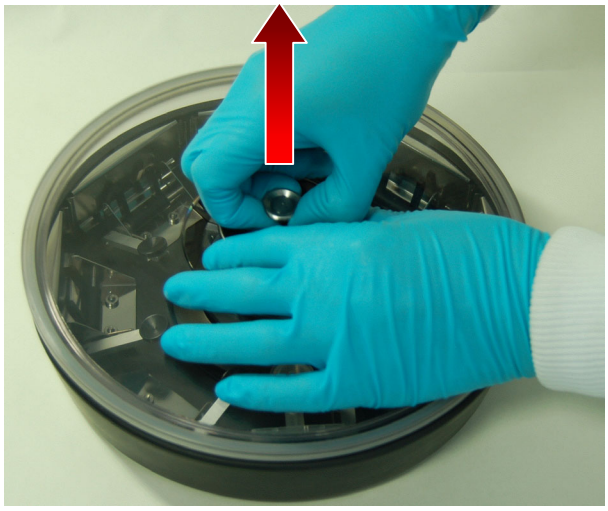


Loading the sample

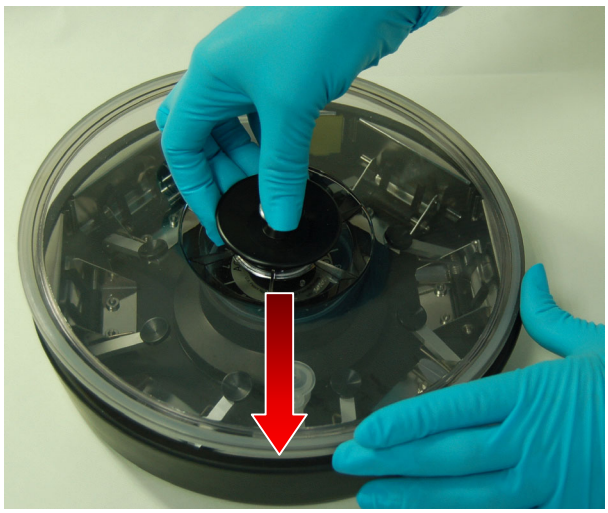
1. **Load sample and prewetting fluids through cap vents.**



2. **Place the lid on the rotor by lifting the locking pin as you place the center pin into the rotor lid receptacle.**



3. **Press down the locking pin until it locks.**

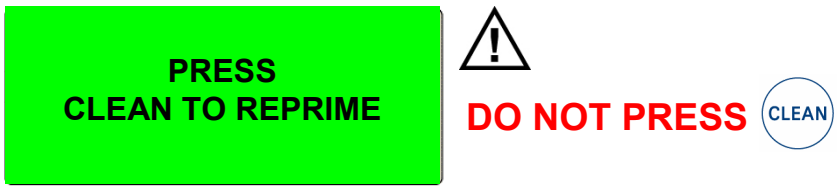


Changing the accessories

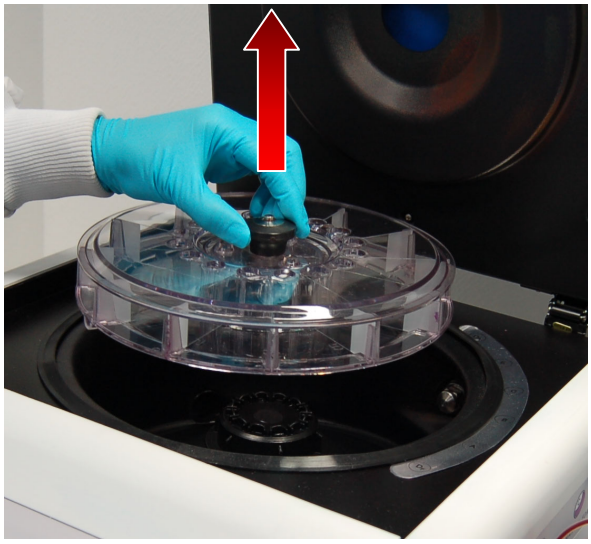
1. **You must see this display before using the instrument.**

   To bring up the cytocentrifugation mode:

