SARTORIUS

Instructions for Use

Cyclus® Bead Extraction

Magnetic bead based DNA/RNA extraction kit
Prod. No. SMB95-6000

Reagents for 100 extractions
For use in research and quality control

Manufactured by:

Minerva Biolabs GmbH | Schkopauer Ring 13 | 12681 Berlin | Germany

Symbols

LOT	Lot No.
REF	Order No.
	Expiry date
	Store at
	Contains reagents for 100 extractions
	Manufacturer

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1. Intended Use

Cyclus® Bead Extraction is intended for the efficient isolation of mycoplasma DNA/RNA from cell culture materials (such as supernatants, cell suspensions, and cryostocks), advanced therapy medicinal products (ATMPs), and biopharmaceutical products. The isolated DNA/RNA should be used directly in combination with Cyclus® RT-qPCR Mycoplasma (SMB95-6002) from Sartorius for sensitive and robust mycoplasma detection with unprecedented performance.
The kit is suitable for use in testing according to the European Pharmacopoeia (EP) Chapter 2.6.7 Issue 12.2, Japanese Pharmacopoeia (JP) General Chapter G3-14-170, and United States Pharmacopeia (USP) General Chapter <63> and <77> (draft) requirements. It can be applied in both manual and automated workflows, providing a clear advantage for high-throughput applications and ensuring reproducible results.

2. Test Principle

Cyclus® Bead Extraction is a magnetic bead based system with a two-step binding mechanism that removes impurities in the sample matrix in combination with the washing steps. Finally, nucleic acids are eluted from the magnetic beads using an elution buffer. The eluates are ready for downstream PCR applications.

3. Reagents

Each kit contains reagents for 100 extractions. The expiry date of the unopened package is marked on the package label.

Table 1: List of components and storage conditions

Kit Component	Quantity	Storage Conditions
Lysis Buffer	1x 27.5 mL	Room temperature
Binding Buffer	1x 11 mL	Room temperature
Magnetic Bead Suspension	2x 1.1 mL	Room temperature
Wash Buffer 1	1x 28.42 mL	Room temperature
Wash Buffer 2	1x 28.42 mL	Room temperature
Wash Buffer 3	2 x 22 mL	Room temperature
Elution Buffer	1x 11 mL	Room temperature
Proteinase K	2x 22 mg	Room temperature, ≤-18 °C after reconstitution
Rehydration Buffer	2x 2 mL	Room temperature

The lot specific Quality Assurance Certificate can be downloaded from the MySartorius portal (https://my.sartorius.com).

4. Notes on the Test Procedure

The kit should be used by trained laboratory staff only.

All samples should be considered as potentially infectious and handled with all due care and attention.

Always wear suitable lab wear and disposable gloves.

Do not add bleaching agents or acidic solutions directly to the sample preparation waste. Clean with suitable laboratory detergent and water if any liquid is spilled.

Remnants can be discarded according to local regulations. Performing the tests according to good laboratory practice helps avoiding carry-over contaminations and false positive results and, ultimately, helps obtaining reliable results.

Detailed information can be found in the Safety Data Sheets (SDS). Please request these via pcr@sartorius.com.

4.1 Handling and equipment recommendations

These instructions must be understood to successfully use Cyclus® Bead Extraction. The reagents supplied should not be mixed with reagents from different LOTs but used as an integral unit. The reagents of the kit must not be used beyond shelf life.

Any deviation from the extraction protocol may affect the results.

To include Internal Controls (IC), Negative Controls and External Positive Controls (EPC) is required by the regulatories EP 2.6.7 Issue 12.2. This also proves advantageous in case of troubleshooting. A more detailed description how to include controls is given below.

Do not use alcohols other than 1-propanol (≥ 99,5%) as it will lead to inconsistent yields.

In case a magnetic rack or an extractor are not available, the sample tubes containing the magnetic beads can be centrifuged for 10 seconds at full speed at room temperature to pellet the magnetic beads.

It is of crucial importance to resuspend the Magnetic Bead Suspension properly before adding it to the Binding Buffer. Improper resuspension of magnetic beads can lead to non-homogenous extraction results and a reduced efficiency of the extraction.

