ROBOSCREEN DIAGNOSTICS

Instructions for Use

INSTANT Virus RNA/DNA Kit – FX 2.0

Rev. 0 RUO_ 05 / 2023

Research Use Only

Order No.:

847-0259200908-RUO	2x 96 reactions for 400 µl sample volume

Manufacturer:

Roboscreen GmbH Hohmannstraße 7 04129 Leipzig Germany	Phone: +49 341 989734 0 Fax: +49 341 989734 199	www.roboscreen.com support@roboscreen.com

Content

1 Introduction

1.1 Intended use

The INSTANT Virus RNA/DNA Kit – FX 2.0 is intended for automated isolation of viral RNA and DNA from 400 µl of cell-free biological samples and is optimized for a minimal processing time.

The extraction procedure is based on the magnetic particle binding technology and is optimized for rapid preparation of highly pure viral RNA and DNA from plasma and serum, cerebrospinal fluid and swab- and stool-supernatants.

INSTANT Virus RNA/DNA Kit – FX 2.0 is configured for exclusive use in combination with the CyBio FeliX Basic Unit equipped with the CyBio FeliX Extraction Set, thereby allowing simultaneous processing of up to 96 samples.

For research use only. Not for use in diagnostic procedures.

1.2 Technical assistance

If you have any questions or problems regarding any aspects of the INSTANT Virus RNA/DNA Kit – FX 2.0, please do not hesitate to contact our technical support team. For technical assistance please contact us at the manufacturer site as shown inside the cover of the instructions for use.

CONSULT INSTRUCTIONS FOR USE
The instruction for use must be read carefully prior to use. Given instructions must be followed accordingly. Reliability of results cannot be guaranteed if there are any deviations from the instructions for use.

1.3 Symbols and Abbreviations

The following warning and information symbols are used:

Symbol	Information
	**REF** Catalogue number.
	**Content** Contains number of extractions as indicated.
	**Storage temperature** Store at temperatures between upper and lower limits as indicated.
	**Consult instructions for use** This information must be observed to avoid improper use of the kit.
	**Used by** Expiry date. The product is to be used by the indicated date.
	**Lot number** The lot number of the kit.
	**Manufactured by** Contact information of the manufacturer.
	**For single use only** Single use only. Do not use the product twice.
	**Note / Attention** Observe the notes marked in this way to ensure correct function of the device and to avoid operating errors for obtaining correct results.

The following abbreviations are used:

DEPC	diethylpyrocarbonate
DNA	desoxyribonucleic acid
EDTA	ethylenediaminetetraacetate
IFU	instructions for use
NaOH	sodium hydroxide
PCR	polymerase chain reaction
RNA	ribonucleic acid

2 Safety precautions

☞ **NOTE**

Read through this chapter carefully prior to guarantee your own safety and a trouble-free operation.
Follow all the safety instructions explained in the IFU, as well as all messages and information, which are shown.

Emergency medical information in English and German can be obtained 24 hours a day from:

Poison Information Center, Freiburg / Germany
Phone: +49 (0)761 19 240

2.1 Warning and precautions

For more information on GHS classification please request the Safety Data Sheet (SDS) at the manufacturer site as shown inside cover page of the IFU.

☞ ATTENTION!

The kit shall only be handled by educated personnel in a laboratory environment!

- Pay Attention while handling the materials and reagents contained in the kit. Always wear gloves while handling the reagents and avoid any skin contact! In case of contact, flush eyes, or skin with a large amount of water immediately.
- Do not swallow components of the kit!
- Body fluids like plasma and serum samples must be considered as potentially infectious. Thus, always wear lab coat and gloves.
- Discard sample and assay waste according to your in-house safety regulations. Please observe the federal, state, and local safety and environmental regulations.
- If the buffer bottles are damaged or leaking, wear gloves and protective goggles when discarding the bottles to avoid any injuries.
- Follow the usual precautions for applications using extracted nucleic acids.
- Do not add bleach or acidic components to the waste after sample preparation!
- Always use clean and nuclease-free equipment. All materials and reagents used for DNA or RNA isolation should be free of DNases or RNases.

