

DNA Extraction Kit AutoMag One
User's Manual

Crime Prep Adem-Kit
AutoMag One



Ademtech
Bioparc BioGallien Bat C, 1er Etage, 27 allée Charles
Darwin, 33600 PESSAC, FRANCE
Tel: +33 (0)557 020 201 Fax: +33 (0)557 020 206

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www.ademtech.com

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PRECAUTIONS

I) Before Using

- Do not operate AutoMag One without qualified operation training.
- Read user's manual carefully before operation.

II) Handling Requirement

- Do not use a kit after its expiration date.
- Do not touch the reagents with bare hands. Keep away from your skin, eyes, or mucous membranes. If contact does occur, wash the affected area immediately with large amounts of water. If you spill the reagents, dilute the spill with water before wiping it up.
- Do not allow reagents to mix with sodium hypochlorite solution or strong acids. This mixture can produce a highly toxic gas.

III) Laboratory Procedures

- Handle all samples and the resulting waste as if potentially infectious, using safe laboratory procedures. As the sensitivity and titer of potential pathogens in the sample material varies, the operator has to optimize pathogen inactivation by the Lysis Buffer or take appropriate measures according to local safety regulations. Ademtech does not warrant that samples treated with Lysis Buffer are completely inactivated and noninfectious. After sample processing is completed, remove and autoclave all disposable plastics.
- Do not eat, drink or smoke in the laboratory working area.
- Wear protective disposable gloves, laboratory coats and goggles when handling samples and kit reagents.
- Do not use sharp or pointed objects when working with the reagent cartridges, this is to prevent damage of the sealing foil and loss of reagent.
- Do not contaminate the reagents with bacteria, virus, or ribonuclease. Use disposable pipettes and RNase-free pipette tips only to remove aliquots from reagent bottles.
- Use the general precautions described in the literature.
- In the beginning and at the end of the protocol run, you may optionally choose to perform an UV decontamination run for 30 min.
- Wash hands thoroughly after handling samples and test reagents.

IV) Waste Handling

- Discard unused reagents and waste according to country, federal, state and local regulations.

PRODUCT SELECTION GUIDE

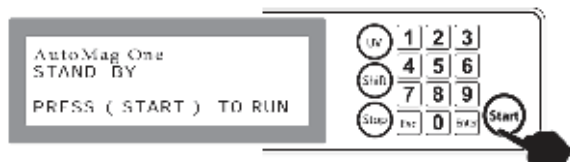
AutoMag One Nucleic Acid Extraction		Cat N°	Blood stains	Hair	Cigarette blunts	Tissues samples (skin, bones ...)	“Touch” DNA samples
Forensic	Crime Prep Adem-Kit AutoMag One (40 preps)	#06214	X	X	X	X	X

EXPLANATION OF THE KIT

Install all necessary accessories in the AutoMag One (Cartridges rack with Cartridge then T-rack with tip and elution tube).

Place the prepared sample tube into well 4 of T-rack.

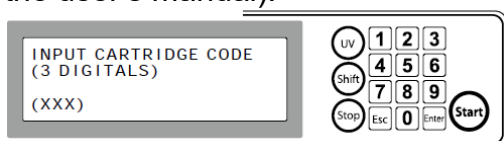
Press Start on the AutoMag One screen.



Machine is now running programs of calibration and initialization.



Enter your input code (Cartridge code is shown on your reagent cartridge and the cover of the user's manual).



Confirm your input code again and press ENTER.

Select your sample volume.

Press ENTER to confirm your sample volume. Otherwise, press ESC to return to Stand-by page.

Press ENTER to access to the next page for elution volume selection.

Select final elution volume as recommended in user manual and Press ENTER.