Following instructions should be considered when carrying out the manual extraction protocol:

1. Bring the magnetic rack into contact with tubes:
   Magnetic beads form a pellet at the side of the magnet very quickly. Speed and stability of the magnetic bead pellet is influenced by the strength of the magnet. When pelleting is insufficient, increasing the incubation time is advisable.

2. Thorough mixing of the sample with the beads:
   For thorough mixing of the sample with the magnetic beads, it is advised to use a shaker. Shaking can be assisted by short vortexing steps of 5-10 seconds.

3. Removal of supernatant:
   As much supernatant as possible should be removed from the magnetic bead pellet. For this purpose, several aspiration steps are recommended. When removing liquid, pay attention to aim the pipette tip towards the tube wall and not towards the bead pellet to insure integrity of the bead pellet.

4. Constant shaking:
   During the binding step, settling of the magnetic beads should be avoided. This can be achieved by constant agitation of the sample by shaking or vortexing.

5. Allow residual ethanol to evaporate:
   After the final wash step, ensure that any remaining ethanol is completely evaporated at room temperature before proceeding to the elution step. Residual ethanol may inhibit downstream applications such as PCR.

5. Needed but not included

For handling Cyclus® Bead Extraction, a magnetic rack is required. Alternatively, the kit can be used with an automated extraction device.
Cyclus® Bead Extraction contains reagents and components for isolating DNA/RNA from various sources. Additional consumables and equipment are supplied by the user:

Consumables

- Laboratory gloves
- 1-propanol, ≥ 99,5%, p.a.
- 1.5 mL, 2 mL or 5 mL RNase-free reaction tubes for manual extraction (preferably low-bind)

Equipment

- Magnetic rack, e.g. DynaMag™-2 Magnet (Thermo Fisher Scientific)
- Thermoshaker for temperatures up to 70 °C
- Microcentrifuge for 1.5 mL (2 mL or 5 mL) reaction tubes
- Vortex
- Pipettes (Suitable pipettes and corresponding filter tips are available from Sartorius)
- Optional:
    - Mycoplasma Detection kit, Cyclus® RT-qPCR Mycoplasma (SMB95-6002)
    - For process control or EP-/JP-/USP-compliant testing:
      Cyclus® 100 GC and Cyclus® 10 CFU available for all EP-/JP-/USP-listed mycoplasma species (see table „Related Products“ section)
    - Automated extraction device (e.g. KingFisher™ Flex)
    - DNase- and RNase-free plastic ware for automated extraction

6. Specimen

Cyclus® Bead Extraction is suitable for a wide range of sample matrices commonly encountered in biopharmaceutical and ATMP manufacturing. These include, but are not limited to:

- cell culture supernatants
- suspension and adherent cell cultures
- viral vector preparations (e.g., AAV, LV, adenovirus)
- plasmid- or mRNA-based products
- upstream and downstream intermediates
- formulated drug substances
- cryopreservation media and supplements
- buffer systems, process intermediates and stabilizers

PCR inhibiting substances may accumulate over time in cell culture medium. Medium with more than 12% serum has inhibitory effects on downstream application such as PCR. Moreover, phenol red, a standard ingredient in cell culture medium, might interfere with the optical read-out of fluorescence signals in qPCR. These adverse effects can be circumvented by using Cyclus® Bead Extraction for DNA/RNA isolation and clean-up.

This kit is not intended for the isolation of eukaryotic DNA from cells or tissues.

Due to the diversity and product-specific nature of ATMP and biopharmaceutical sample matrices, matrix-related PCR inhibition must always be assessed by the user. Any new sample matrix or any change in formulation, excipients, or process buffers must be revalidated to confirm that the required analytical sensitivity (<100 GC/mL or ≤10 CFU/mL) can be achieved.

Sample storage recommendations: Extract freshly collected cell culture materials and ATMP samples as soon as possible to ensure optimal nucleic acid integrity. If immediate extraction is not feasible, samples can be stored at -80 °C for up to three months.
Depending on the sample type, storage may be possible for significantly longer periods without measurable DNA/RNA loss. As a general rule, the fresher the sample, the better the extraction performance.