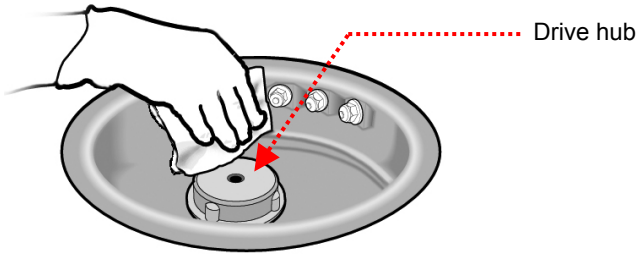
   Press CYTO



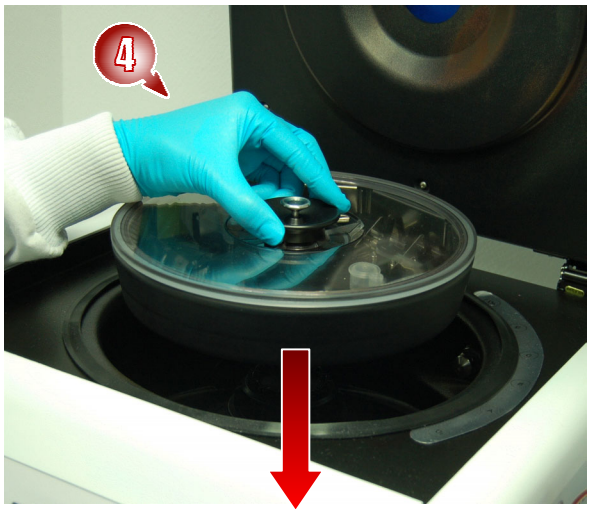
2. **Extract the carousel.**



3. **Carefully wipe the inside of the instrument with a dry or moist cloth.**

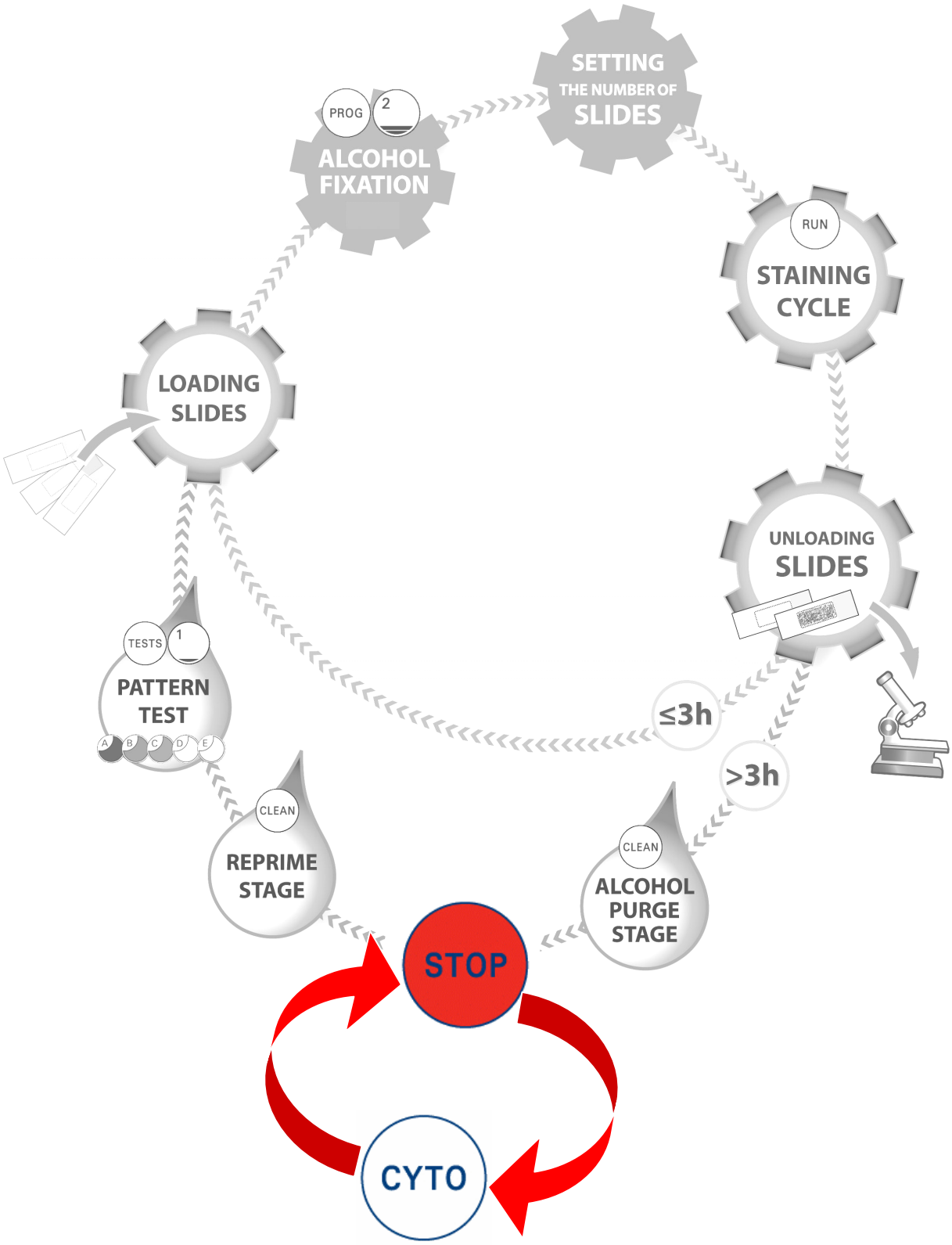


4. **Carefully transfer the rotor to the instrument by gently lowering it into place on the drive hub.**



5. **Close the instrument lid.**

IMPORTANT! ***Make sure that the rotor is firmly seated on the hub.***


SETTING
THE NUMBER OF
SLIDES
PROG
2
ALCOHOL
FIXATION
RUN
STAINING
CYCLE
LOADING
SLIDES