2.2 Safety recommendations on handling RNA

RNA is far less stable than DNA. RNA is also very sensitive to degradation by endogenous RNases being present in the biological material and exogenous RNases possibly being present on surfaces of laboratory equipment. Surface contaminations with exogenous RNases should be reduced to a minimum by implementation of the following recommendations:

- Always wear latex or vinyl gloves while handling reagents and RNA samples to prevent RNase contaminations from surfaces of the skin or from dusty laboratory equipment.
- Change gloves frequently and keep tubes closed.
- Keep isolated RNA on ice.
- Reduce preparation time as much as possible.
- Non-disposable plastic ware should be treated before use to ensure that it is RNase-free. Plastic ware should be thoroughly rinsed with 0.1 M NaOH, 1 mM EDTA followed by RNase-free water. You can also take chloroform-resistant plastic ware rinsed with chloroform to inactivate RNases.
- To ensure absence of RNase-activity, glassware should be cleaned with detergent, thoroughly rinsed and oven baked at 240° C for at least four hours before use. This also destroys nucleic acids possibly being present on the surface of the glassware. Glassware can also be cleaned by immersing in 0.1% DEPC for 12 hours at 37° C followed by autoclaving or heating to 100° C for 15 minutes to remove residual DEPC. Autoclaving alone is not suitable to completely inactivate RNase activity!
- Avoid handling bacterial cultures, cell cultures or other biological sources of RNases in the same lab where the RNA purification will be performed.
- Do not use equipment, glassware and plastic ware employed for other applications which might introduce RNase contaminations in the RNA isolation.

2.3 Starting material

INSTANT Virus RNA/DNA Kit – FX 2.0 is intended for extraction of viral nucleic acids from the following starting material:

- Fresh or frozen cell-free body fluids (serum, plasma, cerebrospinal fluid and stool).
- Plasma should be stabilized with EDTA or citrate only, since Heparin could interfere with PCR applications
- Swab collected specimen taken from epithelial surfaces
- 400 µl sample volume

NOTE
Avoid freezing and thawing of starting material.

2.4 Restrictions

If other than the recommended sample types or volumes are used the obtained results may be incorrect.

Extracted nucleic acids should be used for downstream analytical processes immediately since Elution Buffer (EB) is not suitable for long-term storage of nucleic acids.

Do not use expired components.

Do not mix components belonging to kits with different lot numbers.

3 GHS Classification

Com-ponent	Hazard contents	GHS Symbol	Hazard phrases	Precaution phrases	EUH
PK	Proteinase K 50-100 %		315, 319, 334, 335	280, 260, 308+313, 342+311 305+351+338,302+352,501	-
LS	Dihydrate (Ethylenedinitrilo) Tetraacetic Acid, Disodium Salt 0,1-1,0 % Guanidinium thiocyanate 40-50 %		302, 332, 314, 412	260, 280, 308+310, 305+351+338, 303+361+353, 273, 405, 501	032
BS	Guanidinium thiocyanate 30-40 % Propan-2-ol 10-25 %		225, 302, 332, 336, 314, 412	210, 260, 280, 308+310, 305+351+338, 303+361+353, 273, 405, 501	032
WS A	Guanidinium chloride 40-50% Propan-2-ol 25-35%		225, 302, 315 ,319, 336	210, 260, 280, 308+310, 305+351+338, 303+361+353, 501	

3.1 Hazard phrases

225	Highly flammable liquid and vapour.
302	Harmful if swallowed.
314	Causes severe skin burns and eye damage.
315	Causes skin irritation.
319	Causes serious eye irritation.
332	Harmful if inhaled.
334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
335	May cause respiratory irritation.
336	May cause drowsiness or dizziness.
412	Harmful to aquatic life with long lasting effects.

3.2 Precaution phrases

210	Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources. No smoking.
260	Do not breathe dust/fume/gas/mist/vapors/spray.
280	Wear protective gloves/protective clothing/eye protection/face protection.
308+310	IF exposed or concerned: Immediately call a POISON CENTER/doctor.
308+313	IF exposed or concerned: Call a POISON CENTER/doctor.
342+311	If experiencing respiratory symptoms: Call a POISON CENTER/doctor.
305+351+338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
302+352	IF ON SKIN: Wash with plenty of water.
303+361+353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
273	Avoid release to the environment.
405	Store locked up.
501	Dispose of contents/container to special waste collection point.

3.3 EU hazard statements

032	Contact with acids liberates very toxic gas.

4 Kit components, storage and stability

4.1 Kit components

Reference number, kit content and number of tests are indicated in the following table.