7. Test Procedure

7.1 Initial preparation

1. Prior first use, make sure that the required volumes of 1-propanol are added to the Binding Buffer, Wash Buffer 1, and Wash Buffer 2 (see Table 2).
2. Prepare Proteinase K solution by adding Rehydration Buffer according to Table 2 to the provided vial of Proteinase K and incubate at room temperature for 5 min. Vortex and spin the tube briefly to remove liquid from the lid.
3. Prior to each use, check for the presence of salt precipitates in the washing buffers. In case of presence of precipitates, buffers can be incubated at 37 °C until precipitates have dissolved.
4. Optionally a premix of Magnetic Bead Suspension and Binding Buffer can be added to the lysed sample. For this purpose, mix the Magnetic Bead Suspension thoroughly before adding 20 µL of the Magnetic Bead Suspension to 400 µL of Binding Buffer per sample. For multiple samples, multiply accordingly including a sufficient surplus into the calculation.

Table 2: List of components and addition of volumes of reagents

Component	Quantity	Addition
Binding Buffer	11.0 mL	33 mL 1-propanol
Wash Buffer 1	28.42 mL	14 mL 1-propanol
Wash Buffer 2	28.42 mL	14 mL 1-propanol
Proteinase K	2 vials	1.1 mL Rehydration Buffer each

7.2 Procedure for manual extraction

1.	Label tubes according to the samples to be tested.
2.	Add 20 µL Proteinase K to each tube.
3.	Add 250 µL sample and 250 µL Lysis Buffer.
4.	Set the tubes into a thermoshaker and incubate for 10 min at 65 °C by constant shaking at 1000 rpm.
5.	Thoroughly vortex the Magnetic Bead Suspension and add 20 µL of Magnetic Bead Suspension to each sample. Since the magentic beads settle fast on the bottom of the tube, a homogenous distribution of the beads must be ensured by repeatedly vortexing during the usage of the Magentic Bead Suspension. Add 400 µL of Binding Buffer to each tube. Alternatively: Prepare the binding mix according to Table 3 by thoroughly mixing 400 µL Binding Buffer + 20 µL Magnetic Bead Suspension; subsequently add 420 µL of the binding mix to the sample. The binding mix must be repeatedly vortexed during the usage to endure homogenous distribution of the magnetic beads.
6.	Incubate for 5 min at room temperature and shake constantly at 1000 rpm.
7.	Set the tubes on a magnetic rack and let the magnetic beads pellet for 2 min.
8.	Discard the supernatant.
9.	Remove the tubes from the magnetic rack.
10.	Add 400 µL Wash Buffer 1 to each tube and repeat step 6-9.
11.	Add 400 µL Wash Buffer 2 to each tube and repeat step 6-9.
12.	Add 400 µL Wash Buffer 3 to each tube and repeat step 6-9.
13.	After washing with Wash Buffer 3, repeat steps 7 and 8, and carefully remove as much supernatent as possible.
14.	Remove the tubes from the magnetic rack.
15.	Add 80 µL Elution Buffer to the beads and vortex thoroughly for 30 sec.
16.	Set the tubes into a thermoshaker and incubate the beads for 10 min at 70 °C under shaking at 1000 rpm.
17.	Set the tubes on a magnetic rack and let the magnetic beads pellet for 2 min.
18.	Transfer the supernatant containing the nucleic acids into a fresh tube by pipetting cautiously so that no beads are transferred.
19.	The eluate contains the nucleic acids and can be used directly for PCR or stored at +2 °C to +8 °C for three days. Long-term storage should be at ≤-18 °C.

7.3 Procedure for automated extraction with the KingFisher™ Flex

For the automated extraction with the KingFisher™ Flex plastic materials from Thermo Fisher Scientific are required (96 deep well tip comb and plate, Cat. No.: 97002820).