UNLOADING
SLIDES
TESTS
1
PATTERN
TEST
A
B
C
D
E
≤3h
>3h
CLEAN
REPRIME
STAGE
CLEAN
ALCOHOL
PURGE
STAGE
STOP
CYTO

Launching the cytocentrifuge run

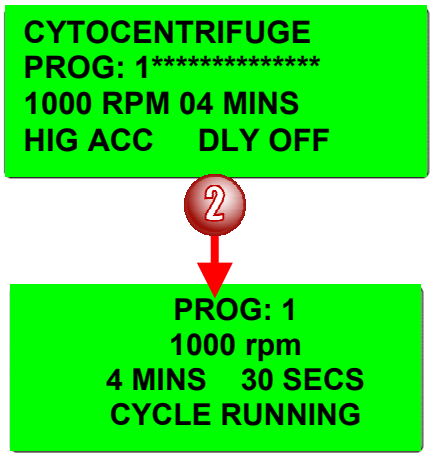
IMPORTANT! ***Program no.1 must be created before launching the run.***

It must include the following parameters:
1000 rpm, High acceleration, 4 minutes.

See "Cytocentrifuge: 1st use", page 3-2.

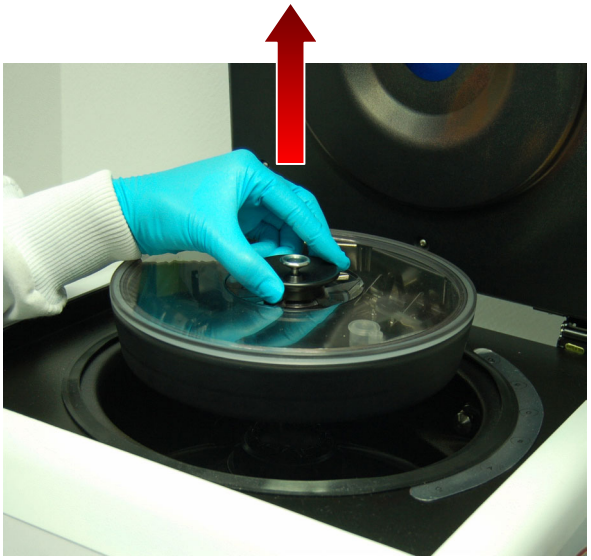
1. **Check that the instrument lid is closed and press** CYTO 1

2. **Press** RUN



The signal tone sounds at the end of the cycle.