REF			**847-0259200908**
Description			**Σ 2 x 96**
MAG		Magnetic Particle Suspension	2 x 9 ml
PCR grade H_2O		RNase free water	2 x 10 ml
PK		Proteinase K, lyophilized (For 1.5 ml working solution each)	7 x 30 mg
LS		Lysis Solution	1 x 110 ml
BS		Binding Solution	2 x 100 ml
WS A		Wash Solution A	2 x 70 ml
WS B		Wash Solution B, concentrated	2 x 30 ml
EB		Elution Buffer	2 x 70 ml
IFU		Instructions for use	1

4.2 Storage and Stability

INSTANT Virus RNA/DNA Kit – FX 2.0 is delivered at ambient temperature.

Upon arrival, store lyophilized **PK** and **MAG** at 2° C to 10° C.

All other components should be stored at room temperature and remain in the kit box.

Under these conditions, the kit has a shelf life as indicated on the labelling of the kit box.

Aliquot dissolved **PK** and store at -40° C to -15° C. Repeated freezing and thawing will reduce activity dramatically!

Component	Storage conditions
MAG	2° C to 10° C
PCR grade H_2O	2° C to 30° C
PK, lyophilized	2° C to 10 ° C
PK, dissolved	-40° C to -15° C
LS	15° C to 30° C
BS	15° C to 30° C
WS A	15° C to 30° C
WS B	15° C to 30° C
EB	15° C to 30° C

Sealed plates prefilled with WS A, WS B, EB and BS can be stored at 15° C to 30° C in the dark for up to 4 days.

5 Necessary laboratory equipment

5.1 Required Instrumentation and accessories

Component	Manufacturer	Order number
CyBio FeliX Basic Unit	Analytik Jena	OL5015-24-100
Laptop with Application Studio software	Analytik Jena	820-90002-2
CyBio FeliX Extraction Set	Analytik Jena	OL5015-25-120
FX Filter Tips 1000 µl	Roboscreen GmbH	847-FX-TIPS-1000

5.2 Required consumables

Component	Manufacturer	Order number
Prefilling Set 400 – FX	Roboscreen GmbH	847-0259200924
Plate Set 400 Rapid – FX	Roboscreen GmbH	847-0259200936

5.3 Explanation of the CyBio FeliX Extraction Set

Please use accessories only with supports listed in the table below! Usage of other supports or no support may cause damages of the CyBio FeliX.

Accessories	Support	Abbreviation used in the IFU
96-Channel Magazine (OL3810-13-023)	Support; 97 mm height (OL3317-11-105)	CM96/1000 + S97
Gripper (OL3317-11-800)	Support; 37 mm height (OL3317-11-120)	Gripper + S37
Cover Magazine Head R (OL30-3316-200-11)	Support; 37 mm height (OL3317-11-120)	Cover magazine Head R + S37
8-channel-adapter (OL3317-11-330)	Support; 37 mm height (OL3317-11-120)	8-channel adapter + S37
Tip Transfer Tool (OL3396-25-354)	-	-

☞ ATTENTION!

Use of tips and plates not listed in the IFU may cause a heavy damage of the CyBio FeliX and a loss of guarantee.
Also, usage of components/reagents not listed in the IFU may cause severe malfunction of the automated process and loss of samples!

5.4 Recommended Products

Component	Manufacturer	Order number
Carrier RNA (6 tubes - for 400 µl protocol)	Roboscreen GmbH	847-0206201002

5.5 General laboratory equipment required

- Ethanol >96%

  Use only absolute/pure ethanol, but never methylated or denatured alcohol!
- Calibrated pipettes and suitable filtered tips
- Calibrated Multi-Pipette
- 5- and 10-ml Combi-Tip
- Centrifuge
- Vortex mixer
- Sample rack
- Gloves, lab coat
- Tubes, 25 and 50 ml
- Measuring cylinder, 25, 50 and/or 100 ml