Moreover, an extraction protocol must be installed on the KingFisher™ Flex.
Create a new protocol directly with the BindIt™ software for KingFisher™ Instruments or install a preconfigured protocol via the software. This preconfigured protocol is available on request via pcr@sartorius.com

Note: The parameters described may also be applicable to other automated extraction systems. However, these systems have not been validated by Sartorius. For assistance with implementation, please contact: pcr@sartorius.com

7.3.1 Manual creation of a protocol:

- Click on **New** in the **Home** tab → Select **KingFisher Flex**
- Click on **New** in the **Layout** tab to insert new plates one after the other and give them names. Keep to the following order: **Binding Plate**, **Washing Plate 1**, **Washing Plate 2**, **Washing Plate 3**, **Elution Plate**, **Comb Plate**.
- Note that all plates are **96 deep well** plates, except for the **Elution Plate**. This is a **standard plate**.
- Enter the volumes of the individual plates one after the other according to Table 3 and assign a **Type**.
  Note: The quantity of magnetic beads and the binding buffer are added in a later step and are therefore not yet editable.

Figure 1: Example input of the 'Binding Plate'

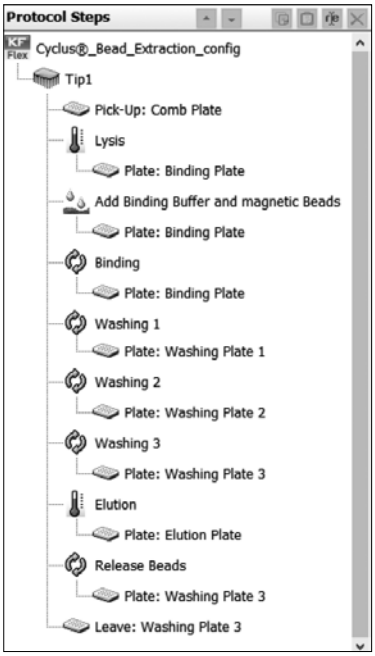


Figure 2: Individual Steps

- Create individual steps in the **Protocol** tab.
- Click **Tip** to add a new step and then individual **Steps**. All **Steps** should be **Mix** steps. Only the **Add Binding Buffer and Magnetic Beads** step is created as a **Pause** step.
- Arrange the steps as shown in Figure 2 so that all steps are between the **Pick-Up** and **Leave** steps.
- Please refer to the Tables 4-8 for the specific settings for temperatures and times of the steps. Note that **Advanced Settings** must be selected for some steps in order to see all settings.
- As the last step, click on **Lock** so that no unwanted changes to the protocol are possible.
- Start with the automated extraction under point 7.3.3

Table 3: Scheme of volumes of extraction reagents for the manual and automated extraction

Step	Component	Volumes
Lysis	Proteinase K Solution	20 µL
	Sample	250 µL
	Lysis Buffer	250 µL
Binding	Binding Buffer + Magnetic Bead Suspension	400 µL + 20 µL
Wash Buffers	Wash Buffers 1-3	400 µL each
Elution	Elution Buffer	80 µL

Table 4: Specific settings for 'Tip1' and 'Pick-Up'

Step	Setting	Entry
Tip1	Tip	96 DW tip comp
Pick-Up: Comp Plate	Comb Plate	96 standard plate

Table 5: Specific settings for 'Lysis' step

Setting	Entry
Precollect	deactivated
Release beads/Speed	00:00:00/Bottom mix
Mix time (first entry field)	00:01:00/ Speed: Slow
Mix time (second entry field)	00:09:00/ Speed: Fast
Mix time (third entry field)	deactivated/(none)
Loop count (1...100)	1
Heating during mixing	activated
Preheat	activated
Block temperature [°C]	65
Postmix	deactivated
Collect beads	deactivated

Table 6: Specific settings for 'Add Binding Buffer and Magnetic Beads' step

Setting	Entry
Dispense	activated
Magnetic Beads Volume [µL]	20
Magnetic Beads Type	Reagent
Binding Buffer Volume [µL]	400
Binding BufferType	Reagent

