autogen
XTRACT 16+®

Nucleic Acid Extraction Kit User's Manual

CONTENTS

Precautions

I) Before Using

- Do not operate XTRACT 16+ without qualified operation training.
- Read user's manual carefully before operation.

II) Handling Requirements

- Do not use a kit after its expiration date.
- Do not touch the reagents with bare hands. Keep away from your skin, eyes, and 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. AutoGen does not warrant that samples treated with Lysis Buffer are completely inactivated and noninfectious. After sample processing is completed, remove and discard as biohazard waste.
- 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 a UV decontamination run for 15 minute(s), 30 minute(s), 60 minute(s).
- Wash hands thoroughly after handling samples and test reagents.

IV) Waste Handling

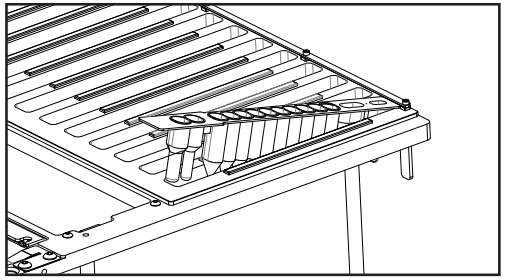
- Discard unused reagents and waste in compliance with country, federal, state and local regulations.

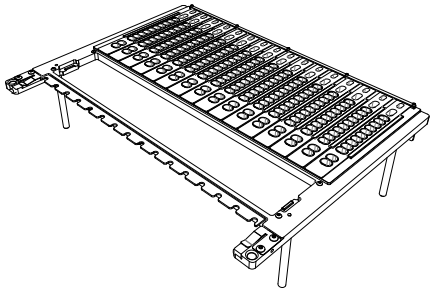
IVD Symbols Reference

Reference symbol	Description of symbol
CE	CE mark
IVD	In Vitro Diagnostic Device
EC REP	Authorized representative in the European Community
	Manufacturer
Σ	Content sufficient for <n> tests
	Warning: electricity
	Instruction manual must be read before operating
	Consult instructions for use
	Alternate current input
	Use-by Date
	No use period
+15°C +30°C	Temperature storage conditions +15°C / +30°C
0°C / +8°C	After mixing store at 0°C / +8°C
0°C / +8°C	After opening store at 0°C / +8°C
REF	Catalog number (product code)
LOT	Lot number
MOD	Model
NUM	Number of aliquots
INCL	Included in the product
CART CODE	Cartridge code number
STERILE	Sterile
STERILE R	Sterilized using irradiation
SN	Serial Number
	Fuse

How to Use the Kit *XTRACT 16+*

Please insert the front end of the cartridge into the space below the fixing plate of the Cartridge Rack.



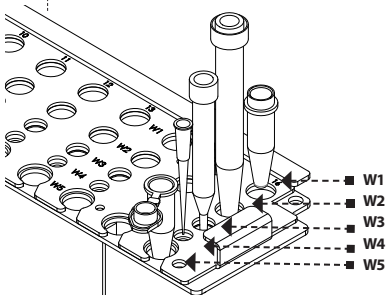


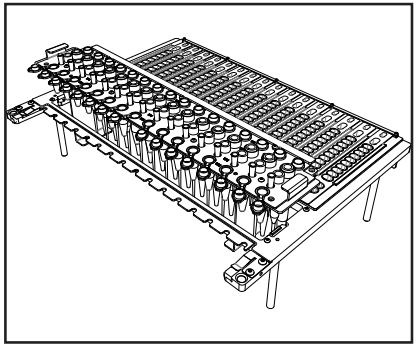
Please insert the Cartridge Rack before the T-Rack.

Install Tube, Tip

W5	Elution Tube
W4	200µl SP Tip
W3	Pipette Tip
W2	DNase / Tip Holder set
W1	Sample Tube FS Tip

1. Put the tip into the corresponding well according to the left figure.
2. Put the T-Rack on the machine.





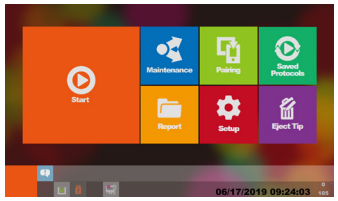
Please install the Tip and Tube according to the instructions of extraction kit user manual as positions change with each protocol.

Warning :

Please do not use the Tips and Tubes which are not provided by the original manufacturer. The test result may not be correct and the machine may be damaged due to different Tips and Tubes.

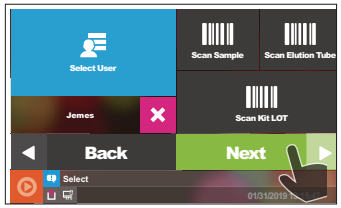
Start Programs

Please pretreat the sample according to the instructions of the user manual of the XTRACT 16+ Kit and put consumables into the machine.



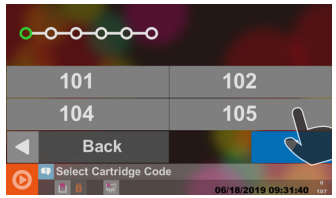
Press Start to go to the next step.

Select User and Scan Barcodes (optional).

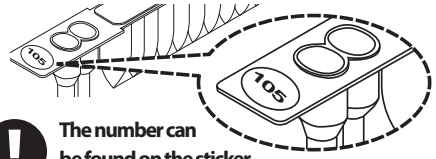


Press next to choose the code number.

Please confirm the cartridge code number to be used in the extraction.

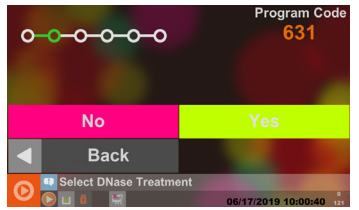


Select the number of the cartridge.

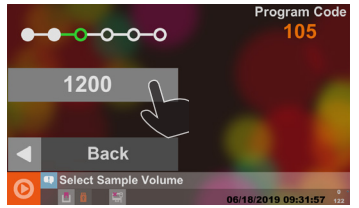


The number can be found on the sticker on the cartridge.

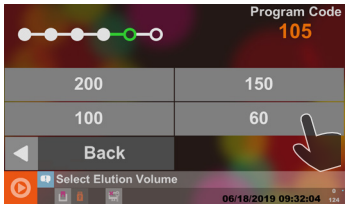
Select DNase Treatment. (Only for RNA kits.)

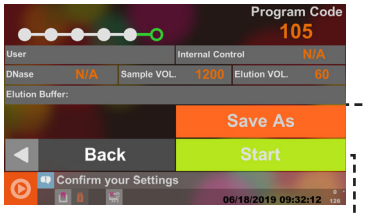


Select Sample Volume.



Select Elution Volume.





If you choose to save this custom setting, please select "save as".

Close door and press Start.

XTRACT 16+ Genomic DNA Whole Blood Kit (Speedy installation)

For extraction of genomic DNA from human whole blood

Cartridge Code 101

Cat.No.XK101-96

Kit Contents

Check that the following parts are included in addition to the main unit:

Cat.No. XK101-96 Contents:

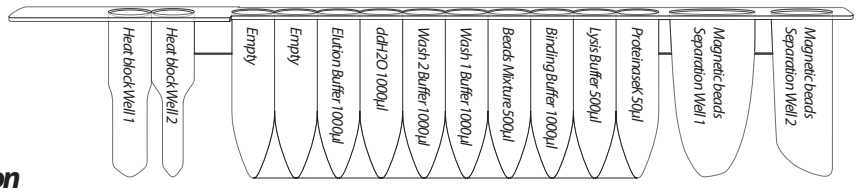
Pre-filled Cartridge Reagent	96 pcs.
Pipette Tip plus Holder Set	100 sets.
Sample Tube	100 pcs.
Elution Tube	100 pcs.

Additional items, not provided:

1. 4 ul RNase A (50mg/ml)
2. RBC Lysis Buffer

Storage and Stability :
1. This kit should be stored at room temperature.
2. Shelf life 10 months.

Cartridge Contents :



Description

XTRACT 16+ Genomic DNA Whole Blood Kit is designed for purification of total DNA (including genomic, mitochondrial and viral DNA) from whole blood, plasma, serum, and buffy coat . The method uses pre-filled cartridges which contain proteinase K and chaotropic salt to lyse cells and degrade protein.

DNA will bind to cellulose coated magnetic beads. After washing off the contaminants, the purified DNA is eluted by low salt elution buffer. Purified DNA of approximately 20-30 kb in length is suitable for PCR or other enzymatic reactions.

Applications

Uses magnetic-particle technology to purify genomic DNA from fresh whole blood. The purified genomic DNA can be directly used for downstream application such as quantitative PCR, restriction enzyme digestion, southern blotting, etc.