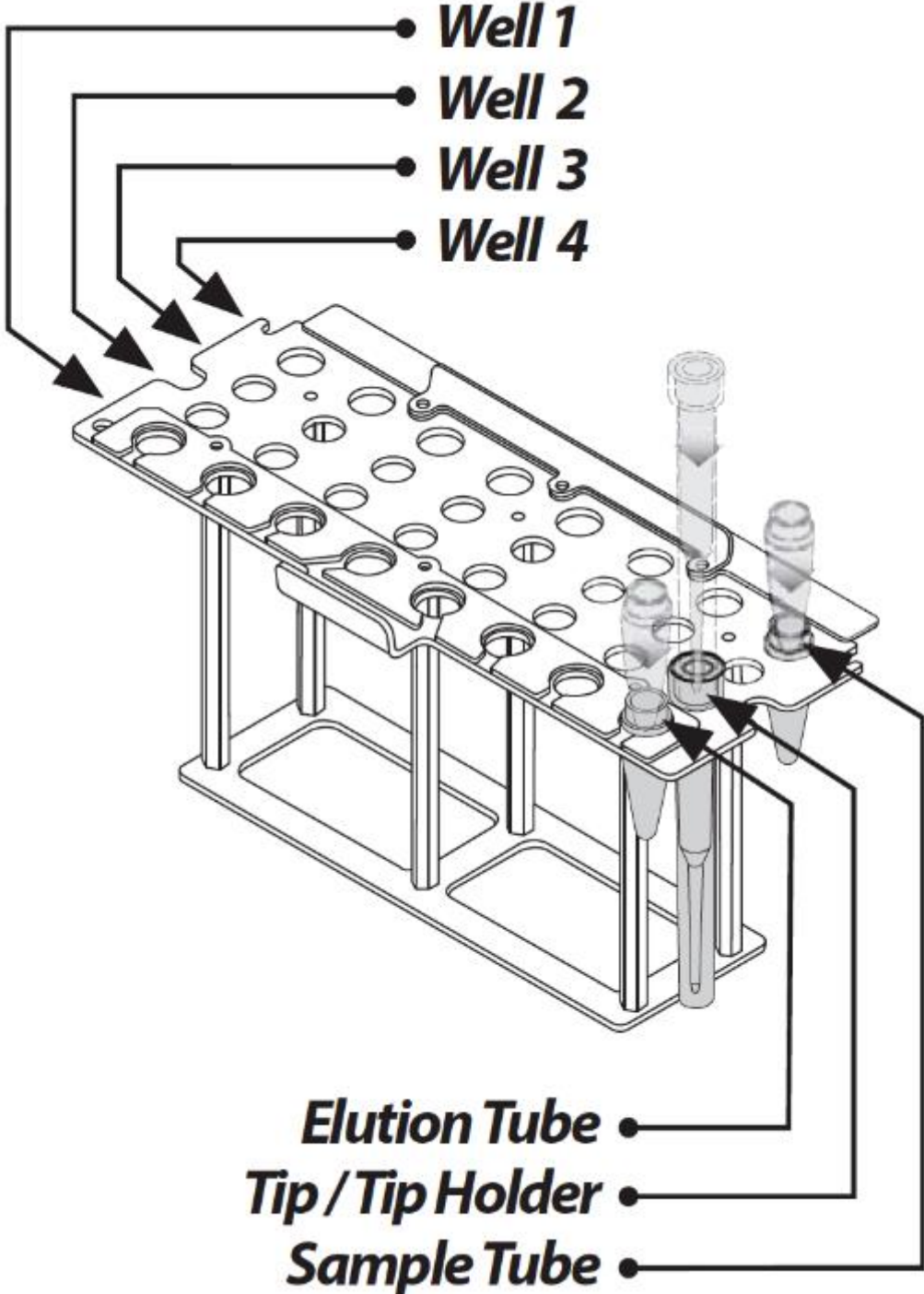
AutoMag One starts the program. The Green indicated LED lights up and Heating Block starts to heat up.

While AutoMag One is under program running, the LCD lights up at all times.

Do not open the front door at this moment, it causes emergency stop and you might lose your samples.

When program is finished, a beep sound can be heard and Green indicated LED light went out.

Position on T-Rack



CRIME PREP ADEM-KIT AUTOMAG ONE

CARTRIDGE CODE 400 CAT. #06214

INTENDED USE

The Crime Prep Adem-Kit AutoMag One is specially designed for optimal DNA extraction from forensic casework samples. The Crime Prep Adem-Kit was developed to improve DNA extraction efficiency from a broad panel of sample types. These samples include blood stains, hair, cigarette butts, tissues samples and “touch” DNA samples regularly encountered in forensic DNA analysis.

KIT CONTENTS

Each Crime Prep Adem-Kit AutoMag One contains sufficient reagents to perform 40 extractions. The content of the kit is described in the table below:

Item	Description	Storage condition
Crime Lysis Buffer	One bottle, 20mL	+2-25°C
Proteinase K	One tube, 2.5mL (concentration 10mg/mL)	+2-25°C
DNA Extraction Cartridge	40 prefilled cartridges	+2-25°C

NOTE! The tips used during the AutoMag One extraction process are not provided in the kit (Cat. #21601)

CARTRIDGE CONTENT



STORAGE CONDITIONS AND STABILITY

The kits are shipped at room temperature.