Table 7: Specific settings for ‘Binding‘ and ‘Washing 1-3‘step

Setting	Entry ‘Binding‘	Entry ‘Washing 1-3‘
Precollect	deactivated	deactivated
Release beads/Speed	deactivated	00:00:02/Bottom mix
Mix time (first entry field)	00:04:00/ Speed: Fast	00:01:00/ Speed: Fast
Mix time (second entry field)	deactivated/(none)	deactivated/(none)
Mix time (third entry field)	deactivated/(none)	deactivated/(none)
Loop count (1...100)	1	1
Heating during mixing	deactivated	deactivated
Preheat	deactivated	deactivated
Block temperature [°C]	–	–
Postmix	deactivated	deactivated
Collect beads	activated	activated
count (1...5)	3	3
collect time (0...30 s)	2	2

Table 8: Specific settings for ‘Elution‘ and ‘Release Beads‘ step

Setting	Entry ‘Elution‘	Entry ‘Release Beads‘
Precollect	deactivated	deactivated
Release beads/Speed	00:00:02/Bottom mix	00:00:20/Bottom mix
Mix time (first entry field)	00:05:00/ Speed: Fast	deactivated/(none)
Mix time (second entry field)	deactivated/(none)	deactivated/(none)
Mix time (third entry field)	deactivated/(none)	deactivated/(none)
Loop count (1...100)	1	1
Heating during mixing	activated	deactivated
Preheat	activated	deactivated
Block temperature [°C]	70	–
Postmix	deactivated	deactivated
Collect beads	activated	deactivated
count (1...5)	3	–
collect time (0...30 s)	5	–

7.3.2 Installing a preconfigured protocol:

The preconfigured protocol for installation is available on request via pcr@sartorius.com

- Unzip the file with the extraction protocol and transfer it to a USB stick.
- Load the extraction protocol on the KingFisher™ Flex via BindIt™ Software.
- Use the arrow buttons on the KingFisher™ Flex to select the appropriate protocol.
- By pressing the **Start** button, you are guided through the selected program and the device is loaded according to the program specifications.

For further details, please refer to the BindIt™ software user manual for the KingFisher™ instruments.

7.3.3 Starting automated extraction

1.	Label deep-well plates and the elution plate with Binding Plate, Washing Plate 1, Washing Plate 2, Washing Plate 3, Elution Plate, and Comb Plate.
2.	Fill deep well plates labelled Wash Buffer 1, Wash Buffer 2 and Wash Buffer 3 with the respective wash buffer. Please ensure that the appropriate amount of 1-propanol is added in advance (see Table 2).
3.	Set the Binding Plate, Washing Plate 1, Washing Plate 2, Washing Plate 3, Elution Plate, and Comb Plate onto the proposed position in the KingFisher™ Flex except the lysis plate.
4.	Add 20 µL of Proteinase K into each well of the lysis plate.
5.	Add 250 µL sample and 250 µL Lysis Buffer into the wells of the lysis plate.
6.	Set the lysis plate into the KingFisher™ Flex and the start the program by pressing “start” on the device.
7.	After the lysis step is finished, the extraction stops automatically, and the lysis plate can be taken out of the extractor.
8.	Thoroughly vortex the Magnetic Bead Suspension and add 20 µL of Magnetic Bead Suspension to each sample. Since the magentic beads settle fast on the bottom of the tube, a homogenous distribution of the beads must be ensured by repeatedly vortexing during the usage of the Magentic Bead Suspension. Add 400 µL of Binding Buffer to each tube. Alternatively: Prepare the Binding mix according to Table 3 by thoroughly mixing 400 µL Binding Buffer + 20 µL Magnetic Bead Suspension per well; subsequently add 420 µL of the binding mix to the sample and incubate for 5 min at room temperature. The binding mix must be repeatedly vortexed during the usage to endure homogenous distribution of the magnetic beads.
9.	Set the lysis plate with the Binding mix into the KingFisher™ Flex and continue the program by pressing “start” on the device.
10.	After the extraction is finished, remove the elution plate from the KingFisher™ Flex. The eluate contains the nucleic acid and can be used directly for PCR or stored at +2 °C to +8 °C for three days. Long-term storage should be at ≤-18 °C.