Whole Blood Protocol

1. Pipette 200/400µl of equilibrated whole blood sample to XTRACT 16+ Sample Tube.
2. Put the prepared Sample Tube into the correct well of T-Rack (see below).
3. Put Elution Tube and Pipette Tip into the correct wells of T-Rack (see below).
4. Run Code.101 program on the XTRACT 16+.

Optional Step: RNA Degradation

If RNA-Free genomic DNA is required, perform these optional steps.

1. Add 4µl RNase A (50mg/ml; not provided) into the sample.
2. Incubate the sample at room temperature for 20 minute(s).

Buffy Coat Modified Protocol

RBC Lysis Buffer:

150 mM NH_4Cl, 10mM $KHCO_3$, 0.1mM EDTA.

Buffy Coat Preparation by RBC Lysis

1. Add 600 ~ 700µl whole blood into 2ml microcentrifuge tube.

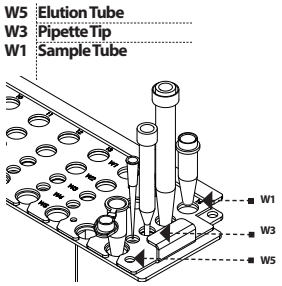
Don't use more than 700µl whole blood sample; it will cause leakage during process.

2. Add 1ml RBC Lysis Buffer and mix the buffer and whole blood sample by inverting 10-15 times.
3. Vortex the mixture, 20 x g for 5 minute(s).
4. Centrifuge the mixture 16,200 x g for 1 minute(s).
5. Discard supernatant.
6. Repeat step 2 ~ step 5 to wash the sample again.
7. Add 400µl RBC Lysis Buffer to resuspend the pellet and transfer into XTRACT 16+ Sample Tube.
8. Put the prepared Sample Tube into the correct well of T-Rack (see below).
9. Put Elution Tube and Pipette Tip into the correct wells of T-Rack (see below).
10. Run Code.101 program on the XTRACT 16+.

Buffy Coat Preparation by Centrifugation

1. Centrifuge 2~5ml whole blood at 200 x g for 10 minute(s).
2. Use pipette to take white buffy coat layer in the middle of whole blood sample.
3. Load the buffy coat into new microcentrifuge tube.
4. Put 80 ~ 100µl buffy coat sample into XTRACT 16+ Sample Tube and add RBC Lysis Buffer or PBS until 400µl.
5. Put the prepared Sample Tube into the correct well of T-Rack (see below).
6. Put Elution Tube and Pipette Tip into the correct wells of T-Rack (see below).
7. Run Code.101 program on the XTRACT 16+.

Note : We suggest to select 150 ~200µl elution buffer, to get better elution efficiency. Normally, the concentration is higher than 150ng/µl with these elution volumes selected. If lower elution volumes are selected then DNA concentration will be higher.



XTRACT 16+ Genomic DNA Whole Blood Kit

For extraction of genomic DNA from human whole blood

Cartridge Code 102

Cat.No.XK102-96

Kit Contents

Check that the following parts are included in addition to the main unit:

Cat.No.XK102-96 Contents:

Pre-filled Cartridge Reagent	96 pcs.
Pipette Tip plus Holder Set	100 sets.
Sample Tube	100 pcs.
Elution Tube	100 pcs.
Proteinase K(11mg)	4 pcs.
PK Storage Buffer	4 pcs.

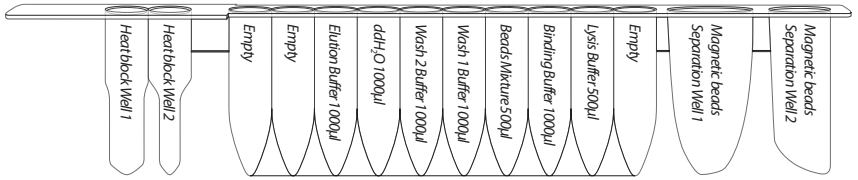
Additional items, not provided:

1. 4 ul RNase A (50mg/ml)
2. RBC Lysis Buffer

Storage and Stability :

1. This kit should be stored at room temperature.
2. Shelf life 12 months.

Cartridge Contents :



Description

XTRACT 16+ Genomic DNA Whole Blood Kit is designed for purification of total DNA (including genomic, mitochondrial and viral DNA) from whole blood, plasma, serum, and buffy coat . The method uses pre-filled cartridges which contain chaotropic salt to lyse cells and degrade protein. DNA will bind to cellulose coated magnetic beads. After washing off the contaminants, the purified DNA is eluted by low salt elution buffer. Purified DNA of approximately 20-30 kb in length is suitable for PCR or other enzymatic reactions.

Applications

Uses magnetic-particle technology to purify genomic DNA from fresh whole blood. The purified genomic DNA can be directly used for downstream application such as quantitative PCR, restriction enzyme digestion, southern blotting, etc.

Preparation before using

1. Add 1.1ml PK Storage Buffer to the Proteinase K tube and mix by vortexing. Store prepared Proteinase K (10mg/ml) at 2-8℃ for up to 2 months.

Whole Blood Protocol

1. Take a new Sample Tube and add 20µl of Proteinase K (10mg/ml) to 200µl of equilibrated whole blood sample. (40µl Proteinase K to 400µl whole blood).
2. Put the prepared Sample Tube into the correct well of T-Rack (see below).
3. Put Elution Tube and Pipette Tip into the correct wells of T-Rack (see below).
4. Run Code.102 program on the XTRACT 16+.

Optional Step: RNA Degradation

If RNA-Free genomic DNA is required, perform these optional steps before adding Proteinase K.

1. Add 4µl RNase A(50mg/ml; not provided) into the sample.
2. Incubate the sample at room temperature for 20 minute(s).

Buffy Coat modify Protocol

RBC Lysis Buffer:

150mM NH_4Cl, 10mM $KHCO_3$, 0.1mM EDTA.

Buffy Coat Preparation by RBC Lysis

1. Add 600 ~ 700µl whole blood into 2ml microcentrifuge tube.

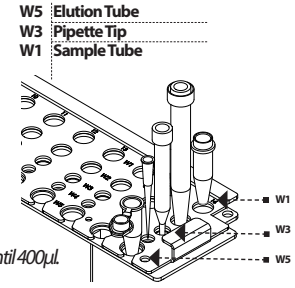
Don't use more than 700µl whole blood sample; it will cause leakage during process.

2. Add 1ml RBC Lysis Buffer and mix the buffer and whole blood sample by inverting 10-15 times.
3. Shake the mixture, 200 x g for 5 minute(s).
4. Centrifuge the mixture 16,200 x g for 1 minute(s).
5. Discard supernatant.
6. Repeat step 2 ~ step 5 to wash the sample again.
7. Add 400µl RBC Lysis Buffer and add 40µl of proteinase K to resuspend the pellet and transfer into XTRACT 16+ Sample Tube.
8. Put the prepared Sample Tube into the correct well of T-Rack (see below).
9. Put Elution Tube and Pipette Tip into the correct wells of T-Rack (see below).
10. Run Code.102 program on the XTRACT 16+.

Buffy Coat Preparation by Centrifugation

1. Centrifuge 2~5ml whole blood at 200 x g for 10 minute(s).
2. Use pipette to take white buffy coat layer in the middle of whole blood sample.
3. Load the buffy coat into new microcentrifuge tube.
4. Put 80 ~ 100µl buffy coat sample into XTRACT 16+ Sample Tube and add RBC Lysis Buffer or PBS until 400µl.
5. Put the prepared Sample Tube into the correct well of T-Rack (see below).
6. Put Elution Tube and Pipette Tip into the correct wells of T-Rack (see below).
7. Run Code.102 program on the XTRACT 16+.

Note : We suggest to select 150 ~200µl elution buffer, to get better elution efficiency in both of these methods. Normally the concentration is higher than 150ng/µl under such elution volume.



XTRACT 16+ Genomic DNA Large Volume Whole Blood Kit

For extraction of genomic DNA from human whole blood (1.2 ml)

Cartridge Code 104

Cat.No.XK104-96

Kit Contents

Check that the following parts are included in addition to the main unit:

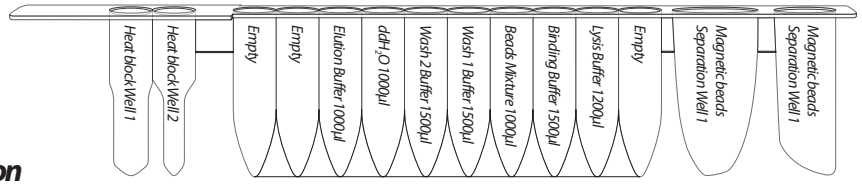
Cat.No. XK104-96 Contents:

Pre-filled Cartridge Reagent.....96 pcs.
Pipette Tip plus Holder Set.....100 sets.
Sample Tube.....100 pcs.
Elution Tube.....100 pcs.
Proteinase K(11mg).....8 pcs.
PK Storage Buffer.....8 pcs.

