# SaMag Extraction kit User Manual

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

## ▪ SaMag FFPE DNA Extraction Kit (SM009) NEW

| Sample Type | Target Nucleic Acid | Starting Sample Volume | Elution Volume |
|---|---|---|---|
| FFPE (formalin fixed Paraffin Embedded) tissue samples | DNA | 200-300µl/ One to eight 10 µm- thick sections (after proteinase K digestion)* | 50-300 µl |
| Needle biopsy | | 100-400µl/three to ten biopsies | |

*Note: The size of tissue area should be more than 1 x 1 $cm^2$, if the area is smaller, use more than one section for extraction.

***Sacace Biotechnologies Srl***
*via Scalabrini, 44 – 22100 – Como – Italy Tel +390314892927 Fax +390314492493*
*mail: **info@sacace.com** web: **www.sacace.com***

IVD

REF SM009

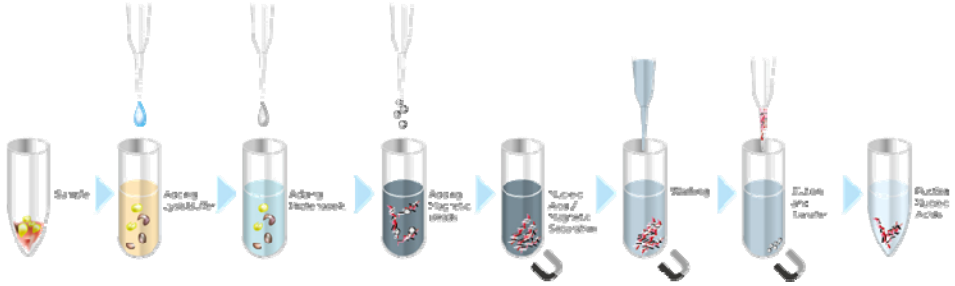
Σ 48

# SaMag FFPE DNA Extraction Kit

## NAME
SaMag FFPE DNA Extraction Kit

## INTENDED USE
SaMag FFPE DNA Extraction Kit is designed to be used with SaMag-12/24 automatic nucleic acid extraction system for the extraction of genomic DNA from FFPE (Formalin-Fixed, Paraffin-Embedded) tissue samples. Providing good quality, high integrity DNA for molecular diagnostics and research works.

## 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);
- Proteinase K (10mg/mL), 1 pc x 1,0ml;
- BL4 Buffer, 1 pc x 25ml;
- DP Buffer, 1 pc x 15ml;
- Filter Column, 50 pcs (50x1);
- Collection tube, 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
- Shaking water bath or thermomixer

## 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 | Empty | |
| well-2 | Empty | |
| well-3 | Binding Buffer 2 | 800 µl |
| well-4 | Magnetic Bead Solution | 800 µl |
| well-5 | Washing Buffer 5 | 800 µl |
| well-6 | Washing Buffer 2A | 800 µl |
| well-7 | Washing Buffer 2A | 800 µl |
| well-8 | Elution Buffer 1 | 800 µl |
| well-9 | Elution Buffer 2 | 800 µl |
| well-10 | Empty | |

## STORAGE

SaMag FFPE 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 performing 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

FFPE (formalin fixed Paraffin Embedded) tissue samples: one to eight 10 µm-thick section(s) after proteinase K digestion*.

**Note: The size of tissue area should be more than 1 x 1 $cm^2$, if the area is smaller, use more than one section for extraction.*

## SPECIMEN COLLECTION AND CONSERVATION

Sample preparation requirements are highly dependent upon the type of starting material. Due to variations in consistency and viscosity, even similar sample types may require distinct handling. The steps below describe some recommendations for processing primary samples
The DNA of FFPE tissue sample is often fragmented which cause problems in molecular assay. Keeping the integrity of DNA is most important thing in whole procedure.

## SAMPLE PREPARATION (PRETREATMENT)

| | |
|---|---|
| **1. Transfer sections** | Transfer sections 5-10 µm of paraffin-embedded tissue into a 1.5/2 ml micro-centrifuge tube |
| **2. Remove paraffin** | Add 200 µl of DP Buffer into micro-centrifuge tube and vortex vigorously for 10 seconds |
| **3. Incubation I** | Incubate at 56°C for 3 minutes and then allow to cool down up to room temperature |
| **4. Add BL4 Buffer** | Add 220 µl of BL4 buffer and mix by vortexing |
| **5. Centrifuge** | Centrifuge at 11,000g for 1 minute |
| **6. Add proteinase K** | Add 20 µl of proteinase K to the lower, blue color phase directly, and mix gently |
| **7. Incubation II** | Incubate at 56°C for 2 hours (or until the sample has been completely lysed) |
| **8. Incubation III** | Incubate at 90˚C for 1 hour |
| **9. Transfer to column** | Transfer 200 µl of lower, blue color phase into filter column sitting in a collection tube. Centrifuge at 6000 xg, 1min. |
| **10. Transfer and start** | Transfer 200 µl of sample into sample tube and start the extraction with SaMag |

## 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 FFPE 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 FFPE DNA Extraction kit (code 2009).**

**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 FFPE 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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