8. Troubleshooting Guide

This troubleshooting guide provides solutions to common issues that may occur during sample preparation and sample purification.

Issue	Cause	Solution
No or very low DNA/ RNA yield	Very low target concentration in sample (e.g., biologicals or ATMPs without host cells)	Photometric detection may fail in samples with very low DNA/RNA content, but this does not exclude successful detection of trace mycoplasma DNA/RNA.
	Incomplete lysis	Thoroughly mix lysis buffer and maintain incubation time
	Beads not fully resuspended before binding step	Vortex or shake beads before use
Residual contamination/ PCR inhibition (proteins, salts, ethanol)	Residual wash buffer or ethanol in eluate	After final wash step, let remaining ethanol evaporate at room temperature and/or perform an additional wash step
Beads lost during procedure	Careless pipetting or insufficient magnetic separation time	Pipette slowly and wait until magnetic separation is complete
Beads clumping	Improper storage or incomplete resuspension	Store according to instructions, homogenize beads before use

9. Related Products

Detection Kits for qPCR or dPCR

SMB95-6001	Cyclus® dPCR Tool Box Bacteria Fungi	10 samples
SMB95-6002	Cyclus® RT-qPCR Mycoplasma	25 tests
SMB95-1007	Microsart® ATMP Sterile Release	10 samples
SMB95-1008	Microsart® ATMP Bacteria	100 tests
SMB95-1009	Microsart® Research Bacteria	25 tests
SMB95-1012	Microsart® ATMP Fungi	100 tests
SMB95-1014/1013	Microsart® Research Fungi	25/100 tests

Cyclus® 100 GC , 3 vials

SMB95-3001	Cyclus® 100 GC *Mycoplasma arginini*
SMB95-3002	Cyclus® 100 GC *Mycoplasma orale*
SMB95-3003	Cyclus® 100 GC *Mycoplasma gallisepticum*
SMB95-3004	Cyclus® 100 GC *Mycoplasma pneumoniae*
SMB95-3005	Cyclus® 100 GC *Mycoplasma synoviae*
SMB95-3006	Cyclus® 100 GC *Mycoplasma fermentans*
SMB95-3007	Cyclus® 100 GC *Mycoplasma hyorhinis*
SMB95-3008	Cyclus® 100 GC *Acholeplasma laidlawii*
SMB95-3009	Cyclus® 100 GC *Spiroplasma citri*
SMB95-3010	Cyclus® 100 GC *Mycoplasma salivarium*

Cyclus® 10 CFU, 3 vials

SMB95-3011	Cyclus® 10 CFU *Mycoplasma arginini*
SMB95-3012	Cyclus® 10 CFU *Mycoplasma orale*
SMB95-3013	Cyclus® 10 CFU *Mycoplasma gallisepticum*
SMB95-3014	Cyclus® 10 CFU *Mycoplasma pneumoniae*
SMB95-3015	Cyclus® 10 CFU *Mycoplasma synoviae*
SMB95-3016	Cyclus® 10 CFU *Mycoplasma fermentans*
SMB95-3017	Cyclus® 10 CFU *Mycoplasma hyorhinis*
SMB95-3018	Cyclus® 10 CFU *Acholeplasma laidlawii*
SMB95-3019	Cyclus® 10 CFU *Spiroplasma citri*
SMB95-3020	Cyclus® 10 CFU *Mycoplasma salivarium*

Microsart® Calibration Reagent, 10^8 genomes / vial, 1 vial (bacteria)

SMB95-2030	*Bacillus subtilis*
SMB95-2031	*Pseudomonas aeruginosa*
SMB95-2032	*Kocuria rhizophila*
SMB95-2033	*Clostridium sporogenes*
SMB95-2034	*Bacteroides vulgatus*
SMB95-2035	*Staphylococcus aureus*
SMB95-2036	*Mycoplasma salivarium*

Microsart® Calibration Reagent, 10^6 genomes / vial, 1 vial (fungi)