Storage and Stability :

1. This kit should be stored at room temperature.
2. Shelf life 12 months.

Cartridge Contents :



Description

XTRACT 16+ Genomic DNA Large Volume Whole Blood kit is designed to extract genomic DNA from 1.2ml fresh whole blood. The kit contains all required reagents and labware for automated purification using magnetic-particle technology.

Applications

Uses magnetic-particle technology to purify genomic DNA from 1.2ml fresh whole blood. The purified genomic DNA can be directly used for downstream application such as quantitative PCR, restriction enzyme digestion, southern blotting, etc.

Preparation before using

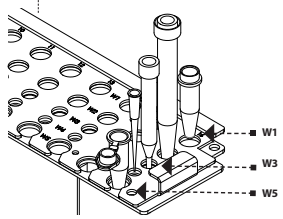
1. *Add 1.1ml PK Storage Buffer to the Proteinase K tube and mix by vortexing. Store prepared Proteinase K (10mg/ml) at 2-8 ℃ for up to 2 months.*

Protocol

1. *Pipette 80ul Proteinase K (10mg/ml) into the XTRACT 16+ Sample Tubes.*
2. *Add 1200 µl whole blood into the prepared Sample Tube.*
3. *Put the prepared Sample Tube into the correct well of T-Rack (see below).*
4. *Put Elution Tube and Pipette Tip into the correct wells of T-Rack (see below).*
5. *Run Code.104 program on the XTRACT 16+.*

Note : Beads or precipitate in eluate might occur in viscous samples. This situation will not affect the yield, purity and downstream applications. Reduction of sample volume or simple centrifugation will remove the residual beads.

W5 **Elution Tube**
W3 **Pipette Tip**
W1 **Sample Tube**



XTRACT 16+ Plasma DNA Extraction Kit (1.2 ml)

For extraction of free circulating DNA from human plasma or serum

Cartridge Code 105

Cat.No.XK105-96

Kit Contents

Check that the following parts are included in addition to the main unit:

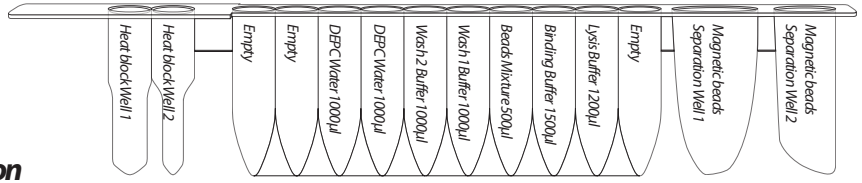
Cat.No. XK105-96 Contents:

Pre-filled Cartridge Reagent.....96 pcs.
Pipette Tip plus Holder Set.....100 sets.
Sample Tube.....100 pcs.
Elution Tube.....100 pcs.
Proteinase K(11mg).....2 pcs.
PK Storage Buffer.....2 pcs.

Storage and Stability :

1. This kit should be stored at room temperature.
2. Shelf life 12 months.

Cartridge Contents :



Description

XTRACT 16+ Plasma DNA Extraction Kit is designed for purification of DNA from 1.2 ml of serum, plasma and cell-free body fluids. All of the plastic consumables in the kit are DNase/RNase free. There is an individual processing track for each loaded sample, eliminating all possible cross-contamination between samples. The built-in protocol allows flexibility in sample source volumes and plasma DNA can be extracted using this kit in a fast and economical way.

Applications

The purified total nucleic acid is suitable for highly sensitive and quantitative PCR. XTRACT 16+ Plasma DNA Extraction Kit has been proven with various genomic analyses as downstream applications.

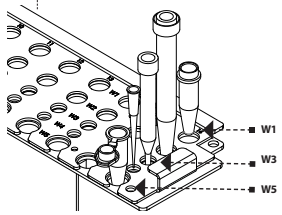
Preparation before using

1. *Add 1.1ml PK Storage Buffer to the Proteinase K tube and mix by vortexing. Store prepared Proteinase K (10mg/ml) at 2-8 ℃ for up to 2 months.*

Protocol

1. *Pipette 20 µl proteinase K(10mg/ml) into the XTRACT 16+ Sample Tubes.*
2. *Add 1200µl of serum, plasma, cell-free body fluids into the prepared Sample Tube.*
3. *Mix the Proteinase K and Plasma and then let stand for 10-20 minute(s) at room temperature.*
4. *Centrifuge at 18,800 x g for 10 minute(s) and transfer clear plasma to new tube.*
5. *Put the prepared Sample Tube into the correct well of T-Rack (see below).*
6. *Put Elution Tube and Pipette Tip into the correct wells of T-Rack (see below).*
7. *Run Code.105 program on the XTRACT 16+.*

W5 **Elution Tube**
W3 **Pipette Tip**
W1 **Sample Tube**



XTRACT 16+ Genomic DNA Whole Blood Kit (For Genotyping)

For extraction of genomic DNA from human whole blood for genotyping

Cartridge Code 106

Cat.No.XK106-96

Kit Contents

Check that the following parts are included in addition to the main unit:

Cat.No. XK106-96 Contents:

Pre-filled Cartridge Reagent	96 pcs.
Pipette Tip plus Holder Set	100 sets.
Sample Tube	100 pcs.
Elution Tube	100 pcs.
Proteinase K(11mg)	4 pcs.
PK Storage Buffer	4 pcs.

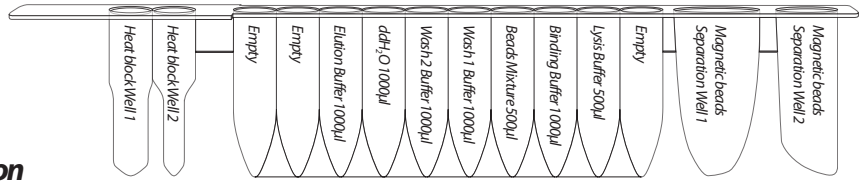
Additional items, not provided:

1. 4 ul RNase A (50mg/ml)
2. RBC Lysis Buffer

Storage and Stability :

1. This kit should be stored at room temperature.
2. Shelf life 12 months.

Cartridge Contents :



Description

This kit is designed for genotyping application, you can get complete gDNA from eluate. The reagent components and machine operation have been modified to make the kit more suitable for genotyping. The pre-filled cartridge contains chaotropic salt and guanidine hydrochloride for cell lysis and protein degradation. The chaotropic salt allows for the strong binding of DNA and cellulose coated magnetic beads. After the removal of contaminants, the high quality DNA is eluted by low salt elution buffer or water. Purified DNA of approximately 20-30 kb in length is suitable for genotyping or other applications.

Applications

Uses magnetic-particle technology to purify genomic DNA from whole blood and buffy coat. The purified genomic DNA can be directly used for downstream applications such as genotyping, PCR, real-time PCR, restriction enzyme digestion, southern blotting, etc.

Preparation before using

1. *Add 1.1ml PK Storage Buffer to the Proteinase K tube and mix by vortexing. Store prepared Proteinase K (10mg/ml) at 2-8 ℃ for up to 2 months.*

Whole Blood Protocol

1. *Take a new Sample Tube and add 20µl of Proteinase K (10mg/ml) to 200µl of equilibrated whole blood sample.*

(40µl Proteinase K to 400µl whole blood).

2. *Put the prepared Sample Tube into the correct well of T-Rack (see below).*
3. *Put Elution Tube and Pipette Tip into the correct wells of T-Rack (see below).*
4. *Run Code.106 program on the XTRACT 16+.*

Optional Step: RNA Degradation

If RNA-Free genomic DNA is required, perform these optional steps before adding Proteinase K.

1. *Add 4µl RNase A (50mg/ml; not provided) into the sample .*
2. *Incubate the sample at room temperature for 20 minute(s).*

Buffy Coat modify Protocol

RBC Lysis Buffer:

150mM NH_4Cl, 10mM $KHCO_3$, 0.1mM EDTA.

Buffy Coat Preparation by RBC Lysis

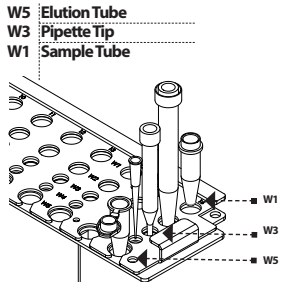
1. *Add 600 ~ 700µl whole blood into 2ml microcentrifuge tube.*

Don't use more than 700µl whole blood sample; it will cause leakage during process.