6 Test description and principle

6.1 Principle of the INSTANT Virus RNA/DNA Kit – FX 2.0

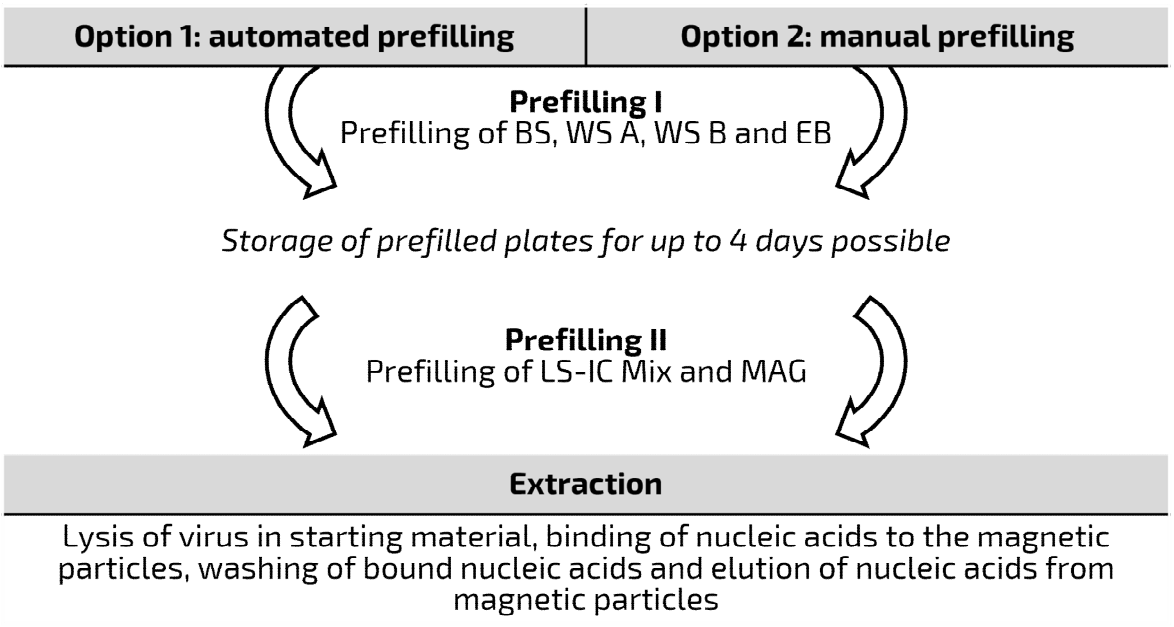
INSTANT Virus RNA/DNA Kit-FX 2.0 is a nucleic acid extraction kit based on the magnetic particle technology for reversible binding of nucleic acids to a solid phase. In combination with the Liquid handling station CyBio Felix Basic Unit and the Cybio FeliX Extraction Set up to 96 samples with a volume of 400 µl can be automatically processed in parallel.

The automated extraction process is subdivided into two steps – prefilling and extraction. Two prefilling options are available:

Option 1: automated Prefilling I followed by automated Prefilling II (Is recommended for optimal downstream performance)
Option 2: alternatively, Prefilling I and II can also be carried out manually

Plates prefilled with BS, WS A, WS B and EB can be stored in the dark for up to 4 days after sealing with sealing foil. This opens the opportunity to produce several sets of prefilled plates in advance and to subsequently run a series of extractions.

After accomplishment of the Prefilling II the extraction step must be started immediately. This is due to limited stability of MAG and LS-IC Mix.



Note

For storage cover prefilled plates with sealing foils. Store prefilled plates at 15° C to 30° C in the dark. If more than one Preflling I is done in one day, the 2-well reservoir plates can be reused.

6.2 Duration of the procedures

Process time depends on selected sample number

Times required for process options using	
Prefilling I	5 – 27 min
Prefilling II	3 – 12 min
Extraction	44 min

6.3 Elution Volume

Before extraction the elution volume must be defined.

Adjustable range: **50 – 200 µl**

☞ **ATTENTION**

The elution volume is essential for the concentration of RNA and DNA in the obtained eluates!

7 Sample material

7.1 Collection and handling of blood samples

- For Plasma collect 5-10 ml blood with standard specimen collection tubes using EDTA or citrate as anticoagulant.
- Store whole blood at 2-25° C not longer than 6 hours, centrifuge for 20 min at 800-1600 x g to separate plasma or serum from blood cells and transfer to sterile tubes.
- Plasma or serum samples may be transported at room temperature; do not exceed 6 hours of time after blood collection.
- For long term storage of samples please use your in-house regulations and validated protocols. Commonly used protocols recommend storage of plasma and serum samples at -70° C or lower temperatures, use of screw-cap tubes and avoidance of repeated freezing and thawing.

7.2 Sample preparation for viral NA extraction from swabs

- For swabs that are stabilized in transport medium, e.g., AMIS or UTM are suitable.
- In case of using dry swabs please carry out the following preparation instructions before continuing with the protocol.

Preparation for dry swabs

1. Place the swab into a 2.0 ml reaction tube containing 500 to 1000 µl physiological saline (0.9% NaCl) and incubate for 15 minutes at room temperature.
2. Stir with swab to dissolve the sample in the physiological saline.
3. Wring out residual liquid of the swab at the inner wall of the tube and remove the swab.
4. Proceed with **400 µl of the particle-free sample**.

7.3 Sample preparation for viral NA extraction from stool

In case of using stool as starting material please carry out the following preparation instructions with the protocol.

