

NUCQX® Magnetic Animal Tissue DNA Kit

Cat. no. LM102101

Address: SHT technology GmbH, Niederhöchstädter Str. 64, 61476 Kronberg im
Taunus, Germany

Tel.: +49 176 34989414

Website: <https://sht-medino.de/>

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Product Information

Product name	NUCQX® Magnetic Animal Tissue DNA Kit
Cat.No.	LM102101
Size	48T/1000 T
Storage and shipping	Part I: Proteinase K and RNase A, Store at 2 ~ 8°C. Transport at room temperature. Shelf life: 18 months. Part II: Store and transport at room temperature. Shelf life: 18 months.

2. Product Description

The NUCQX® Magnetic Animal Tissue DNA Kit is designed for DNA extraction from 5–15 mg animal tissue samples using the magnetic bead method. With its unique magnetic beads and carefully optimized buffer system, it allows for the efficient isolation and purification of high-purity DNA. The extracted tissue DNA is of high purity, stable quality, and reliable, making it suitable for various downstream applications, such as PCR, qPCR, and other molecular biology experiments. This product is also compatible with automated extraction instruments for high-throughput nucleic acid extraction.

3. Components

Comp.	Comp. No.	Comp. Name	LM102101 (48 T)	LM102101 (1000 T)
Part I	LM102101-A	Proteinase K	1.1 mL/vial ×1	31 mL/vial ×1
	LM102101-B	RNase A	6 mg/vial ×1	6 mg/vial ×32
Part II	LM102101-C	RNase A Solvent	1 mL/vial ×1	1 mL/vial ×32
	LM102101-D	Lysis Buffer	11 mL/bottle ×1	262 mL/bottle ×1
	LM102101-E	Lysis Binding Buffer	33 mL/bottle ×1	377 mL/bottle ×2
	LM102101-F	Magnetic Bead Suspension	1.1 mL/vial ×1	31 mL/vial ×1

	LM102101-G	Wash Buffer A	38 mL/bottle x1	446 mL/bottle x2
	LM102101-H	Wash Buffer B	38 mL/bottle x1	446 mL/bottle x2
	LM102101-I	Wash Buffer C	38 mL/bottle x1	446 mL/bottle x2
	LM102101-J	Elution Buffer	6 mL/bottle x1	147 mL/bottle x1

Note: The Part II components for LM102101ES98 are supplied in two separate packages.

4. Safety and handling precautions

1. Several buffers in this kit contain guanidine salts. For your safety and health, please wear a lab coat and disposable gloves, and handle the reagents according to standard safety precautions. Avoid contact of the buffer solutions with skin, eyes, and mucous membranes. In the event of accidental contact, immediately rinse thoroughly with copious amounts of water and seek medical attention.
2. If any solution develops a precipitate, warm it in a 30°C water bath until the precipitate is completely dissolved before use.
3. If the lysis enhancer solution precipitates, warm it in a 60°C water bath until the precipitate is fully dissolved prior to use.
4. If the magnetic bead suspension freezes, do not use it. During elution, residual beads may be present; therefore, take care to avoid aspirating beads when handling samples.
5. Several buffers in this kit contain guanidine salts. Do not treat them with oxidizing disinfectants (e.g., sodium hypochlorite), as doing so may release toxic gases. These materials must be disposed of as medical waste.

5. Instructions for Use

Reagent Preparation

- Before starting the experiment, check all solutions for precipitates and ensure that magnetic beads can be resuspended fully.
- Dissolving RNase A (10 mg/mL): Add 0.6 mL of RNase A Solvent to the RNase A vial to achieve a final concentration of 10 mg/mL. Invert or gently vortex until RNase A is fully dissolved. Store the dissolved RNase A at -20°C to 8°C.

Sample Preparation

Weigh 5-15 mg of animal tissue (for liver, lung, or spleen, it is recommended to use less than 10 mg) into a 1.5 mL microcentrifuge tube. Add 200 µL Lysis Buffer and 20 µL Proteinase K. Homogenize thoroughly using a tissue homogenizer, then add 10 µL RNase A and vortex to mix. Incubate at 60°C with shaking for 30-120 minutes or until the sample is completely digested. If the heating device does not provide shaking, vortex multiple times during incubation to facilitate lysis and digestion.