2. *Add 1ml RBC Lysis Buffer and mix the buffer and whole blood sample by inverting 10-15 times.*
3. *Shake the mixture, 20 x g for 5 minute(s).*
4. *Centrifuge the mixture 16,200 x g for 1 minute(s).*
5. *Discard supernatant.*
6. *Repeat step 2 ~ step 5 to wash the sample again.*
7. *Add 400µl RBC Lysis Buffer and 40µl proteinase K to resuspend the pellet and transfer into XTRACT 16+ Sample Tube.*
8. *Put the prepared Sample Tube into the correct well of T-Rack (see below).*
9. *Put Elution Tube and Pipette Tip into the correct wells of T-Rack (see below).*
10. *Run Code.106 program on the XTRACT 16+.*

Buffy Coat Preparation by Centrifugation

1. *Centrifuge 2~5ml whole blood at 200 x g for 10 minute(s).*
2. *Use pipette to take white buffy coat layer in the middle of whole blood sample.*
3. *Load the buffy coat into new microcentrifuge tube.*
4. *Put 80 ~ 100µl buffy coat sample into XTRACT 16+ Sample Tube and add RBC Lysis Buffer or PBS until 400µl.*
5. *Put the prepared Sample Tube into the correct well of T-Rack (see below).*
6. *Put Elution Tube and Pipette Tip into the correct wells of T-Rack (see below).*
7. *Run Code.106 program on the XTRACT 16+.*



Note : We suggest to select 150 ~200µl elution buffer, to get better elution efficiency. Normally, the concentration is higher than 150ng/µl with these elution volumes selected. If lower elution volumes are selected then DNA concentration will be higher.

XTRACT 16+ Cultured Cells DNA Kit

For extraction of genomic DNA from cultured cells and amniotic fluid

Cartridge Code 110

Cat.No.XK110-96

Kit Contents

Check that the following parts are included in addition to the main unit:

Cat.No. XK110-96 Contents:

Pre-filled Cartridge Reagent	96 pcs.
Pipette Tip plus Holder Set	100 sets.
Sample Tube	100 pcs.
Elution Tube	100 pcs.
Proteinase K(11mg)	2 pcs.
PK Storage Buffer	2 pcs.

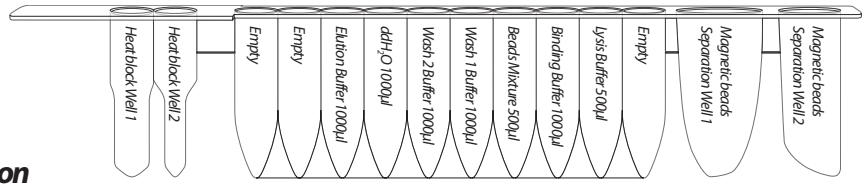
Additional items, not provided:

1. GT Buffer
2. 1.5 ml microcentrifuge tube(s)
3. PBS
4. Trypsin

Storage and Stability :

1. This kit should be stored at room temperature.
2. Shelf life 12 months.

Cartridge Contents :



Description

XTRACT 16+ Cultured cells DNA Kit is designed to extract genomic DNA from up to 5x10^5 cultured cells. The kit contains all required reagents and labware for automated purification using magnetic-particle technology.

Applications

Uses magnetic-particle technology to purify genomic DNA from 5x10^6 cultured cells. The purified genomic DNA can be directly used for downstream application such as quantitative PCR, restriction enzyme digestion, southern blotting, etc.

Preparation before using

1. Add 1.1ml PK Storage Buffer to the Proteinase K tube and mix by vortexing. Store prepared Proteinase K (10mg/ml) at 2-8 ℃ for up to 2 months.
2. Ensure PBS buffer has been prepared to resuspend cell pellet.

Protocol

Sample Preparation

A. Cells grown in suspension

Cells grown in suspension(up to 5 x 10^6 cells). Determine the number of cells. Centrifuge the appropriate number of cells for 5 minute(s) at 300 x g in a 1.5 ml microcentrifuge tube (not provided). Remove the supernatant completely and discard. Continue with XTRACT 16+ Operation step 1.

B. Cells grown in a monolayer

Cells grown in a monolayer(up to 5 x 10^6 cells), can be detached from the culture flask by either trypsinization or using a cell scraper.

To trypsinize cells:

Determine the number of cells. Aspirate the medium and wash cells with PBS (not provided). Aspirate the PBS, and add 0.10–0.25% trypsin. After cells have detached from the dish or flask, collect them in medium, and transfer the appropriate number of cells (up to 5 x 10^5 cells) to a 1.5 ml microcentrifuge tube (not provided). Centrifuge for 5 minute(s) at 300 x g. Remove the supernatant completely and discard, taking care not to disturb the cell pellet. Continue with XTRACT 16+ Operation step 1.

Using a cell scraper:

Detach cells from the dish or flask. Transfer the appropriate number of cells (up to 5 x 10^6 cells) to a 1.5 ml microcentrifuge tube and centrifuge for 5 minute(s) at 300 x g. Remove the supernatant completely and discard, taking care not to disturb the cell pellet. Continue with XTRACT 16+ Operation step 1.

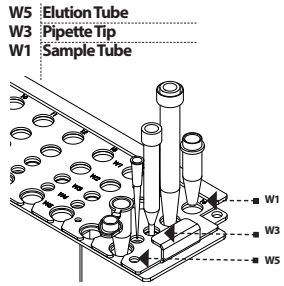
XTRACT 16+ Operation

1. Resuspend cell pellet with PBS Buffer to a final volume of 200 µl.
2. Transfer 200 µl cell mixture and add 20 µl Proteinase K into the XTRACT 16+ Sample Tubes.
3. Put the prepared Sample Tube into the correct well of T-Rack (see below).
4. Put Elution Tube and Pipette Tip into the correct wells of T-Rack (see below).
5. Run Code 110 program on the XTRACT 16+.

Amniotic Fluid Protocol

Sample preparation

1. Harvest cells from 10~15 ml amniotic fluid of 16~18 weeks by centrifugation for 10 minute(s) at 900 x g and discard the supernatant.
2. Add 200µl GT Buffer (not provided) to the tube and resuspend the cell pellet, then transfer mixture to new microcentrifuge tube.
3. Add 5~10µl ProteinaseK (10mg/ml) to the sample. Vortex for 5 second(s) to mix sample.
4. Incubate at 56℃ for 10 minute(s) until the sample lysate is clear. During incubation, invert the tube every 3 minute(s).
5. Spin down the sample.
6. Put the prepared Sample Tube into the correct well of T-Rack (see right).
7. Put the Elution Tube and Pipette Tip into the correct wells of T-Rack (see right).
8. Run Code 110 program on the XTRACT 16+.



XTRACT 16+ Liquid Biopsy DNA Kit (4 ml)

For extraction of free circulating DNA from human plasma or serum

Cartridge Code 115

Cat.No.XK115-96

Kit Contents

Check that the following parts are included in addition to the main unit:

Cat.No. XK115-96 Contents:

- Pre-filled Cartridge Reagent.....96 pcs.
- Pipette Tip plus Holder Set.....100 sets.
- 5ml Sample Tube.....100 pcs.
- Elution Tube.....100 pcs.
- Proteinase K(11mg).....10 pcs.
- PK Storage Buffer.....10 pcs.

Additional part required:

Part number XP-P46030002 T-Rack 5 ml 16 slot rack

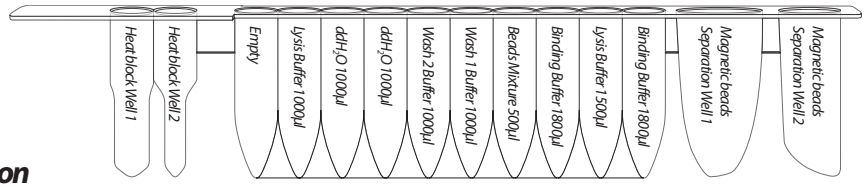
Additional items, not provided:

1. DNase free 15 ml tube

Storage and Stability :

1. This kit should be stored at room temperature.
2. Shelf life 12 months.

Cartridge Contents :



Description

XTRACT 16+ Liquid Biopsy DNA kit is designed for purification of DNA from 3 ml or 4 ml of serum, plasma, and cell-free body fluids. All of the plastic consumables in the kit are DNase/RNase free. There is an individual processing track for each loaded sample, eliminating all possible cross-contamination between samples. The built-in protocol allows for flexibility in sample source volumes, and plasma DNA can be extracted using this kit in a fast and economical way.