3. **Open the lid.**



4. **Remove the rotor to a biological safety hood.**

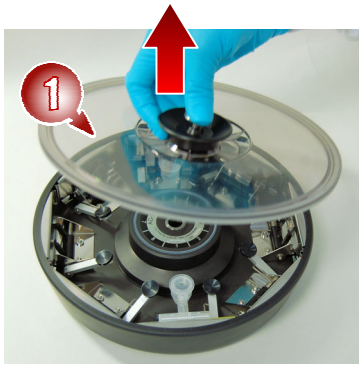
Note: *The STAINING mode can be reactivated by pressing* STOP

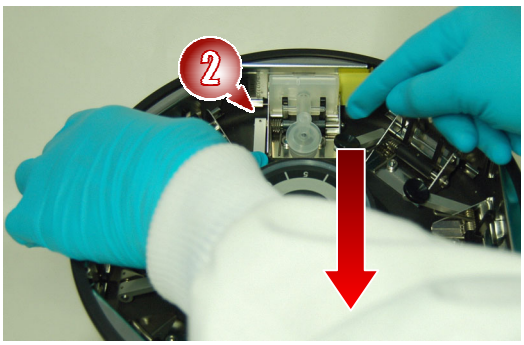
Unloading the sample

CAUTION! ***Never attempt to release the lid by holding the lid knob and shaking the rotor with the locking pin released, as this will cause the rotor to drop, resulting in damage to the slides and the rotor itself.***

IMPORTANT! ***When slides are removed from the rotor, cells rapidly begin to dry. Transporting exposed slides subjects them to air flow and greatly accelerates drying.***

1. **Remove the rotor lid.**

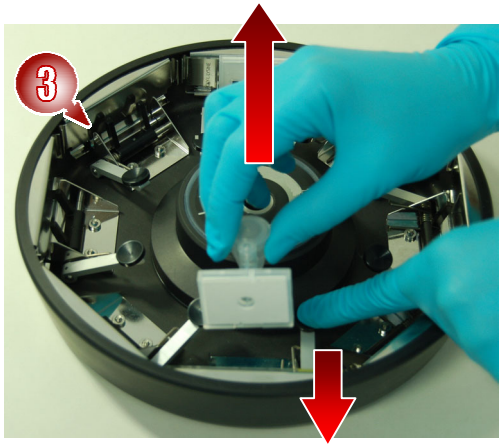




2. **Check chambers for residual fluid in the tunnel.**

   If fluid remains, make the sample return to the well by carefully pressing the release lever.

3. **Remove the chamber.**

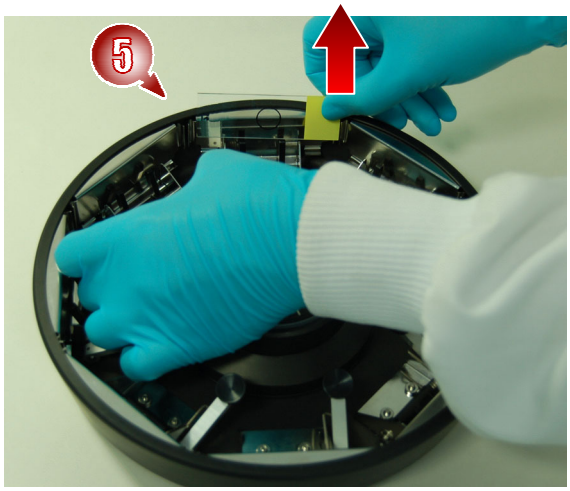


4. **Discard it in a biohazard container,**

   or

   if you wish to keep it for further use, see "Reusing the chamber", page 4-7.