Note: For difficult-to-digest tissues such as mouse paws or tails, first add 200 µL Lysis Buffer and 20 µL Proteinase K, vortex to mix, then incubate at room temperature for 30 minutes until the tissue softens. After this, homogenize thoroughly using a tissue homogenizer, add 10 µL RNase A, vortex to mix, and incubate at 60°C with shaking for 30-120 minutes or until completely

digested. If the heating device does not provide shaking, vortex multiple times during incubation to facilitate lysis and digestion. If visible undigested tissue remains, perform a brief spin (30 s) in a mini-centrifuge.

Single-Tube Procedure

1. Add 600 μ L Lysis/Binding Buffer to the heated lysate. (If undigested tissue chunks remain, transfer the solution to a new 1.5 mL tube first, avoiding the undigested chunks as much as possible.)
2. Add 20 μ L of Magnetic Bead Suspension. Shake or vortex for 5–7 minutes to allow the beads to adsorb DNA.
3. Place the tube on a magnetic rack until the solution becomes clear. Aspirate and discard the supernatant.
4. Add 700 μ L Wash Buffer A. Vortex for 10 s to disperse the beads, then return the tube to the magnetic rack until the solution clarifies. Aspirate and discard the supernatant.
5. Add 700 μ L Wash Buffer B. Vortex for 10 s to disperse the beads, then place the tube on the magnetic rack until the solution clarifies. Aspirate and discard the supernatant.
6. Add 700 μ L Wash Buffer C. Vortex for 10 s to disperse the beads, then place the tube on the magnetic rack until the solution clarifies. Aspirate and discard the supernatant.
7. Briefly centrifuge the tube in a microcentrifuge and then return it to the magnetic rack until the solution clears. Thoroughly remove all residual liquid. Open the tube cap and air-dry for 3–5 minutes.

Note: Residual ethanol will inhibit subsequent enzymatic reactions, so ensure complete ethanol evaporation. Do not over-dry, as this may affect elution efficiency.

8. Add 40–100 μ L Elution Buffer and vortex at high speed for 2–3 minutes to fully disperse the beads.
9. Incubate at 60°C for 5 minutes, then vortex at high speed for 30 s.
10. Briefly centrifuge to collect any droplets from the tube cap, then place the tube on the magnetic rack for separation.
11. Transfer the genomic DNA solution into a new microcentrifuge tube for immediate use or store at -15°C to -25°C. For long-term storage, keep at -80°C.

6. Operation with the Medino® AP-16S and AP-48 Nucleic Acid Extraction Instruments

1. Dispense the reagents from the provided bottles into the corresponding wells of a 96-well plate according to the table below: Insert the DNA Binding Column T1 into a 2 mL collection tube and set aside.

Column	Steps	Reagent Name	Volume
1/7	Binding	Lysis/Binding Buffer	600 μ L
2/8	Wash 1	Wash Buffer A	800 μ L
3/9	Wash 2	Wash Buffer B	800 μ L
4/10	Wash 3	Magnetic Bead Suspension	20 μ L (mix well before addition)
		Wash Buffer C	800 μ L
5/11	Elution	Elution Buffer	40–100 μ L

6/12	-	-	-
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- Add the lysate prepared in Step 1.1 into the sample processing wells (columns 1 and 7) and mix by pipetting up and down 3–5 times.
- Place the pre-loaded 96-well plate correctly into the extraction instrument, and insert the 8-rod magnetic bar sleeve (Cat#LM183663). Depending on the instrument model (AP-16S or AP-48), start the corresponding extraction program.
- Run the program. After the program finishes, the solution in the elution wells (columns 5 and 11) is the nucleic acid eluate. The eluate may be stored at -20°C for short-term preservation and at -80°C for long-term storage.