1. Collect 1 gram or 1 ml stool, respectively with standard specimen collection tubes
2. Samples may be transported at room temperature, do not exceed the time 1 day after sample collection. Otherwise ensure transport on ice
3. Samples may be stored deeply frozen for several months at -20° C to -70° C. Sample stability depends on the chosen storage temperature.

Preparation for stool sample

1. Transfer about 0.1 g of the stool sample into a 1.5 ml reaction tube and add 1000 µl PBS.
2. Resuspend by vortexing the sample for 5 seconds and centrifuge it at max. speed for 3 minutes.
3. Proceed with **400 µl of the particle-free sample**.

☞**NOTE**

If the stool sample is very solid extend resuspension time and separate the sample into smaller pieces by pipetting up and down. It may be necessary to cut off the pipette tip to increase the opening. If obtained eluates are cloudy, we recommend clarifying the eluates by centrifuging for 3 minutes at maximum speed (20,000 x g).

8 Procedure

8.1 Preparation

8.1.1 Preparation of pipetting plan

It is recommended to create a pipette plan before starting the extraction procedure to keep identity and traceability of samples. To achieve this, note the coordinates of used wells of the 96 well plate for every sample.

Samples are to be added to the sample plate in the order left to right and top to bottom (see section 8.5).

8.1.2 Preparation of WS B

1. Add **45 ml of >96% absolute/pure ethanol** to the bottle of the wash solution **WS B**.
2. Close the bottle with the screw cap and invert the bottle 5 times.

8.1.3 Preparation of PK

1. Centrifuge the **PK** tubes briefly at full speed to collect the lyophilized Proteinase K on the bottom of the tube.
2. Add **1.5 ml of PCR grade H_2O** to each vial of the **PK**.
1. Close the tubes, mix by vortexing briefly followed by brief centrifugation to collect the solution on the bottom.

8.1.4 Preparation of Internal Control and Carrier RNA

INSTANT Virus RNA/DNA Kit – FX 2.0 allows implementation of Carrier RNA and an internal positive control (IC).

Carrier RNA can prevent RNA degradation and can increase the yield of viral nucleic acid extraction (please refer to section 5.4 Recommended products).

For PCR applications an internal control (IC) added to the nucleic acid extraction procedure allows monitoring of accurate execution of the nucleic acid extraction and the subsequent PCR analysis. For appropriate IC concentration please refer to your PCR protocol.

8.1.5 Preparation of Carrier RNA and IC

If Carrier RNA (please see section 5.4) is used, prepare as following.

1. Centrifuge needed amount of Carrier RNA Tubes briefly at full speed to collect the lyophilisate on the bottom.
2. Add **520 µl PCR grade H_2O** per tube and mix by vortexing briefly followed by brief centrifugation to collect the solution on the bottom.

If IC is used, prepare IC solution, and adjust concentration according to your protocol.

8.1.6 Preparation of LS-IC Mix

It is not possible to store **LS-IC Mix**. For this reason, prepare the **LS-IC Mix** shortly before starting prefilling II and continue with the extraction procedure.

1. In case using Carrier RNA or IC please refer to **9.1 LS-IC Mix** for the correct ratio of Carrier RNA or IC solution and **lysis buffer (LS)**. The volume of the solutions depending on your sample numbers as indicated.
2. Mix solutions gently by inverting 5 to 10 times and avoid foaming. Do not vortex.

8.1.7 Further preparations

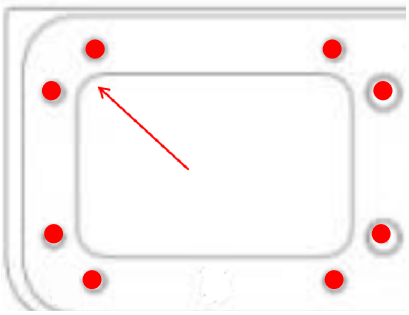
Instrument set up

For instrument set up please follow manufacturer's instructions.

Make sure the dense matt of Head R 96/1000 µl is dust-free. For further information, see instruction for use of the pipetting head.

Remove Cover magazine before starting the protocols ("Maintenance" → "Unmount Adapter").

☞ ATTENTION!



For correct orientation, the mark ‚A1'of the plates must be orientated towards the upper left corner of the deck positions and the plate labelling must be directed to the front (see arrow).

For correct orientation of the supports and adapters make sure the OL-numbers engraved on the articles point to the front.

Make sure all supports, adapters and plates are correctly placed in the respective deck position and safely positioned between holders (see red dots).