5. **Remove the slides.**



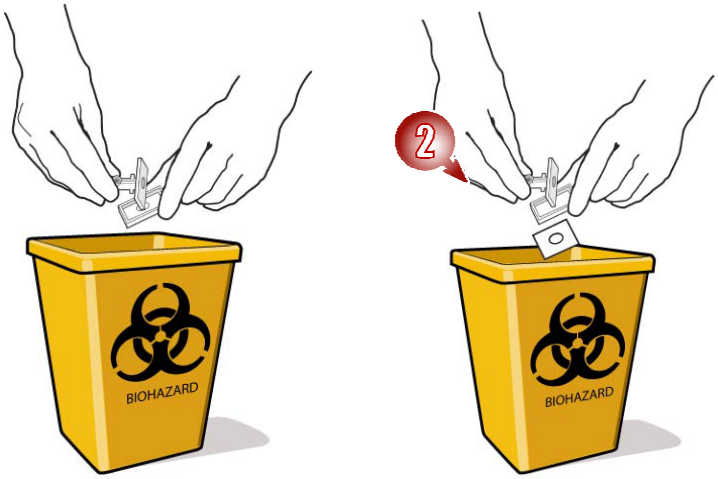
6. **Fix the slides as quickly as possible. Quickly wet fix or air dry depending on desired staining to follow.**

CAUTION! ***Removing fluid by these methods causes some cell loss. The remaining cells may not be completely flattened against the slide.***

Reusing the chamber

1. **Remove the frame from the chamber.**

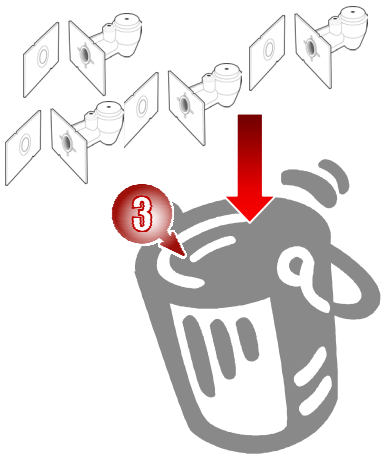
2. **Use the sample chamber base to push the used cytocentrifuge pad out of the back of the frame and into a biohazard container for disposal.**



3. **Prepare a suitable container for all disposables.**

   Submerge chambers and frames immediately into a detergent or disinfectant (eg. bleach solution 10%) to prevent cells from drying.

20 min



4. **Disinfect and/or sterilize chambers.**

   For further details, see "Disinfecting and/or sterilizing", page 5-3.

1 h

Disinfection procedure:

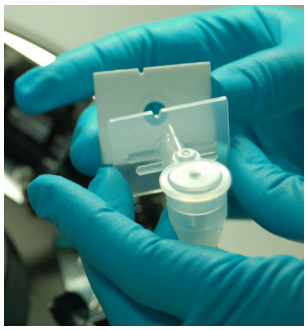
After a minimum contact time of **20 minutes**, remove the detergent or disinfection solution by thoroughly rinsing with water (bioMérieux strongly recommends the use of distilled water).

For sporicidal disinfection, allow the solution to react for **10 hours**.

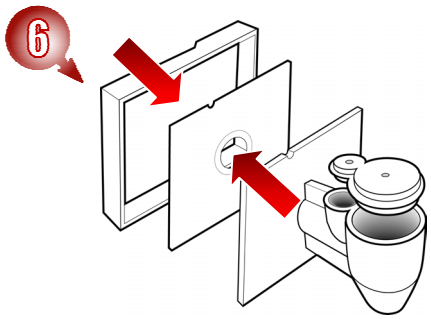
And/or sterilization procedure:

1. Autoclave for **1 hour** at 132°C.
2. Remove the detergent solution by thoroughly rinsing with water (bioMérieux strongly recommends the use of distilled water).

5. **Wipe the disposables dry.**



6. **To reuse the chamber, place a new cytocentrifuge pad inside the frame and snap the frame over the chamber base.**



Managing the memory locations

WARNING! ***The information contained in this section is intended for customers who wish to use the equipment with applications other than those specified by bioMérieux in this manual. In that case, the user assumes complete responsibility for that use.***