Applications

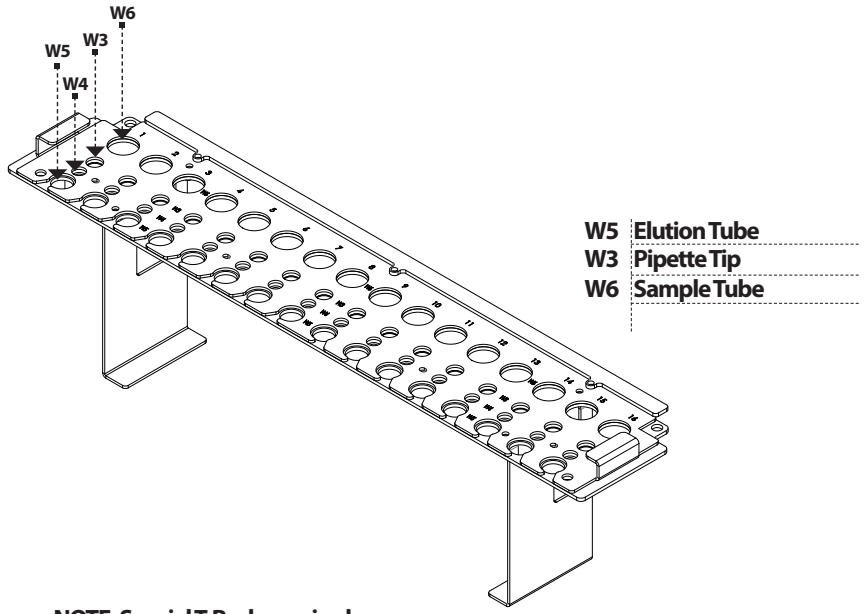
The purified total nucleic acid is suitable for highly sensitive and quantitative PCR. XTRACT 16+ Liquid Biopsy DNA kit has been proven with various genomic analyses as downstream applications.

Preparation before using

1. *Add 1.1ml PK Storage Buffer to the Proteinase K tube and mix by vortexing. Store prepared Proteinase K (10mg/ml) at 2-8 ℃ for up to 2 months.*

Protocol

1. *Add 4 ml of serum, plasma, cell-free body fluids (If the volume is less than 4 ml, add to 4 ml with 1X PBS.) into a DNase-free 15 ml tube (not provided).*
2. *Add 100 µl proteinase K (10mg/ml) into 15 ml tube and mix by vortexing.*
3. *After mixing Proteinase K and Plasma, let stand for 10-15 minute(s) at room temperature.*
4. *Centrifuge at 18,800 x g for 10 minute(s) and transfer clear plasma to 5 ml Sample Tube.*
5. *Put the prepared Sample Tube into the well 6 of T-Rack (see below).*
6. *Put the Pipette Tip into the well 3 of T-Rack and Elution Tube into the well 5 of T-Rack (see below).*
7. *Run Code.115 program on the XTRACT 16+.*



NOTE: Special T-Rack required

XTRACT 16+ Viral Nucleic Acid Extraction Kit

For extraction of viral DNA/RNA from serum, plasma and cell-free body fluids

Cartridge Code 201

Cat.No.XK201-96

Kit Contents

Check that the following parts are included in addition to the main unit:

Cat.No. XK201-96 Contents:

Pre-filled Cartridge Reagent	96 pcs.
Pipette Tip plus Holder Set	100 sets.
Sample Tube	100 pcs.
Elution Tube	100 pcs.
Carrier RNA(1mg)	1 pcs.
RNase Free Water	1 pcs.
Proteinase K(11mg)	2 pcs.
PK Storage Buffer	2 pcs.

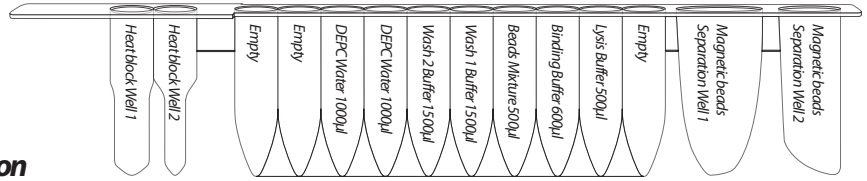
Additional items, not provided:

1. GT Buffer
2. Filter Columns

Storage and Stability :

1. This kit should be stored at room temperature.
2. Carrier RNA should be stored at -20℃ after mixing with RNase Free Water.
3. Shelf life 12 months.

Cartridge Contents :



Description

XTRACT 16+ Liquid Biopsy DNA kit is designed for purification of DNA from 3 ml or 4 ml of serum, plasma, and cell-free body fluids. All of the plastic consumables in the kit are DNase/RNase free. There is an individual processing track for each loaded sample, eliminating all possible cross-contamination between samples. The built-in protocol allows for flexibility in sample source volumes, and plasma DNA can be extracted using this kit in a fast and economical way.

Applications

Uses magnetic-particle technology to purify viral nucleic acid from serum, plasma, or cell-free body fluids. The purified viral nucleic acid is suitable for highly sensitive and quantitative PCR.

Preparation before using

1. Add 1.0 ml RNase Free Water to the Carrier RNA tube and mix by vortexing. Store prepared Carrier RNA (1mg/ml) at -20℃.
   (Do not freeze–thaw the carrier RNA more than 3 times.)
2. Add 1.1ml PK Storage Buffer to the Proteinase K tube and mix by vortexing. Store prepared Proteinase K (10mg/ml) at 2-8 ℃ for up to 2 months.

Protocol

1. Pipette 10µl Carrier RNA(1mg/ml) and 20 µl proteinase K(10mg/ml) into the XTRACT 16+ Sample Tubes.
2. Add 200 µl or 400 µl of serum, plasma, or cell-free body fluids into the prepared Sample Tube.
3. Put the prepared Sample Tube into the correct well of T-Rack (see below).
4. Put Elution Tube and Pipette Tip into the correct wells of T-Rack (see below).
5. Run Code.201 program on the XTRACT 16+.

Urine Protocol

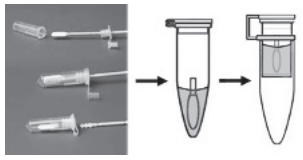
Sample preparation

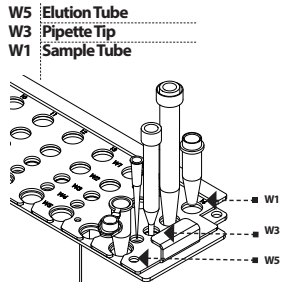
1. Harvest cells from up to 3.5 ml urine by centrifugation for 10 minute(s) at 900 x g and concentrate the sample to 400 ul.
2. Add 5~10 ul ProteinaseK (10mg/ml) to the sample. Vortex for 5 second(s) to mix sample.
3. Incubate at 56℃ for 10 minute(s) until the sample lysate is clear. During incubation, invert the tube every 3 minute(s).
4. Pipette 10 µl Carrier RNA(1mg/ml) into the XTRACT 16+ Sample Tubes.
5. Put the prepared Sample Tube into the correct well of T-Rack (see below).
6. Put Elution Tube and Pipette Tip into the correct wells of T-Rack (see below).
7. Run Code.201 program on the XTRACT 16+.

Swab Protocol

1. Separate the swab cotton from the stick. Place the swab into a 2ml microcentrifuge tube, add at least 500ul GT buffer (not provided), and 20ul Proteinase K (10mg/ml). See Figure below.
   For Buccal Swab sample, donor should not ingest anything for at least 30 minute(s) prior to sample collection.
2. Incubate the sample lysate at 55℃ for 30 minute(s).
3. If there are any insoluble residues in the tube, transfer the supernatant to Filter Column (not provided), and centrifuge at full speed for 5minute(s) to get clear tissue solution in the Collection tube.
4. Pipette 400ul of clear tissue solution and 10 µl Carrier RNA (1mg/ml) to the XTRACT 16+ Sample Tube.
5. Put the prepared Sample Tube into W1 of T-Rack (see below).
6. Put Elution Tube into W5 of T-Rack and Pipette Tip into W3 of T-Rack (see below).
7. Run Code. 201 program on the XTRACT 16+.

Figure 1





XTRACT 16+ Viral Nucleic Acid Extraction Kit (Low PCR Inhibition)

For extraction of viral DNA/RNA from serum, plasma and cell-free body fluids

Cartridge Code 202

Cat.No.XK202-96

Kit Contents

Check that the following parts are included in addition to the main unit:

Cat.No. XK202-96 Contents:

Pre-filled Cartridge Reagent	96 pcs.
Pipette Tip plus Holder Set	100 sets.
Sample Tube	100 pcs.
Elution Tube	100 pcs.
Carrier RNA(1mg)	1 pcs.
RNase Free Water	1 pcs.
Proteinase K(11mg)	2 pcs.
PK Storage Buffer	2 pcs.