NOTE 1! Properly stored kits are guaranteed until the expiry date. Note that shipping is realized at room temperature and will not affect stability. All components of the kit have been prepared under nucleases free conditions and have been thoroughly tested to ensure optimal performance.

NOTE 2! Storage conditions

Before using the Crime Lysis Buffer, it is recommended to take it out in advance and check if there are any precipitates. If the Buffer presents precipitates place it at room temperature and eventually put it at +37°C.

PRECAUTION AND WARNING



WARNING! CHEMICAL HAZARD. DNA Extraction Cartridges may contain the following: guanidine thiocyanate, isopropanol, and ethanol. Refer to MSDS, and follow the handling instructions; and disposal.



WARNING! CHEMICAL HAZARD. DNA Extraction Cartridges contains LB Buffer (well 2) which in contact with acids or bleach liberates toxic gases. Harmful if inhaled, absorbed through the skin, and swallowed. Cause eye, skin, and respiratory tract irritation. DO NOT ADD acids or bleach to any liquid wastes containing this product. Avoid breathing vapour. Do not taste or swallow. Use with adequate ventilation. Avoid contact with eyes and skin. Read the MSDS, and follow and handling instructions. Wear appropriate protect eyewear, clothing and gloves.



WARNING! CHEMICAL HAZARD. DNA Extraction Cartridges contains Washing Buffer (well 3) which concentrate causes eye, skin and respiratory tract irritation. Avoid breathing vapor. Use with adequate ventilation. Avoid contact with eyes and skin. Read the MSDS, and follow the handling instructions; Wear appropriate protective, eyewear, clothing, and gloves.

When working with chemicals, always wear a suitable lab coat, disposable gloves, and protective goggles. To avoid contamination of your sample, wear face mask.

Carefully read the protocol integrally before starting.

It is strongly recommended to use the kit after materials / workplace decontamination (UV / disinfectant).

Good laboratory practice is required.

The standard protocol is appropriate for all kind of sample types, such as samples on solid support or differential extraction samples. All protocols involve a Proteinase K treatment, which is required to maximize recovery and yield from a variety of sample types, including small amounts of sample on a solid matrix, such as a swab or fabric. DNA purified using a Proteinase K treatment generally exhibits better locus-to-locus balance in downstream STR analysis.

REQUIRED REAGENTS AND MATERIALS

Reagents required but not provided:

- 1M Dithiothreitol (DTT)

Materials required but not provided:

- Pipettes and sterile filter tips (volumes required 10 µL to 1 mL)
- 56°C heat block, thermomixer or water bath
- Vortex mixer
- Sample tubes (1,5 mL - conical screw-cap microtubes)
- Elution tubes (1.5 mL / 2 mL)

Product range:

The following products are available for purchase separately from Ademtech

CAT N°.	PRODUCT	PACKAGE SIZE
21600	AutoMag One Instrument	1 pc
21601	AutoMag One Tips	100
10801	Bone Lysis Buffer	48 samples
10802	E-Lysis Buffer	48 samples
12102	Forensic Filter	250 samples

PROTOCOL

1. Prepare sample lysates:

2.1 All types of samples except calcified tissues (ex: bone powder)

1. Place the sample at the bottom of a microtube.
2. Add **400µL of Crime Lysis Buffer** to the microtube containing the sample.
3. Add **50µL of Proteinase K** to the microtube containing the sample.
4. Add **15µL of 1M DTT** to the microtube containing the sample.

NOTE! It is recommended to prepare a fresh premixed lysis solution by combining 400µL of Crime Lysis Buffer, 50µL of Proteinase K and 15µL of 1M DTT per test.

Crime Lysis Buffer 400µL	}	x number of extractions
Proteinase K 50µL		
1M DTT 15µL		

In this case, add 465µL of premixed lysis solution to the microtube containing the sample.

5. Close the tube, homogenize and place it in a thermomixer, then incubate at +56°C and 1000rpm for 1hour.

NOTE! For adhesive samples, we recommend an incubation time at +56°C and 1000rpm for 2 hours.

IMPORTANT! You can use a heat block or a water bath instead of a thermomixer. For effective recovery, make sure that the sample is immersed by the Lysis Solution during incubation.

6. Perform DNA extraction with 400µL of lysate on Automag One Instrument

1.2 Calcified tissues (ex: Bone powder)

1. Place **100mg of bone powder** at the bottom of a microtube.
2. Add **400µL of Bone Lysis Buffer (#10801)** to the microtube containing the sample.
3. Add **50µL of Proteinase K** to the microtube containing the sample.
4. Add **15µL of 1M DTT** to the microtube containing the sample.