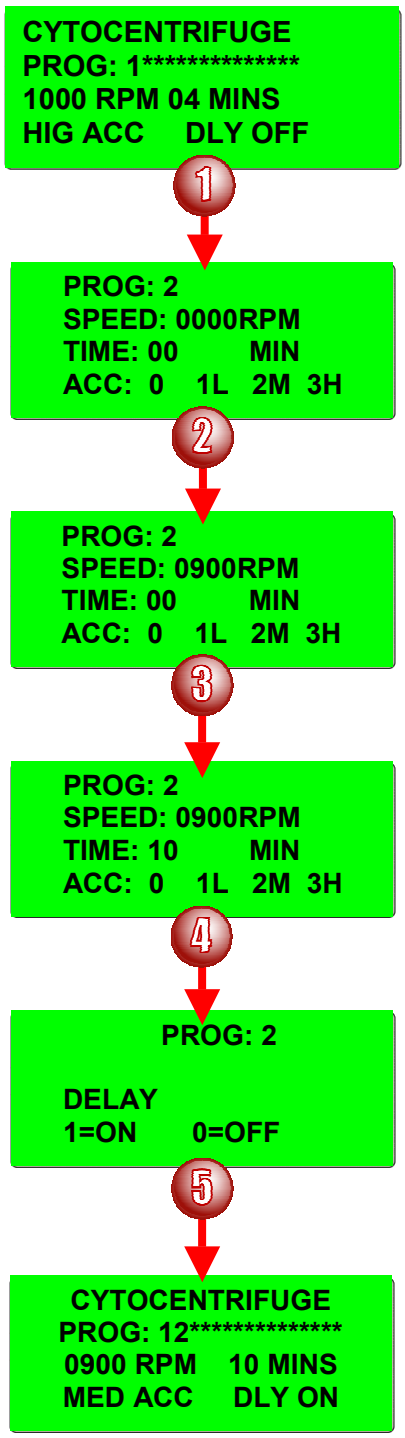
Memory location no.1 must not be modified.

Programming or modifying memory settings

In cytocentrifuge mode:

1. **Enter the memory location to be modified (from 2 to 9).**
   Example: 2 PROG
2. **Enter the required speed (100 to 2000 rpm).**
   Example:
   for 900 rpm, press
   0 9 0
3. **Enter the required time (01 to 99 min).**
   Example: 1 0
4. **Enter the acceleration rate (from 1 to 3).**
   Example: 2

   ACC : acceleration
   1= L: low
   2= M: medium
   3= H: high
5. **To deactivate the lid**
   press 0
   (this unlocks the delay function),
   or
   to activate the lid
   press 1



Deleting a memory location

WARNING! ***Memory location no.1 must not be deleted; otherwise bioMérieux does not guarantee the performance of the PREVI™ Color Cytocentrifuge Rotor.***

If it is deleted, the "Cytocentrifuge: 1st use" procedure on page 3-2 must be repeated.

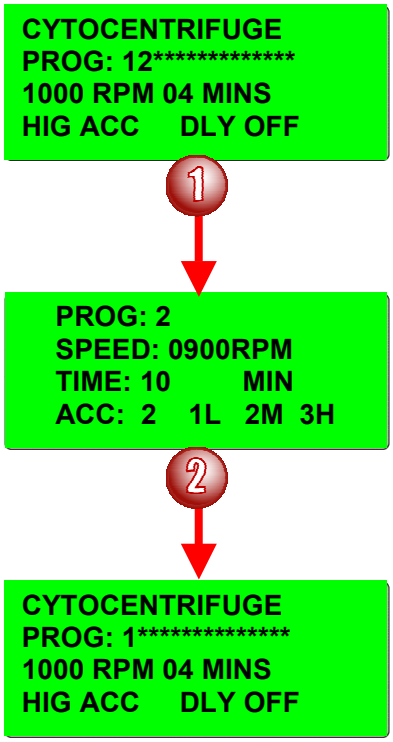
In cytocentrifuge mode:

1. **Press the memory location to be deleted.**

   Example:

2. **Press** 



5 Maintenance and cleaning

DANGER! ***The PREVI™ Color Cytocentrifuge Rotor should always be opened and closed in a biological safety hood.***

Never use acetone or other ketones, benzene, toluene or any other solvents to clean the PREVI™ Color Cytocentrifuge Rotor.
Serious damage can result from using these substances.