8.2 Manual Prefilling

Plates can be prefilled manually according to **9.2 Manual Prefilling**.

→ Pipette solutions on the bottom of the cavity and keep order of solutions as shown in the tables. Please avoid droplets on the upper vessel wall!
→ Before pipetting **MAG**, make sure to vortex **MAG** vigorously for at least 1 minute. Vortex again after a maximum of 4 pipetting steps and change tip.
→ After prefilling **MAG** and **LS-IC Mix** the extraction part must be carried out immediately as **MAG** and **LS-IC Mix** are not stable for long.

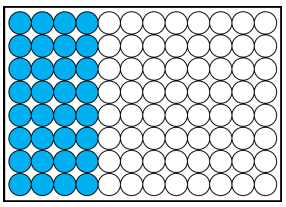
☞ ATTENTION!

Make sure to vortex **MAG** before use vigorously for at least one minute. If **MAG** is not completely homogenized performance can be dramatically reduced

8.3 Prefilling I

1. Preparation of 2-well reservoir plates R1 and R2. Fill solution/ buffer in the reservoir wells corresponding to **9.3 Automated Prefilling I**.
   a. R1 – BS / EB
   b. R2 – WS A / WS B

2. Fill first four columns of **TR96/1000** (Tip Rack) with new tips (see right). Only use the pipetting tips indicated in section 5.1.



3. Deck modification for Prefilling I
   a. Switch on CyBio FeliX and open Application Studio
   b. Click on following buttons in the order described below
      i. Magnetic beads (if available)
      ii. INSTANT Virus RNA/DNA Kit – FX 2.0
      iii. Prefilling I
      iv. Select the number of samples
   c. Open enclosure and set up deck layout according to the scheme presented in the Application Studio.
   d. Close enclosure carefully, check deck layout and confirm with ok.
      → The CyBio FeliX now executes Prefilling I.
   e. After Prefilling I has been carried out open the enclosure and discard reservoir plates and tips.
   f. Then confirm with ok.
   g. If you continue with Prefilling II, see Procedure of Prefilling II. If you continue with another Prefilling I seal prefilled plates with sealing foil and store them as recommended.

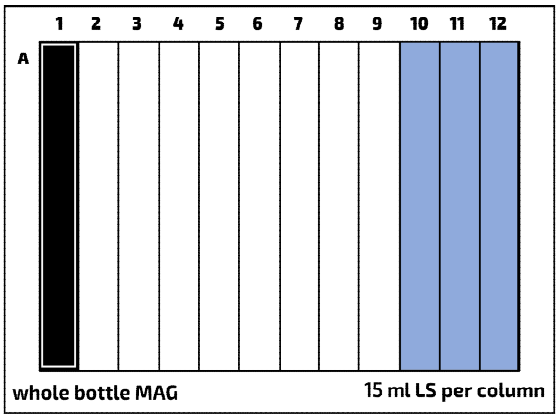
8.4 Prefilling II

1. Vortex **MAG** vigorously for at least 1 minute and immediately fill the homogenized volume of **MAG** suspension into column 1 of 12-well reservoir plate **R3 - MAG / LS - IC** corresponding to **9.4 Automated Prefilling II** (also see filling scheme below).

Attention

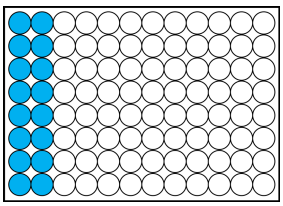
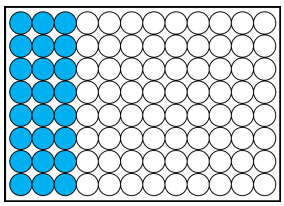
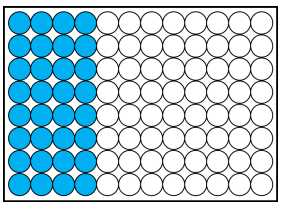
Make sure to vortex **MAG** vigorously before use for at least one minute. If **MAG** is not completely homogenized performance can be dramatically reduced

2. Fill **LS - IC Mix** into cavities of 12-well reservoir plate **R3 - MAG / LS - IC** corresponding to **9.4 Automated Prefilling II** (also see filling scheme below).