AP-16S Nucleic Acid Extraction Instrument Program

Steps	1	2	3	4	5	6	7
Position	4	1	2	3	4	5	4
Waiting Time	0:00:00	0:00:00	0:00:00	0:00:00	0:00:00	0:01:00	0:00:00
Mixing Mode	M2	M2	M2	M2	M2	M3	M2
Mixing Time	0:00:30	0:00:15	0:01:00	0:01:00	0:01:00	0:05:00	0:00:30
Pause	No	No	No	No	No	No	No
Magnetic Separation Time	0:01:00	0:03:00	0:01:00	0:01:00	0:01:00	0:03:00	0:00:00
Volume (μL)	400	900	800	800	800	100*	800
Temperature	--	25°C	--	--	--	70°C	--
Mixing Mode	M2	Mixing time 10s, mixing speed 12,000 (rpm or instrument-specific units).					
Mixing Mode	M3	Mixing time 10s, mixing speed 18,000 (rpm or instrument-specific units).					

*Note: The elution volume can be adjusted according to the actual volume of Elution Buffer added.

AP-48 Nucleic Acid Extraction Instrument Program

Steps	1	2	3	4	5	6	7
Position	4	1	2	3	4	5	4
Waiting Time	0:00:00	0:00:00	0:00:00	0:00:00	0:00:00	0:01:00	0:00:00
Mixing Mode	M2	M2	M2	M2	M2	M1	M2
Mixing Time	0:00:30	0:00:15	0:01:00	0:01:00	0:01:00	0:05:00	0:00:30
Pause	No	No	No	No	No	No	No
Magnetic Separation Time	0:01:00	0:03:00	0:01:00	0:01:00	0:01:00	0:03:00	0:00:00
Volume (μL)	800	900	800	800	800	100*	800
Temperature	--	25°C	--	--	--	70°C	--
Mixing Mode	M1	Mixing time 10 s, mixing speed 300,000 (instrument-defined units)					
Mixing Mode	M2	Mixing time 10 s, mixing speed 200,000 (instrument-defined units)					

*Note: The elution volume can be adjusted according to the actual volume of Elution Buffer added.

7. Operation with the Medino® AP-96N Nucleic Acid Extraction Instruments

1. Dispense the Reagents into the Corresponding Wells of a 96-Well Plate (Cat#LM183671)

Plate Position	Step	Reagent Name	Volume
Plate 1	Binding	Lysis/Binding Buffer	600 µL
Plate 2	Wash 1	Wash Buffer A	800 µL
Plate 3	Wash 2	Wash Buffer B	800 µL
Plate 4	Wash 3	Wash Buffer C	800 µL
		Magnetic Bead Suspension	20 µL (mix before addition)
Plate 5	—	—	—
Plate 6	Elution	Elution Buffer	40–100 µL

2. Transfer all of the prepared lysate from Step 1.1 into the Plate 1 well (Lysis/Binding Plate) and pipette up and down 3–5 times, taking care to avoid undigested tissue fragments.
3. Place the loaded 96-well plates into the nucleic acid extraction instrument in order, and insert the 96-deep-well magnetic rod sleeve (Cat#LM183661).
4. Run the program. After program completion, transfer the eluate from the Elution Plate (Plate 6) into a new microcentrifuge tube. The eluate can be stored at -20°C for short-term preservation or at -80°C for long-term storage.

AP-96N Nucleic Acid Extraction Instrument Program

Steps	1	2	3	4	5	6	7
Position	4	1	2	3	4	6	4
Waiting Time	0:00:00	0:00:00	0:00:00	0:00:00	0:00:00	0:00:00	0:00:00
Mixing Mode	M2	M2	M2	M2	M2	M1	M2
Mixing Time	0:00:30	0:00:15	0:01:00	0:01:00	0:01:00	0:05:00	0:00:30
Pause	No	No	No	No	No	No	No
Magnetic Separation Time	0:01:00	0:03:00	0:01:00	0:01:00	0:01:00	0:03:00	0:00:00
Volume (µL)	800	900	800	800	800	100*	800
Temperature	--	25°C	--	--	--	70°C	--
Mixing Mode	M1	Mixing time 10 s, mixing speed 300,000 (instrument-defined units)					
Mixing Mode	M2	Mixing time 10 s, mixing speed 200,000 (instrument-defined units)					

*Note: The elution volume can be adjusted according to the actual volume of Elution Buffer added.