CAUTION! ***Before doing any maintenance, remove slides and chambers.***

Preventive maintenance plan

The preventive maintenance chart is a support to be used:

- ***DAILY,***
- ***WEEKLY,***
- ***YEARLY***, and each time it is necessary to intervene on the instrument and its parts.

DAILY maintenance

- Inspect the rotor gasket for cracks or signs of deterioration.
- Disinfect the rotor, see "Disinfection procedure", page 5-3.
- Lubricate the lid latch mechanism if it is difficult to manipulate.
  Use a light instrument-grade oil such as sewing machine oil.
  See "Lubricating the lid latch", page 5-2.

WEEKLY maintenance

bioMérieux strongly recommends the user to:

- Sterilize the ***PREVI™ Color Cytocentrifuge Rotor***,
  see "Sterilization procedure" page 5-3.
- Lubricate the lid latch mechanism.
  See "Lubricating the lid latch", page 5-2.

YEARLY maintenance

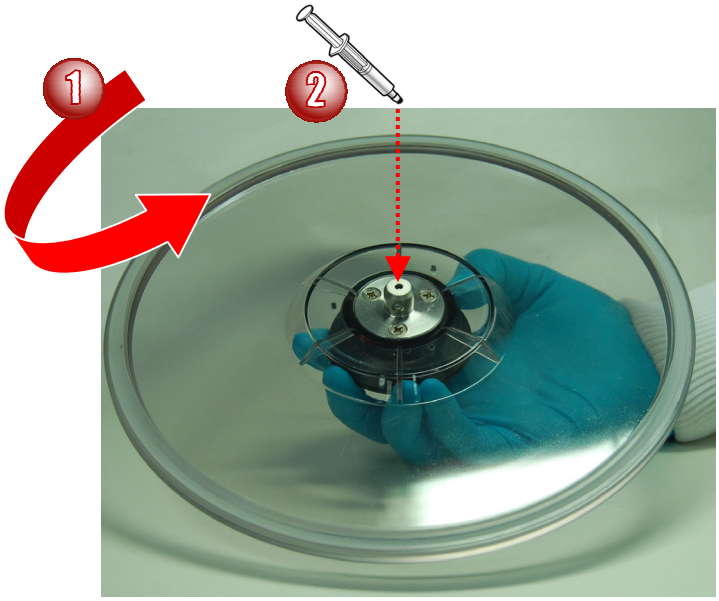
- Replace the gaskets (done by your bioMérieux representative).

Lubricating the lid latch

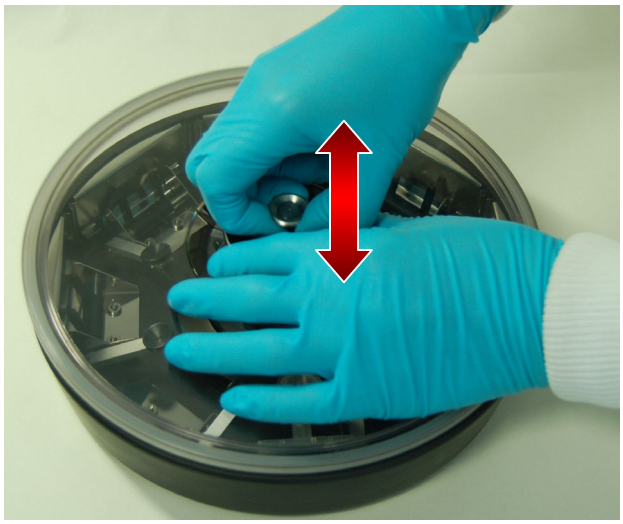
bioMérieux advises the user to lubricate the lid latch mechanism after each autoclaving process or if the lid is difficult to manipulate.

1. **Turn the lid upside down.**

2. **Place a small amount of lubricant directly into the lid locking pin receptacle using a syringe.**



3. **Work the locking pin back and forth several times.**



4. **Check for and wipe off any excess oil or grease at the mouth of the locking pin hole.**

Disinfecting and/or sterilizing

DANGER! ***If biohazardous spills occur on the PREVI™ Color Cytocentrifuge Rotor , it should be considered as potentially infectious and be disinfected in accordance with any local applicable regulations.***

The disinfection procedure should be performed in a well-ventilated room by authorized trained personnel wearing appropriate individual protection equipment.

