



SaMag Extraction kit User Manual

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

▪ SaMag Blood DNA Extraction Kit (SM001)



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SaMag Blood DNA Extraction Kit

NAME

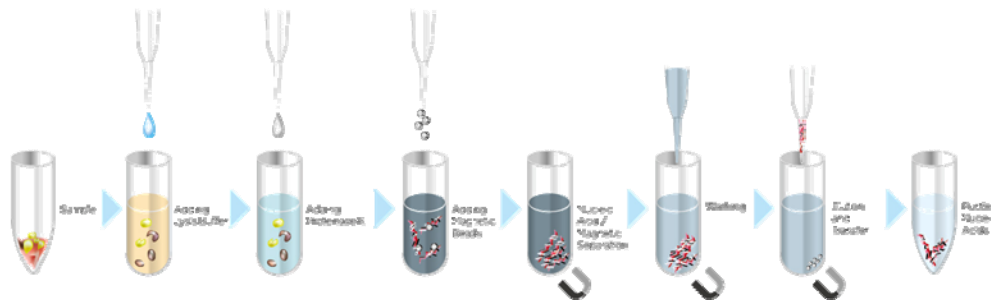
SaMag Blood DNA Extraction Kit

INTENDED USE

SaMag Blood DNA Extraction Kit is designed to be used with SaMag-12/24 automatic nucleic acid extraction system for the extraction of DNA from 100-400µl mammalian whole blood, suspension of mammalian blood cells.

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);
- Piercing pin, 50 pcs (50x1);
- Sample tube (2 ml), 50 pcs (50x1);
- Elute tube (1,5 ml), 50 pcs (50x1);
- 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)
- 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	40 µl
well-2	Lysis Buffer 2	1000 µl
well-3	Binding Buffer 1	600 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	Elution Buffer 1	1000 µl
well-9	Elution Buffer 2	1000 µl
well-10	Empty	

STORAGE

SaMag Blood DNA 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.

Store the purified DNA at 4 °C (short-term) or aliquot and store at -70°C (long-term) before perform the downstream analysis.

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

Sample type	Whole blood, Buffy coat, Leukocyte concentration*
Target nucleic acid	Total DNA (Genomic DNA, mitochondrial and/or viral DNA)**
Sample volume	100-400 µl whole blood (WBC count less than 2×10^4 cells/ µl); 100-400 µl leukocyte concentration (contain no more than 5×10^6 cells); 100-400 µl buffy coat**

NOTE:

*For those samples which have low leukocyte count (less than 1×10^3 cells/µl), concentrate the blood cells by centrifuge at 3000 r.p.m. for 15min under 4°C and take the leukocyte concentration for DNA extraction is recommended.

** If the WBCs no. of blood sample were more than 2×10^4 cells/ µl, dilution of the blood sample with PBS is recommended (e.g. the whole blood sample from lymphoma/myeloma patient or other granulocyte-rich blood sample/buffy coat).

Controls/Optional internal control* Add controls / internal control in the extraction procedure if the downstream analysis needed.

Elute volume 50-300 µl

- If the sample volume is less, add the appropriate volume of PBS;
- SaMag Blood DNA Extraction Kit has proven to work for fresh or frozen blood samples collected in tubes containing common anti-coagulants like EDTA, heparin* and citrate (* the EDTA is recommended to use as anticoagulation agent, while heparin have inhibition effects on nucleic acid amplification reaction);
- Using fresh whole blood sample (within 1 week) for extraction is recommended, the total nucleic acid yield and quality would be decreased by time;
- If the whole blood sample is granulocyte-rich (white blood cell no. more than 2×10^5 cells/ µl), dilute blood sample is recommended;
- For short-term storage (up to 10 days), store the tubes at 2–8°C. However, for applications requiring maximum fragment size, such as Southern blotting, storage purified DNA at 2–8°C for up to 3 days, as low levels of DNA degradation will occur after this time;
- For long-term storage, store the tubes at –70°C. In fact, the extracted product contains total nucleic acid (DNA and RNA), the RNA is not the major product in this kit (about 10%) and would be degraded soon. If the RNA-free product is needed, add some RNase to the eluate.

PROTOCOL

To perform extraction start SaMag-12/24 instrument, open door(s) and follow steps indicated in SaMag 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 filtered tip(s)

6. Insert Sample Tube(s) in sample rack

7. Insert 1,5 ml Elute tube(s) in sample rack, with open cap

8. Under a safe biological cabinet load Sample(s) in Sample tube(s)

9. If provided with the amplification kit, add Internal Control

10. Transfer sample rack into SaMag instrument

11. Close SaMag-12/24 door(s)

12. Use the barcode to select Blood DNA Extraction kit Protocol, appropriate Starting Volume, Elution Volume (suggested values are 400 µl for sample volume, 50 µl for elution volume).

12 bis. In case of using SaMag-12 ver. 3.x EVO please use the touchscreen interface to select the Blood DNA Extraction kit (code 2001).

NOTE: In case of using SaMag-12 ver. 3.x EVO please select the 2 ml rack type in the touchscreen interface.

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

*** 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.**



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