



# SaMag Extraction kit User Manual

for use with **SaMag-12** and **SaMag-24** automated extraction systems from Sacace Biotechnologies

## ▪ SaMag Viral Nucleic Acid Extraction Kit (SM003)



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# SaMag Viral Nucleic Acids Extraction Kit

## NAME

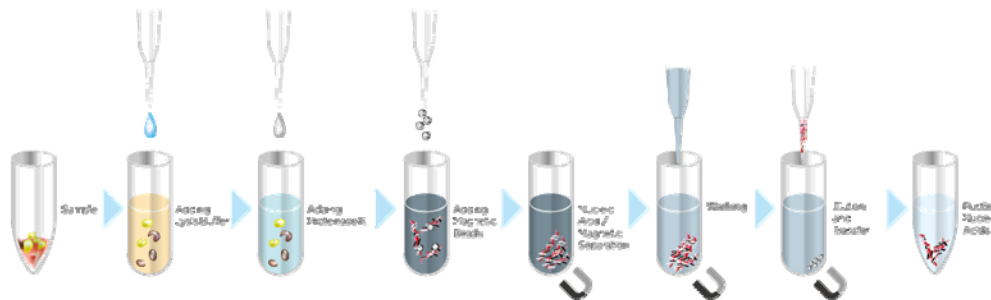
SaMag Viral Nucleic Acids Extraction Kit

## INTENDED USE

SaMag Viral Nucleic Acids Extraction Kit is designed to be used with SaMag-12/24 automatic nucleic acid extraction system for the extraction of Viral DNA or RNA from human biological specimens such as serum, plasma, and other cell-free fluids.

## PRINCIPLE OF ASSAY

The extraction process consists of steps of lysis, binding, washing and elution as figure below.



The prepared nucleic acids are suitable for applications like qPCR, sequencing (NGS), Microarray, RFLP, Southern Blot or any kind of enzymatic manipulation.

## MATERIALS PROVIDED

- Reagent cartridge, 48 pcs (6x8);
- Reaction chamber, 48 pcs (2x 6x4);
- Tip holder, 48 pcs (2x 6x4);
- Filtered tip, 50 pcs (50x1);
- Small tip, 50 pcs (50x1);
- Piercing pin, 50 pcs (50x1);
- Sample tube (2 ml), 50 pcs (50x1);
- Elute tube (1,5 ml), 50 pcs (50x1);
- RNA carrier (1 mg), 1 pc;
- Barcode paper, 1 sheet;

Contains reagents for 48 tests.

## MATERIALS REQUIRED BUT NOT PROVIDED

- SaMag-12/24 Automatic Nucleic Acids Extraction System (Sacace Biotechnologies, Italy)
- Sterile, RNase-free water for RNA carrier reconstitution
- Disposable gloves, powderless
- Micropipettes
- Biological cabinet

## PRODUCT USE LIMITATIONS

All reagents may exclusively be used in in vitro diagnostics. Use of this product should be limited to personnel trained in the techniques of DNA amplification. Strict compliance with the user manual is required for optimal results. Attention should be paid to expiration dates printed on the box and labels of all components. Do not use a kit after its expiration date.

## REAGENT CARTRIDGE CONTENT



well-1	Proteinase K solution	30 µl
well-2	Lysis Buffer 1	720 µl
well-3	Binding Buffer 1	1000 µl
well-4	Magnetic Bead Solution	800 µl
well-5	Washing Buffer 1	1000 µl
well-6	Washing Buffer 2	1000 µl
well-7	Washing Buffer 3	1000 µl
well-8	RNase-free water	1000 µl
well-9	Rnase-free water	1000 µl
well-10	Empty	

## STORAGE

SaMag Viral Nucleic Acid Extraction Kit should be stored at room temperature (15-25°C). Do not freeze the reagent cartridges. The kits are stable under such conditions up to expiration date.

After dissolve the carrier RNA, store it at 4°C (short-term, up to 1 month) or -20°C (long-term). Do not freeze–thaw the Frozen carrier RNA more than 3 times. We suggest to use aliquots for long-term storage (-20°C).

## WARNINGS AND PRECAUTIONS

- Wear disposable gloves, laboratory coats and eye protection when handling specimens and reagents. Thoroughly wash hands afterward.
- Do not pipette by mouth.
- Do not eat, drink, smoke, apply cosmetics, or handle contact lenses in laboratory work areas.
- Do not use a kit after its expiration date.
- Dispose of all specimens and unused reagents in accordance with local regulations.
- Specimens should be considered potentially infectious and handled in biological cabinet in accordance with Biosafety Level 2 or other appropriate biosafety practices.
- Clean and disinfect all spills of specimens or reagents using a disinfectant such as 0,5% sodium hypochlorite, or other suitable disinfectant.
- Avoid contact of specimens and reagents with the skin, eyes and mucous membranes. If these solutions come into contact, rinse immediately with water and seek medical advice immediately.
- Material Safety Data Sheets (MSDS) are available on request.
- Use of this product should be limited to personnel trained in the techniques of DNA amplification.
- Workflow in the laboratory must proceed in a uni-directional manner, beginning in the Extraction Area and moving to the Amplification and Detection Area. Do not return samples, equipment and reagents in the area where you performed previous step.