This procedure may not be effective against prions.

CAUTION! ***Never load chipped or cracked slides into the instrument.***
Failure to use slides in good condition can lead to breakage during the cycle.

Make certain there are no small ferrous metal objects in the bowl.
These can be attracted to the magnets on the bottom of the rotor.
Such objects can cause damage if spun free of the magnets during spinning of the rotor.

Disinfection solutions

The ***PREVI™ Color Cytocentrifuge Rotor*** should be disinfected using a surface disinfection solution such as:

- ethanol 70%
- mild detergent
- bleach solution
- for sporicidal disinfection, use a 2% alkaline activated glutaraldehyde solution (see message "IMPORTANT" hereafter).

Disinfection procedure

1. Prepare a suitable container for all disposables.
2. Spray the disinfectant solution on the ***PREVI™ Color Cytocentrifuge Rotor***.
3. After a minimum contact time of **20 minutes**, remove the disinfection solution by thoroughly rinsing with water (bioMérieux strongly recommends the use of distilled water).
4. Wipe the ***PREVI™ Color Cytocentrifuge Rotor*** dry.

IMPORTANT! ***For sporicidal disinfection, allow the solution to react for 10 hours.***

Sterilization procedure

If the laboratory has no specific sterilization procedure,
use the following procedure to sterilize the ***PREVI™ Color Cytocentrifuge Rotor***:

1. Prepare a suitable container for all disposables.
2. Open the lid to allow steam penetration inside the rotor.
3. Autoclave the rotor for **1 hour** at 132°C.
4. Wipe the rotor dry.
5. Pack the rotor.
6. Complete the disinfection declaration.

Instrument shipment

WARNING! ***Before the PREVI™ Color Cytocentrifuge Rotor is returned to bioMérieux, it must at least be disinfected.***

A disinfection declaration must be completed by the operating authority, see "Disinfection declaration", page 5-4.
If a disinfection declaration is not supplied, the PREVI™ Color Cytocentrifuge Rotor may not be accepted by the distributor or service center or customs authorities may hold it.

Disinfection declaration

The following disinfection declaration MUST be printed and completed by the operating authority and attached to the top of the package in which the ***PREVI™ Color Cytocentrifuge Rotor*** is returned, before being sent to bioMérieux.

– Disinfection declaration –

I declare that the *PREVI™ Color Cytocentrifuge Rotor* in this package has been disinfected to remove or inactivate any biological material, patient samples or hazardous material, which could be dangerous to personnel, or that it has never been exposed to any biohazardous material.

Contact person: .....

Company / institution: .....

Function: .....

Phone / Fax: .....

E-mail: .....

Date of disinfection: .....

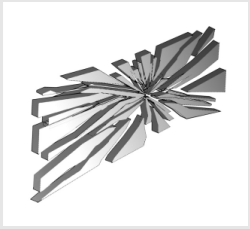
Date, name: .....

Signature: .....

6 Troubleshooting

The following section provides suggestions to help you quickly solve routine problems that might be encountered with the ***PREVI™ Color Cytocentrifuge Rotor.***

IMPORTANT! ***If the recovery procedure does not work, please contact your bioMérieux representative.***

Description	Cause	Recovery procedure
The rotor is difficult to close and open.	The lid latch mechanism is jammed.	See "Lubricating the lid latch", page 5-2.
Broken slide 	If a slide breaks inside the stainer during a cycle, stringent precautions must be taken during clean up, especially if the instrument has been processing dangerous pathogens.	These can cause serious cuts and risks of infection. Always remove these shards with a scraper before attempting to remove loose glass. Always use protective gloves, safety glasses, and forceps when removing broken glass from the inside of the rotor.  Glass shards may be imbedded in the walls of the rotor. To prevent injuries: 1. Remove all the undamaged slide 2. Remove the broken slides 3. Remove all the broken pieces using a paintbrush 4. Hold the rotor open upside down 5. Systematically autoclave the rotor.


BIOMÉRIEUX