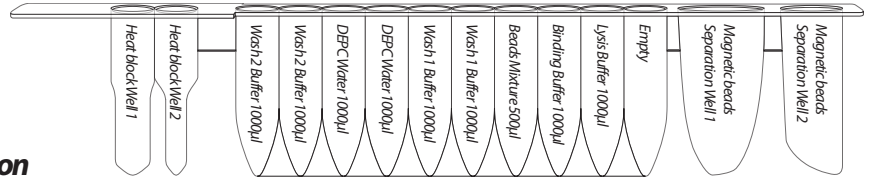
Additional items, not provided:

1. GT Buffer
2. Filter Columns

Storage and Stability :

1. This kit should be stored at room temperature.
2. Carrier RNA should be stored at -20°C after mixing with RNase Free Water.
3. Shelf life 12 months.

Cartridge Contents :



Description

XTRACT 16+ Liquid Biopsy DNA kit is designed for purification of DNA from 3 ml or 4 ml of serum, plasma, and cell-free body fluids. All of the plastic consumables in the kit are DNase/RNase free. There is an individual processing track for each loaded sample, eliminating all possible cross-contamination between samples. The built-in protocol allows for flexibility in sample source volumes, and plasma DNA can be extracted using this kit in a fast and economical way.

Applications

Uses magnetic-particle technology to purify viral nucleic acid from serum, plasma, or cell-free body fluids. The purified viral nucleic acid is suitable for highly sensitive and quantitative PCR.

Preparation before using

1. Add 1.0 ml RNase Free Water to the Carrier RNA tube and mix by vortexing. Store prepared Carrier RNA (1mg/ml) at -20°C.
   (Do not freeze–thaw the carrier RNA more than 3 times.)
2. Add 1.1ml PK Storage Buffer to the Proteinase K tube and mix by vortexing. Store prepared Proteinase K (10mg/ml) at 2-8 °C for up to 2 months.

Protocol

1. Pipette 10 µl Carrier RNA(1mg/ml) and 20 µl proteinase K(10mg/ml) into the XTRACT 16+ Sample Tubes.
2. Add 200 µl or 400 µl of serum, plasma, or cell-free body fluids into the prepared Sample Tube.
3. Put the prepared Sample Tube into the correct well of T-Rack (see below).
4. Put Elution Tube and Pipette Tip into the correct wells of T-Rack (see below).
5. Run Code.202 program on the XTRACT 16+.

Urine Protocol

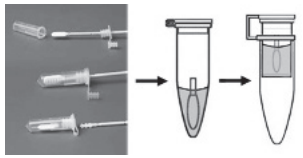
Sample preparation

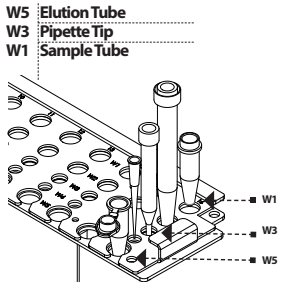
1. Harvest cells from up to 3.5 ml urine by centrifugation for 10 minute(s) at 900 x g and concentrate the sample to 400 ul.
2. Add 5~10 ul ProteinaseK (10mg/ml) to the sample. Vortex for 5 second(s) to mix sample.
3. Incubate at 56°C for 10 minute(s) until the sample lysate is clear. During incubation, invert the tube every 3 minute(s).
4. Pipette 10 µl Carrier RNA(1mg/ml) into the XTRACT 16+ Sample Tubes.
5. Put the prepared Sample Tube into the correct well of T-Rack (see below).
6. Put Elution Tube and Pipette Tip into the correct wells of T-Rack (see below).
7. Run Code 202 program on the XTRACT 16+.

Swab Protocol

1. Separate the swab cotton from the stick. Place the swab into a 2ml microcentrifuge tube, add at least 500 ul GT buffer (not provided), and 20 ul Proteinase K (10mg/ml). See figure below.
   For Buccal Swab sample, donor should not ingest anything for at least 30 minute(s) prior to sample collection.
2. Incubate the sample lysate at 55°C for 30 minute(s).
3. If there are any insoluble residues in the tube, transfer the supernatant to Filter Column, and centrifuge at full speed for 5 minute(s) to get clear tissue solution in the Collection tube.
4. Pipette 400 ul of clear tissue solution and 10 µl Carrier RNA (1mg/ml) to the XTRACT 16+ Sample Tube.
5. Put the prepared Sample Tube into W1 of T-Rack (see below).
6. Put Elution Tube into W5 of T-Rack and Pipette Tip into W3 of T-Rack (see below).
7. Run Code. 202 program on the XTRACT 16+.

Figure 1





XTRACT 16+ Viral Nucleic Acid Extraction Kit (High Sensitivity)

For extraction of viral DNA/RNA from serum, plasma and cell-free body fluids

Cartridge Code 203

Cat.No.XK203-96

Kit Contents

Check that the following parts are included in addition to the main unit:

Cat.No. XK203-96 Contents:

Pre-filled Cartridge Reagent	96 pcs.
Pipette Tip plus Holder Set	100 sets.
Sample Tube	100 pcs.
Elution Tube	100 pcs.
Carrier RNA(1mg)	1 pcs.
RNase Free Water	1 pcs.
Proteinase K(11mg)	2 pcs.
PK Storage Buffer	2 pcs.

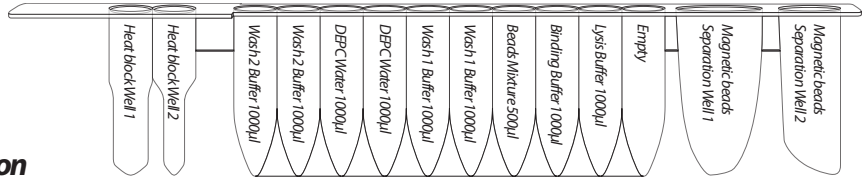
Additional items, not provided:

1. Internal Control (5, 10, 20 ul)
2. GT Buffer
3. Filter Columns
4. 2.0 ml sample tube (for internal control)

Storage and Stability :

1. This kit should be stored at room temperature.
2. Carrier RNA should be stored at -20℃ after mixing with RNase Free Water.
3. Shelf life 12 months.

Cartridge Contents :



Description

XTRACT 16+ Viral Nucleic Acid Extraction Kit (high sensitivity) is designed to extract Viral DNA and RNA. All of the plastic consumables in the kit are DNase/RNase free. There is an individual processing track for each loaded sample, eliminating all possible cross-contamination between samples. The built-in protocol allows for flexibility in sample source volumes, and plasma DNA can be extracted using this kit in a fast and economical way.

Applications

Uses magnetic-particle technology to purify viral nucleic acid from serum, plasma, or cell-free body fluids. The purified viral nucleic acid is suitable for highly sensitive and quantitative PCR.

Preparation before using

1. Add 1.0 ml RNase Free Water to the Carrier RNA tube and mix by vortexing. Store prepared Carrier RNA (1mg/ml) at -20℃.
   (Do not freeze–thaw the carrier RNA more than 3 times.)
2. Add 1.1ml PK Storage Buffer to the Proteinase K tube and mix by vortexing. Store prepared Proteinase K (10mg/ml) at 2-8 ℃ for up to 2 months.

Protocol

1. Pipette 10 µl Carrier RNA(1mg/ml) and 20 µl proteinase K(10mg/ml) into the XTRACT 16+ Sample Tubes.
2. Add 200 µl or 400 µl of serum, plasma, or cell-free body fluids into the prepared Sample Tube.
3. Internal Control (IC) Selection (optional).
   a. Pipette the Internal Control (5, 10, 20 ul) into a new Sample Tube.
   b. Place the Sample Tube into the correct well of the T-rack (see below).
   c. Select Internal Control: Yes or No.
4. Put the prepared Sample Tube into the correct well of t T-Rack (see below).
5. Put Elution Tube and Pipette Tip into the correct wells of T-Rack (see below).
6. Run Code 203 program on the XTRACT 16+.