SMB95-2044	*Candida albicans*
SMB95-2045	*Aspergillus brasiliensis*
SMB95-2046	*Aspergillus fumigatus*
SMB95-2047	*Penicillium chrysogenum*
SMB95-2048	*Candida glabrata*
SMB95-2049	*Candida krusei*
SMB95-2050	*Candida tropicalis*

Microsart® Validation Standard, 99 CFU / vial, 6 vials each (bacteria and fungi)

SMB95-2005	*Bacillus subtilis*
SMB95-2006	*Pseudomonas aeruginosa*
SMB95-2007	*Kocuria rhizophila*
SMB95-2008	*Clostridium sporogenes*
SMB95-2009	*Bacteroides vulgatus*
SMB95-2010	*Staphylococcus aureus*
SMB95-2037	*Candida albicans*
SMB95-2038	*Aspergillus brasiliensis*
SMB95-2039	*Aspergillus fumigatus*
SMB95-2040	*Penicillium chrysogenum*
SMB95-2041	*Candida glabrata*
SMB95-2042	*Candida krusei*
SMB95-2043	*Candida tropicalis*

DNA Extraction Kit

SMB95-6000	Cyclus® Bead Extraction (for mollicutes)	100 extractions
SMB95-6003	Cyclus® Bead Extraction Lysis Buffer	27.5 mL
SMB95-2001	Microsart® ATMP Extraction (for bacteria and fungi)	50 extractions
SMB95-4000	Microsart® Proteinase K	50 extractions

Cleaning Spray

SMB95-5001	DNA Decontamination Reagent, spray bottle	250 mL
SMB95-5002	DNA Decontamination Reagent, refill canister	5 L

Cleaning Wipes

SMB95-5003	DNA Decontamination Reagent, wipes	50 wipes
SMB95-5004	DNA Decontamination Reagent, refill sachets	5 × 50 wipes

Limited Product Warranty

This warranty limits our liability for replacement of this product.

No warranties of any kind, express or implied, including, without limitation, implied warranties of merchantability or fitness for a particular purpose, are provided. Minerva Biolabs shall have no liability for any direct, indirect, consequential, or incidental damages arising out of the use, the results of use, or the inability to use this product.

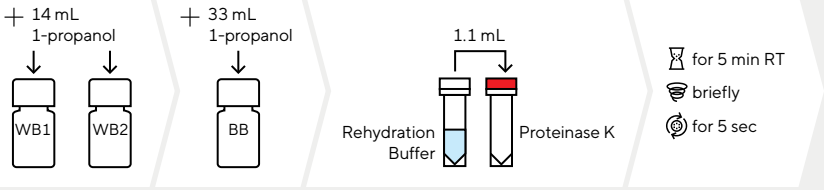
Trademarks

Cyclus and Microsart are a registered trademarks of Sartorius. The third-party brands (KingFisher, DynaMag, BindIt) mentioned are used solely for the purpose of identifying compatible products or products necessary for implementation. They are not affiliated with our company and are the property of their respective rights holders.