Filling scheme of the R3 - MAG / LS – IC Mix. Depicted is the filling scheme for 96 samples

3. Fill TR96/1000 (Tip Rack) with new tips. TR96/1000 is filled column-wise depending on the number of samples. The required number of columns is depicted in the following scheme. Only use the pipetting tips indicated in section 5.1.

up to 32 samples	40 to 64 samples	72 to 96 samples
		

4. Pipette **50 µl** of the dissolved **PK** on the bottom of each well of plate **P1 - Samples / LS**, e.g., by use of a Multipette and a 5 ml Combitip.

5. Deck modification for Prefilling II
    a. Switch on CyBio FeliX and open Application Studio.
    b. Click on following buttons in the order described below.
        i. Magnetic beads (if available)
        ii. INSTANT Virus RNA/DNA Kit – FX 2.0
        iii. Prefilling II
        iv. Select the number of samples
    c. Open enclosure and set up deck layout according to the scheme presented in the Application Studio.
    d. Close enclosure carefully, check deck layout and confirm with ok.
    → The CyBio FeliX now executes Prefilling II.
    e. After Prefilling II has been carried out open the enclosure and discard reservoir plate and tips.
    f. When prefilling is accomplished confirm with ok.

6. Continue with extraction part immediately.

8.5 Extraction

1. Preparation of the sample plate
    a. Mix samples by brief vortexing, followed by brief centrifugation.
    b. Pipette **400 µl** of each **sample** according to your pipetting plan into the wells of plate **P1 - Samples / LS**.

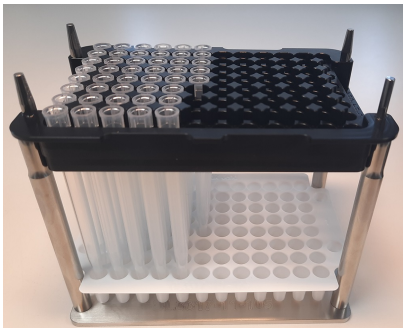
2. Equip **two** sets of **CM96/1000** with **tips** and place a **Protective Plate** as shown in the scheme below. Only use the pipetting tips indicated in section 5.1.
   Place pipetting tips and samples in the order left to right and top to bottom according to your pipetting plan (see example below and section 8.1.1).
    a. Place **Protective Plate** on the bottom of the **S97**.
    b. Put **correct number of tips** according to the number of samples to the specified positions in the **CM96/1000**. If necessary, use **Tip Transfer tool** for a larger number of tips.
    c. Place equipped **CM96/1000** onto the protected **S97**.

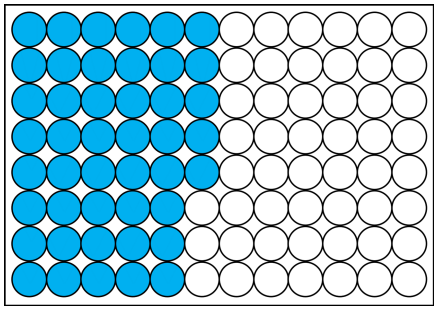
☞ **Attention**

To avoid any technical problems, make sure the **CM96/1000** adapter is dry before use.

	1	2	3	4	5	6	7	8	9	10	11	12
A	Sample 01	Sample 09	Sample 17	Sample 25	Sample 33	Sample 41						
B	Sample 02	Sample 10	Sample 18	Sample 26	Sample 34	Sample 42						
C	Sample 03	Sample 11	Sample 19	Sample 27	Sample 35	Sample 43						
D	Sample 04	Sample 12	Sample 20	Sample 28	Sample 36	Sample 44						
E	Sample 05	Sample 13	Sample 21	Sample 29	Sample 37	Sample 45						
F	Sample 06	Sample 14	Sample 22	Sample 30	Sample 38							
G	Sample 07	Sample 15	Sample 23	Sample 31	Sample 39							
H	Sample 08	Sample 16	Sample 24	Sample 32	Sample 40							

Filling scheme of the sample plate **P1 - Samples / LS.** Depicted is the filling scheme for 45 samples





Filling scheme of **CM96/1000** placed onto **S97** and equipped with a **Protective Plate**.

Depicted is the filling scheme for 45 samples

3. Deck modification for Extraction
    a. Switch on CyBio FeliX and open the Application Studio.
    b. Click on following buttons in the order described below.
        i. Magnetic beads (if available)
        ii. INSTANT Virus RNA/DNA Kit – FX 2.0
        iii. Extraction
    c. Choose the required elution volume. The elution volume can be set in the range of 50 µl to 200 µl (see section 6.3).
    d. Open enclosure and set up deck layout according to the scheme presented in the Application Studio.
    e. Close enclosure carefully, check deck layout and confirm with ok.
        → The CyBio FeliX now executes the extraction.