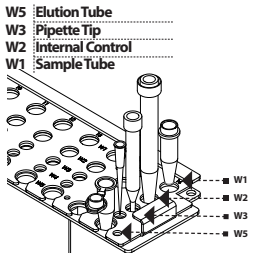
Urine Protocol

Sample preparation

1. Harvest cells from up to 3.5 ml urine by centrifugation for 10 minute(s) at 900 x g and concentrate the sample to 400 ul.
2. Add 5~10 ul ProteinaseK (10mg/ml) to the sample. Vortex for 5 second(s) to mix sample.
3. Incubate at 56℃ for 10 minute(s) until the sample lysate is clear. During incubation, invert the tube every 3 minute(s).
4. Pipette 10 µl Carrier RNA(1mg/ml) into the XTRACT 16+ Sample Tubes.
5. Put the prepared Sample Tube into the correct well of T-Rack (see below).
6. Put Elution Tube and Pipette Tip into the correct wells of T-Rack (see below).
7. Run Code.203A or 203B program on the XTRACT 16+.

Swab Protocol

1. Separate the swab cotton from the stick. Place the swab into a 2ml microcentrifuge tube, add at least 500 ul GT buffer (not provided), and 20 ul Proteinase K (10mg/ml).
   For Buccal Swab sample, donor should not ingest anything for at least 30 minute(s) prior to sample collection.
2. Incubate the sample lysate at 55℃ for 30 minute(s).
3. If there are any insoluble residues in the tube, transfer the supernatant to Filter Column (not provided), and centrifuge at full speed for 5 minute(s) to get clear tissue solution in the Collection tube.
4. Pipette 400 ul of clear tissue solution and 10 µl Carrier RNA (1mg/ml) to the XTRACT 16+ Sample Tube.
5. Put the prepared Sample Tube into the W1 of T-Rack (see below).
6. Put Elution Tube into the W5 of T-Rack and Pipette Tip into the W3 of T-Rack (see below).
7. Run Code. 203a or 203b program on the XTRACT 16+.



XTRACT 16+ Viral Nucleic Acid Extraction Kit (SARS-COV-2)

For extraction of viral DNA/RNA from serum, plasma and cell-free body fluids

Cartridge Code 203/219*

Cat.No.XK203-96-COV

*Protocol code 219 uses the 203 cartridges. The pre-treatment and run set up is identical but the protocol run time is shorter.

Kit Contents

Check that the following parts are included in addition to the main unit:

Cat.No. XK203-96-COV Contents:

Pre-filled Cartridge Reagent	96 pcs.
Pipette Tip plus Holder Set	100 sets.
Sample Tube	100 pcs.
Elution Tube	100 pcs.
Carrier RNA(1mg)	1 pcs.
RNase Free Water	1 pcs.
Proteinase K(11mg)	2 pcs.
PK Storage Buffer	2 pcs.
RB Buffer	1 pcs.
Filter Spin Column	100 pcs.

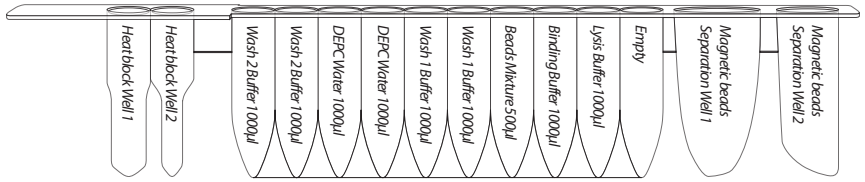
Additional items, not provided:

1. 1.5 ml microcentrifuge tube
2. Internal Control (5, 10, 20 ul)
3. 2.0 ml sample tube (for internal control)

Storage and Stability :

1. This kit should be stored at room temperature.
2. Carrier RNA should be stored at -20°C after mixing with RNase Free Water.
3. Shelf life 12 months.

Cartridge Contents :



Description

The Viral Nucleic Acid Extraction Kit is designed to extract Viral DNA and RNA from COVID-19 samples via the XTRACT 16+. The kit contains pretreated DNase/RNase free consumables and individually pre-loaded strips, eliminating all possible cross contamination between samples.

Applications

Uses magnetic-particle technology to purify viral nucleic acid from serum, plasma, or cell-free body fluids. The purified viral nucleic acid is suitable for highly sensitive and quantitative PCR.

Preparation before using

1. Add 1.0 ml RNase Free Water to the Carrier RNA tube and mix by vortexing. Store prepared Carrier RNA (1mg/ml) at -20°C.
   (Do not freeze–thaw the carrier RNA more than 3 times.)
2. Add 1.1ml PK Storage Buffer to the Proteinase K tube and mix by vortexing. Store prepared Proteinase K (10mg/ml) at 2-8 °C for up to 2 months.

Protocol

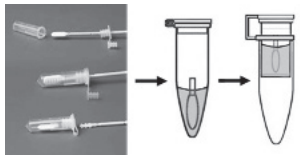
1. Sample preparation

   a. Throat swab: incubate the throat swab at room temperature in 1ml DMEM** or DNA/RNA Shield.

   Transfer the swab and the medium (see Figure 1 below) to a filter spin column and centrifuge at full speed for 5 minute(s) to get clear solution in the collection tube.

   **DMEM is used as a stabilizing medium; if other transport/stabilizing medium is used, DMEM is not necessary.

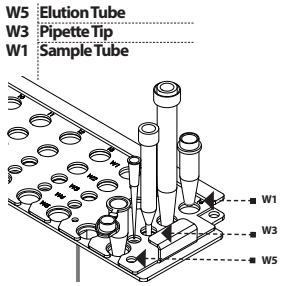
   Figure 1



   b. Sputum: add 1 volume of sputum to 1 volume of PBS buffer *** or DNA/RNA Shield and mix by vortexing.

   ***PBS buffer is used to dilute the sample for easy pipetting; if the sample is already easy to pipette or mixed with another medium, PBS is not necessary.

2. Pipette 200 µl of the clear solution and 200 ul of RB buffer into a 1.5 ml microcentrifuge tube. If using a DNA/RNA Shield solution pipette 400 ul of the solution into a 1.5ml microcentrifuge tube.
3. Pipette 10ul Carrier RNA (1mg/ml) and 20 ul proteinase K (10mg/ml) into the tube.
4. Mix by vortexing and incubate for 15 minute(s) at room temperature.
5. Pipette 400ul of sample into XTRACT 16+ Sample Tube.
6. Select Code 203, sample volume 400 ul for extraction.
7. Internal Control (IC) Selection (optional).
   a. Pipette the Internal Control (5, 10, 20 ul) into a new Sample Tube.
   b. Place the Sample Tube into the correct well of the T-rack (see below).
   c. Select Internal Control: Yes or No.
8. Put the prepared Sample Tube into the correct well of the T-Rack (see below).
9. Put the Elution Tube and Pipette Tip into the correct wells of T-Rack (see below).
10. Run Code 203 program on XTRACT 16+.



XTRACT 16+ Viral Nucleic Acid Large Volume Extraction Kit (2.4ml)

For extraction of viral DNA/RNA from large volume (2.4ml) serum, plasma and cell-free body fluids

Cartridge Code 210

Cat.No.XK210-96

Kit Contents

Check that the following parts are included in addition to the main unit:

Cat.No. XK210-96 Contents:

Pre-filled Cartridge Reagent	96 pcs.
Pipette Tip plus Holder Set	100 sets.
Sample Tube	100 pcs.
Elution Tube	100 pcs.
Carrier RNA(1mg)	1 pcs.
RNase Free Water	1 pcs.
Proteinase K(11mg)	2 pcs.
PK Storage Buffer	2 pcs.

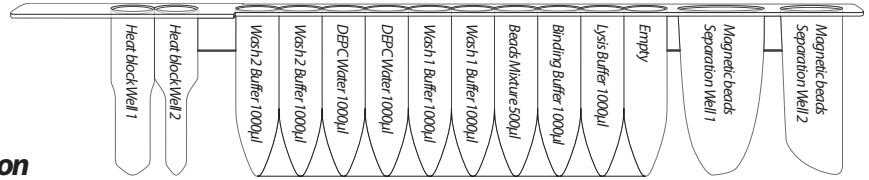
Additional part required:

Part Number XP-P4603002 T-Rack 5ml 16 Slot rack

Storage and Stability :

1. This kit should be stored at room temperature.
2. Carrier RNA should be stored at -20°C when mixing with RNase Free Water.
3. Shelf life 12 months.

Cartridge Contents :



Description

XTRACT 16+ Viral Nucleic Acid Large Volume Extraction Kit (2.4ml) is designed for purification of DNA and RNA from 2.4 ml serum, plasma, cell-free body fluids. All the kit components of plastic consumables DNase/RNase-Free pretreated, and there is an individual processing track for each loaded sample to eliminate all possible cross-contamination between samples. These are built-in protocols, with flexibility in sample source volumes, DNA and RNA virus can be extracted using this kit in a fast and economical way.