NOTE! It is recommended to prepare a fresh premixed lysis solution by combining 400µL of Bone Lysis Buffer, 50µL of Proteinase K and 15µL of 1M DTT per test.

Bone Lysis Buffer 400µL	}	x number of extractions
Proteinase K 50µL		
1M DTT 15µL		

In this case, add 465µL of premixed lysis solution to the microtube containing the sample.

5. Close the tube, homogenize and place it in a thermomixer, then incubate at +56°C and 1000rpm for 2hours.

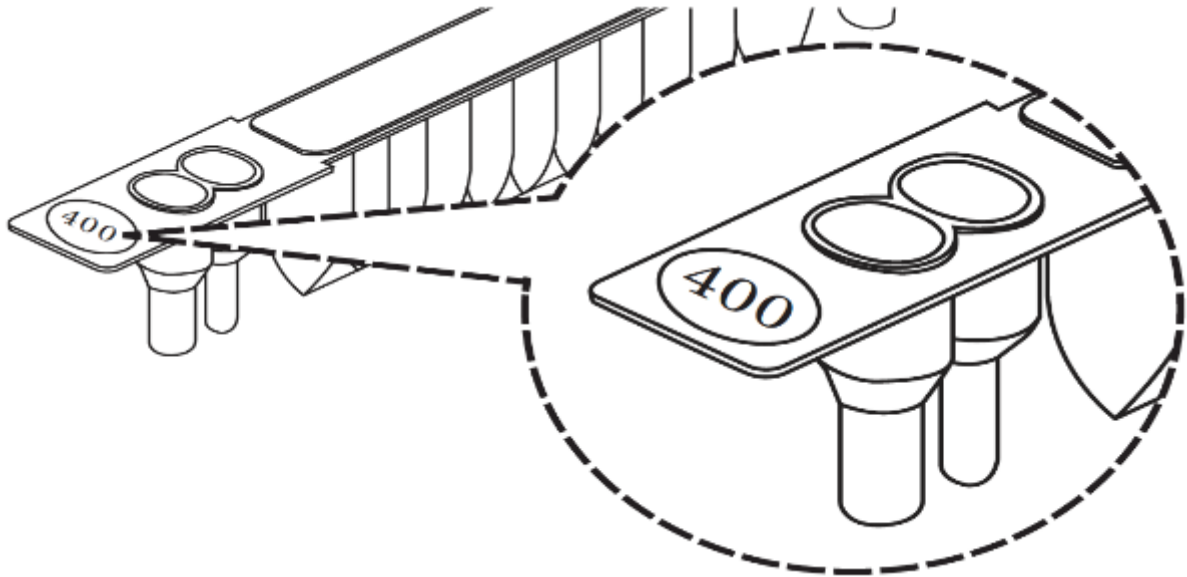
IMPORTANT! Incubate calcified tissues for 2 hours at +56°C instead of 1 hour with the others types of samples.

6. Centrifuge the tube at 10.000rpm (12 000 x g) for 2 minutes.
7. Perform DNA extraction with the supernatant of Lysate (400 µL) on AutoMag One Instrument.

2. AutoMag One Extraction:

1. Homogenize cartridges by shaking and insert in the AutoMag One
2. Put the Elution tube into well 1 of T-rack and the Tip Holder set into wells 2 of T-rack
3. Place the prepared sample tube into well 4 of T-rack

4. Run Code **400** program at AutoMag One (programme number is on the cartridge)



5. Select an elution volume of **60 μL** (or more according to use)
6. After the run, recover the elution tube and store the purified DNA. Remove tips and the cartridge and discard them according to safety laboratory procedures

NOTE! Store or analyze the purified RNA/DNA accordingly. If DNA is not analyzed immediately, store it at 4°C for up to 24 hours. For longer period, consult laboratory guidelines. Freezing samples at -20°C has been shown to preserve DNA for longer periods of time.

PERFORMANCES

The Crime Prep extraction kit performances using the AutoMag One instrument were evaluated using several types of sample (adhesive tapes, swabs, denim, cigarette blunts).

A serial dilution of whole blood was realized and for each dilution, blood was deposited on 4 samples.

Cigarette blunts represent independent specimen.

The extracts were analyzed in two complementary ways. Results are gathered in the table on next page.