4. After extraction has been carried out open the enclosure.

5. Take out the micro plate **P7 – Eluates**.

6. Cover plate **P7 – Eluates** with sealing foil to avoid contamination, store on ice and continue with your downstream process immediately.

7. Discard all plates, tips and protective plates.

8. Finish the extraction program by confirming with ok and return to the start screen of the Application Studio.

8.6 Postprocessing

1. After completing your daily routine place the Cover magazine equipped with S37 at deck position 12. Let the Head mount the cover magazine by activating “Maintenance” → “mount adapter”.

2. The following components must be thoroughly disinfected by an immersion bath with instrument disinfectant. Rinse components afterwards thoroughly with water.

   - CM96/1000 + S97
   - TR96/1000

3. Clean CyBio FeliX decks with instrument disinfectant wipes.

4. Contaminations on adapters should be cleaned with dust-free wipes and ethanol. Be careful not to damage electronic parts!

5. Adapters should be stored dust-free, e.g., in bags.

9 Volumes for preparation and prefilling

9.1 LS-IC Mix

Solution	LS	Carrier RNA/ IC
Sample number	**Volume [ml]**	**Volume [µl]**
8	6	150
16	9	225
24	12	300
32	15	375
40	21	525
48	24	600
56	27	675
64	30	750
72	36	900
80	39	975
88	42	1050
96	45	1125

☞ **NOTE**

For preparation of **LS-IC Mix** with other than the Roboscreen Carrier RNA or IC refer to your protocol or to the manufacturer's instruction.

9.2 Manual Prefilling

Plate	Solution / Buffer	Volume per well [µl]
P1 – Samples / LS	PK	50
	LS-IC	400
P2 – Process	BS	450
	MAG	50
P3 – BS	BS	450
P4 – WS A	WS A	600
P5 – WS B	WS B	600
P6 – EB	EB	600

9.3 Automated Prefilling I

Reservoir	R1 – BS/EB		R2 – WS A/WS B	
Cavity	**left**	**right**	**left**	**right**
Solution / Buffer	**BS**	**EB**	**WS A**	**WS B**
Sample number	**Volume [ml]**			
8	13	11	11	11
16	20	16	16	16
24	28	20	20	20
32	35	25	25	25
40	42	30	30	30
48	49	35	35	35
56	56	40	40	40
64	64	44	44	44
72	71	49	49	49
80	78	54	54	54
88	85	59	59	59
96	whole bottle	whole bottle	whole bottle	whole bottle

9.4 Automated Prefilling II

Reservoir	R3 – MAG / LS-IC			
Cavity	**1**	**10**	**11**	**12**
Solution / Buffer	**MAG**	**LS-IC**	**LS-IC**	**LS-IC**
Sample number	**Volume [ml]**			
8	2.4	-	-	6
16	2.8	-	-	9
24	3.2	-	-	12
32	3.6	-	-	15
40	4.0	-	6	15
48	4.4	-	9	15
56	4.8	-	12	15
64	5.2	-	15	15
72	5.6	6	15	15
80	6.0	9	15	15
88	6.4	12	15	15
96	whole bottle	15	15	15

10 Troubleshooting

Low amount of extracted RNA/DNA

- Kit or single kit components were stored under non-optimal conditions. Store kit components according to section Storage and Stability.
- Reagents were not prepared correctly according to the instruction for use → please refer to section General Preparation.
- Ensure to use the required volume of 50 µl Proteinase K per sample.
- Usage of sample material not listed in section Intended use or section Restrictions. Please use the kit only for samples matching the requirements of the kit!
- Use an IC for verification of the extraction procedure.
- Be sure to create a RNase-free working environment. See section 2.2.
- Be sure to process your starting material correctly → please refer to section Sampling Starting Material.
- Use RNA for downstream procedures immediately after elution.

Problems with CyBio FeliX → please refer to „Operating Manual CyBio FeliX"	
Head does not pick up a plate/ accessory	Ensure plates/ accessories are placed correctly in the deck deepening
Head collides with plate/ accessory	Ensure plates/ accessories are placed correctly in the deck deepening
Pipette tips drip	Make sure to clean the sealing mat regularly so that an air-tight contact to the pipette tip is ensured

Bubbles in plate cavities	Be sure that plates are filled correctly → Always use the indicated volume of buffers/ reagents → Be sure to avoid evaporation and/or contamination from plates after prefilling/ elution by immediately sealing the plates with foil

If you have any further questions which are not answered, please contact our technical service.

11 For your notes

For your notes