## STARTING MATERIAL

The kit is designed for extraction of viral nucleic acids (e.g., those of HIV, HCV, HBV, or CMV) from plasma or serum, or from a pool of such cell-free body fluids.

After extraction, store the nucleic acid at 4°C (up to 24hours) or -20°C for longer storage. Repeated freeze–thawing is not allowed.

## SPECIMEN COLLECTION AND CONSERVATION

All kinds of biological fluids or semi-fluid samples can be processed e.g. serum, urine or BAL. For successful nucleic acid purification, it is important to obtain a homogeneous, clear and non-viscous sample before loading into the **SaMag** sample tubes. Therefore, check all samples (especially old or frozen ones) for the presence of precipitates.

The purification procedure is optimized for use with 100- 400 µl serum, plasma, CSF, or pretreated urine samples (Blood samples treated with EDTA or citrate as an anticoagulant can be used for plasma preparation). Samples can be either fresh or frozen, provided that they have not been refrozen after thawing. After collection and centrifugation, plasma, serum, or CSF can be stored at 2–8°C for up to 6 hours. For longer storage, we recommend freezing aliquots at –20°C or –80°C. Thaw samples at room temperature (15–25°C), and process the samples immediately when they have equilibrated to room temperature. Do not refreeze the aliquots after thawing. Repeated freeze–thawing leads to denaturation and precipitation of proteins, resulting in reduced viral titers and therefore reduced yields of viral nucleic acids. If cryoprecipitates are visible in the samples, centrifuge at 6800 x g for 3 minutes, transfer the supernatants to fresh tubes without disturbing the pellets, and start the purification procedure immediately.

## CARRIER RNA

Adding Carrier RNA to the samples before extraction is recommended. At first usage prepare Carrier RNA by adding 1.1 ml Rnase free water to the carrier RNA tube (provided with the kit) and mix by vortexing. Store prepared Carrier RNA (1mg/ml) at 2-8°C or at -20°C (aliquoted). Add 5 µl Carrier RNA (for 100 µl sample), 10 µl (for 200 µl sample) or 20 µl (for 400 µl sample) into each Sample Tube to be tested.

## PROTOCOL

To perform extraction start SaMag-12/24 instrument, open door(s) and follow steps indicated in SaMag-12 user manual in chapter “Extraction”.

1. Insert cartridge(s)
- 2. Insert Reaction Chamber(s) \***
3. Insert tip holder(s)
4. Insert piercing pin(s)
5. Insert small tip(s)
6. Insert filtered tip(s)
7. Insert Sample Tube(s) in sample rack
8. Insert 1,5 ml Elute tube(s) in sample rack, with open cap \*\*
9. Load Carrier RNA into Sample tube
10. Under a safe biological cabinet load Sample(s) in Sample tube(s)
11. If provided with the amplification kit, add Internal Control
12. Transfer sample rack into SaMag instrument
13. Close SaMag-12/24 door(s)
14. Use the barcode to select Viral Nucleic Acids Extraction kit Protocol, appropriate Starting Volume, Elution tube used, Elution Volume (suggested values are 400 µl for sample volume, 50 µl for elution volume).
- 14 bis. In case of using SaMag-12 ver. 3.x EVO please use the touchscreen interface to select the Viral Nucleic Acids Extraction kit (code 2003).**

**NOTE: if you select the 1,5 ml Elution tube be sure to use the 1,5 ml Sample Rack and to actually insert 1,5 ml tubes with open cap in elution tube row; if you select the 0,2 ml PCR tube as Elution tube be sure to use the 0,2 ml PCR Sample Rack and to actually insert 0,2 ml PCR tubes containing lyophilized PCR reagents (like Sacace HCV Real TM Quant DX) with open cap.**

**NOTE: In case of using SaMag-12 ver. 3.x EVO please select the correct rack type in the touchscreen interface.**

**\* ALWAYS REMEMBER TO INSERT REACTION CHAMBERS FOR ALL LOADED SAMPLES, OTHERWISE BUFFERS MAY SPILL OUT DAMAGING THE INSTRUMENT, AND IN THAT CASE SACACE BIOTECHNOLOGIES WILL NOT BE HELD RESPONSIBLE.**

\*\* If Sacace HCV Real-TM Quant DX or HBV Real-TM Quant DX kits are used, make use of 0,2 ml PCR sample Rack and insert 0,2 ml PCR lyophilized tubes in PCR Sample Rack with open cap.

Viral RNA/DNA extracted with SaMag Viral Nucleic Acids Extraction Kit is stable for up to one year when stored at –20°C, store it at –70°C or below for longer periods.



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