For DNA quantification, the Quantifiler™ Trio DNA Quantification Kit (Applied Biosystems™) was used over 40 amplification cycles.

Regarding the genetic profiles, STR amplification was realized using the GlobalFiler kit (Life Technologies) over 29 cycles.

The PCR products were separated and detected by capillary electrophoresis (1.2kV / 24 sec) on a 3500 xl Genetic Analyzer (Applied Biosystems™).

The genetic profiles were analyzed with GeneMapper® ID-X v1.4 software (Applied Biosystems™) using the following validation criteria: minimum homozygous loci peak intensity: 1600 RFU, minimum heterozygous loci peak intensity: 200 RFU, PHR > 60%.

Sample Name (#)	Spiked blood (µL)	DNA quantification										STR analysis	
		Small DNA (pg/µl)	SD Small DNA (pg/µl)	Large DNA (pg/µl)	SD Large DNA (pg/µl)	Y DNA (pg/µl)	G ₁ -IPC	SD IPC	Degradation Index	Number of valid loci (maxi 24)	DNA sex		
Blood - Adhesive tape	1	150	8.88	192	8.42	0	27.57	0.11	<1	21/22/22/22	F		
	2	68	4.05	90	3.57	1	27.37	0.24	<1	22/22/22/22	F		
	3	36	5.70	41	7.06	0	27.46	0.23	<1	22/22/22/22	F		
	4	18	3.33	19	5.06	0	27.55	0.21	1	20/20/22/21	F		
Blood - Swab (cotton)	5	33	2.22	45	3.48	0	27.71	0.13	<1	22/21/22/22	F		
	6	17	4.23	22	5.74	0	27.53	0.09	<1	22/22/20/20	F		
	7	15	3.80	19	6.04	0	27.47	0.13	<1	21/22/17/19	F		
	8	6	1.95	7	2.25	0	27.38	0.14	1	22/7/8/5	F		
Blood - Denim	9	34	7.14	43	9.12	4	27.50	0.19	<1	24/22/22/22	Mix F/M *		
	10	15	3.02	22	3.43	2	27.61	0.08	<1	22/22/22/20	Mix F/M *		
	11	7	0.53	10	0.87	1	27.56	0.05	<1	14/20/21/16	Mix F/M *		
Cigarette Blunt	12	-	-	654	-	637	27.93	-	<1	23	M		
	13	-	-	450	-	436	27.58	-	<1	23	M		
	14	-	-	716	-	643	27.86	-	<1	24	M		
	15	-	-	4137	-	3231	28.53	-	<1	24	M		
Blank	B1	-	-	0	-	0	27.43	-	NI	0	-		
	B2	-	-	0	-	0	27.48	-	NI	0	-		
	B3	-	-	0	-	1	27.54	-	NI	0	-		
	B4	-	-	0	-	0	27.37	-	NI	0	-		

* Male DNA is coming from the denim sample itself

TROUBLESHOOTING

Observations	Comments and suggestions	
Error message in instrument display	Refer to the user manual supplied with your AutoMag One Instrument.	
Nor or low yield of DNA	Biological sample contains no or low amount of DNA.	Review protocol steps and reagents use.
DNA eluate contains magnetic particles	Bad magnetization after elution	Eliminate magnetic particles (magnetization or centrifugation). Recover the eluate

SYMBOLS

 **Reference Number**

 **Symbol for batch code/lot number**
The symbol is accompanied by the manufacturer's batch code

 **Manufacturer**

This symbol is accompanied by the name and address of the manufacturer.

 **Expiration Date**

This symbol is accompanied by a date to indicate that the device should not be used after the end of the year, month or day shown.

 **Sufficient For**

The number of items for which the contents of the pack is sufficient appears adjacent to the symbol.

 **Temperature Limitation / Temperature Range**

Symbol for temperature limitation or temperature range. Both upper and lower limits are indicated adjacent to horizontal lines.

LIMITATIONS

- All reagents are intended exclusively for RUO use.
- Strict adherence to the instructions in the operating instructions is necessary to ensure optimum results.

ORDERING INFORMATION

- **Ademtech Kits**

CAT NO.	PRODUCT	PACKAGE SIZE
06214	Crime Prep Adem-Kit Automag One	40 pcs
10801	Bone Lysis Buffer	48 tests
10802	E-Lysis Buffer	48 tests
12102	Forensic Filter	250 tests

- **Instrument and consumables**

CAT NO.	PRODUCT	PACKAGE SIZE
21600	AutoMag One Instrument	Each
21601	AutoMag One Tips	100 pcs