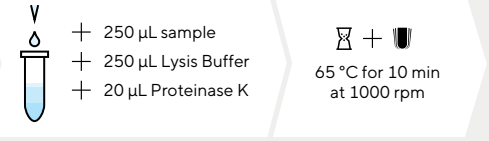
10. Short Instruction

10.1 Manual extraction

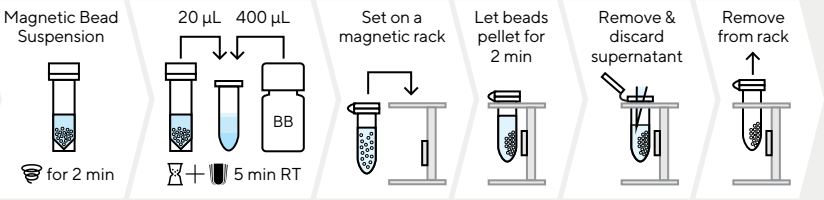
1. Reagent preparation



2. Lysis step

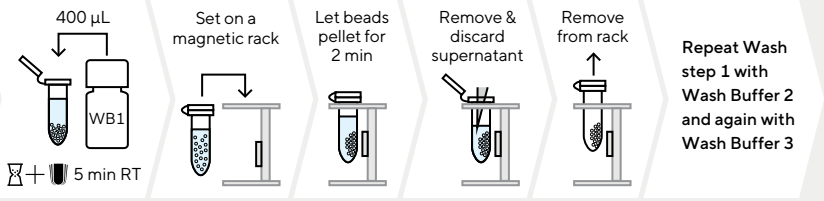


3. Binding step

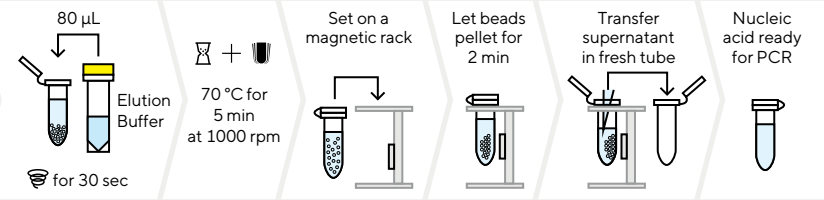


4. Wash step 1

5. Wash step 2-3



6. Elution step



Rehydration Buffer
Proteinase K
Elution Buffer

BB = Binding Buffer
WB1 = Wash Buffer 1
WB2 = Wash Buffer 2

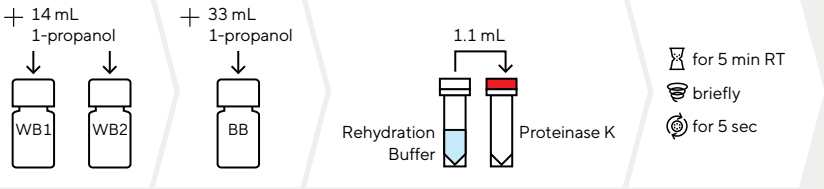
incubate
vortex
centrifuge

add
shake

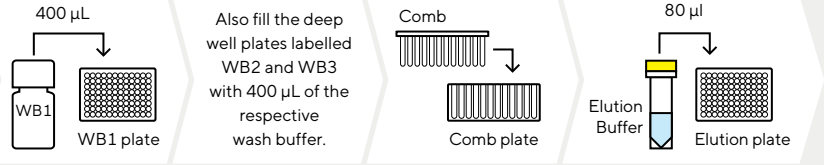
This procedure overview is not a substitute for the detailed manual. ST_SI_Cyclus-Bead-Extraction_manual_03_EN

10.2 Automated extraction with the King Fisher™ Flex

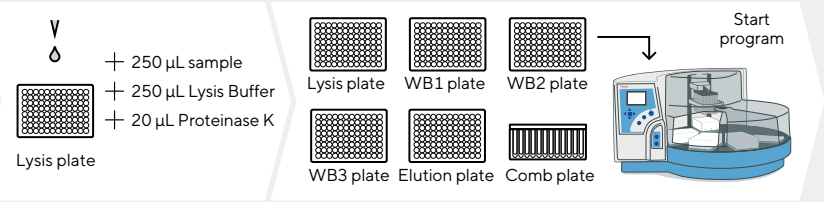
1. Reagent preparation



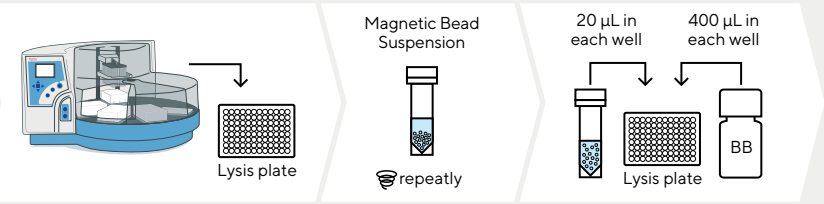
2. Plate preparation



3. Lysis step



4. Binding step



Rehydration Buffer
Proteinase K
Elution Buffer

BB = Binding Buffer
WB1 = Wash Buffer 1
WB2 = Wash Buffer 2
WB3 = Wash Buffer 3

incubate
vortex
centrifuge

\+ add

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