Applications

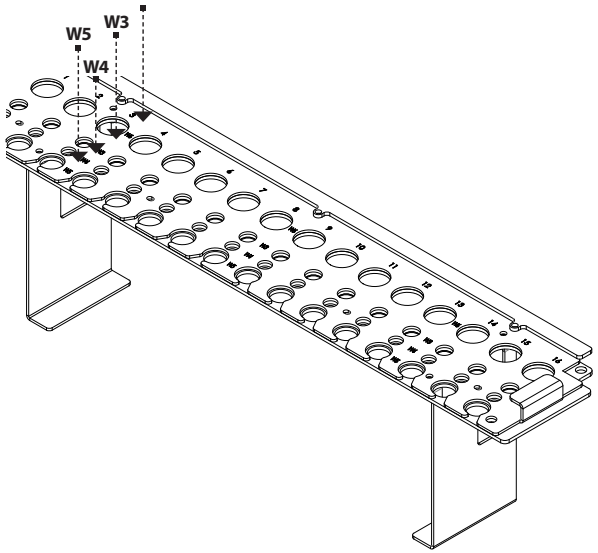
Uses magnetic-particle technology to purify viral nucleic acid from serum, plasma, or cell-free body fluids. The purified viral nucleic acid is suitable for highly sensitive and quantitative PCR.

Preparation before using

1. *Add 1.0 ml RNase Free Water to the Carrier RNA tube and mix by vortexing. Store prepared Carrier RNA (1mg/ml) at -20℃. (Do not freeze–thaw the carrier RNA more than 3 times.)*
2. *Add 1.1ml PK Storage Buffer to the Proteinase K tube and mix by vortexing. Store prepared Proteinase K (10mg/ml) at 2-8 ℃ for up to 2 months.*

Protocol

1. *Pipette 20 ul Carrier RNA (1mg/ml) and 40 ul proteinase K (10mg/ml) into the XTRACT 16+ 5ml Sample Tubes.*
2. *Add 2400 ul of seum, plasma, or cell-free body fluids into the prepared 5ml Sample Tube.*
3. *Put the prepared 5ml Sample Tube into the correct well of the T-Rack (see below).*
4. *Put Elution Tube and Pipette Tip into the correct wells of T-Rack (see below).*
5. *Run Code 210 program on the XTRACT 16+.*



W5 Elution Tube
W3 Pipette Tip
W6 Sample Tube

NOTE: Special T-Rack required

XTRACT 16+ Viral Nucleic Acid Large Volume Extraction Kit (1.2 ml)

For extraction of viral DNA/RNA from large volume (1.2 ml) serum, plasma and cell-free body fluids

Cartridge Code 211

Cat.No.XK211-96

Kit Contents

Check that the following parts are included in addition to the main unit:

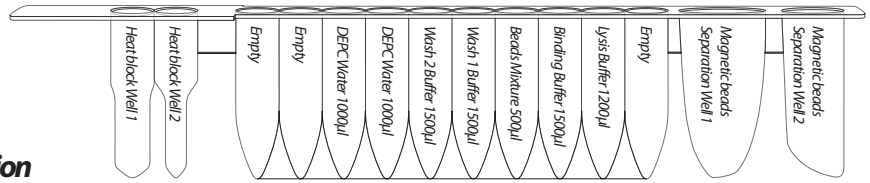
Cat.No. XK211-96 Contents:

Pre-filled Cartridge Reagent	96 pcs.
Pipette Tip plus Holder Set	100 sets.
Sample Tube	100 pcs.
Elution Tube	100 pcs.
Carrier RNA(1mg)	1 pcs.
RNase Free Water	1 pcs.
Proteinase K(11mg)	2 pcs.
PK Storage Buffer	2 pcs.

Storage and Stability :

1. This kit should be stored at room temperature.
2. Carrier RNA should be stored at -20℃ after mixing with RNase Free Water.

Cartridge Contents :



Description

XTRACT 16+ Viral Nucleic Acid Large Volume Extraction Kit (1.2ml) is designed for purification of DNA and RNA from 1.2 ml serum, plasma and cell-free body fluids. All the kit components of plastic consumables are DNase/RNase-Free pretreated, and there is an individual processing track for each loaded sample to eliminate all possible cross-contamination between samples. The built-in protocols allow for flexibility in sample source volumes, DNA and RNA virus can be extracted using this kit in a fast and economical way.

Applications

Uses magnetic-particle technology to purify viral nucleic acid from serum, plasma, or cell-free body fluids. The purified viral nucleic acid is suitable for highly sensitive and quantitative PCR.

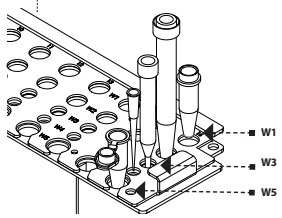
Preparation before using

1. Add 1.0 ml RNase Free Water to the Carrier RNA tube and mix by vortexing. Store prepared Carrier RNA (1mg/ml) at -20℃. (Do not freeze–thaw the carrier RNA more than 3 times.)
2. Add 1.1ml PK Storage Buffer to the Proteinase K tube and mix by vortexing. Store prepared Proteinase K (10mg/ml) at 2-8 ℃ for up to 2 months.

Protocol

1. Pipette 10 µl Carrier RNA(1mg/ml) and 20 µl proteinase K(10mg/ml) into the XTRACT 16+ Sample Tubes.
2. Add 1200 µl of serum, plasma, or cell-free body fluids into the prepared Sample Tube.
3. Put the prepared Sample Tube into the correct well of T-Rack (see below).
4. Put Elution Tube and Pipette Tip into the correct wells of T-Rack (see below).
5. Run Code.211 program on the XTRACT 16+.

W5 Elution Tube
W3 Pipette Tip
W1 Sample Tube



XTRACT 16+ Genomic DNA Plant Kit

For extraction of genomic DNA from plant and fungal tissues

Cartridge Code 301

Cat.No.XK301-96

Kit Contents

Check that the following parts are included in addition to the main unit:

Cat.No. XK301-96 Contents:

Pre-filled Cartridge Reagent	96 pcs.
Pipette Tip plus Holder Set	100 sets.
Sample Tube	100 pcs.
Elution Tube	100 pcs.
Filter Column Set	100 pcs.
RNase A(10mg/ml, 550µl)	1 pcs.
GP1 Buffer(50ml)	1 pcs.
GP2 Buffer(15ml)	1 pcs.

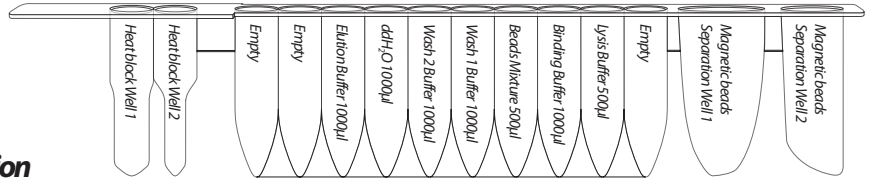
Additional items, not provided:

1. Microcentrifuge tube(s)

Storage and Stability :

1. This kit should be stored at room temperature.
2. For long term storage, RNase A should be stored at 2-8 ℃.
3. Shelf life 12 months.

Cartridge Contents :



Description

XTRACT 16+ Genomic DNA Plant Kit is designed for purification of DNA from plant tissues and cells. The provided filter column set filters hard tissue samples and prevent tissue residue from obstructing the pipette tip during processing. The kit contains all required reagent and labware for automated purification using magnetic-particle technology.

Applications

Uses magnetic-particle technology to purify genomic DNA up to 100mg of fresh tissue. The purified genomic DNA can be directly used for downstream applications such as quantitative PCR, PCR, southern blotting, RADP / AFLP... etc.

Useful Information

The kit procedures are optimized for a maximum of 100 mg of wet-weight or 20 mg of dried starting material.

Exceeding the recommended maximum amount of starting material will result in inefficient lysis, resulting in low yield and purity.

Do not mix GP1 Buffer with RNase A before use.

Tissue Dissociation Protocol

1. *Cut 50 mg (up to 100 mg) of fresh or frozen plant tissue or 5 mg (up to 20 mg) of dried sample.*
2. *Grind the sample with mortar and pestle under liquid nitrogen to a fine powder. For some plant samples, liquid nitrogen may be unnecessary for homogenization.*
3. *Transfer it into a microcentrifuge tube (not provided).*

Lysis Step:

1. *Add 400µl GP1 Buffer and 5µl RNase A (10mg/ml) into the microcentrifuge tube and mix by vortexing.*
2. *Incubate at 65℃ for 10 minute(s). During incubation, invert the tube every 5 minute(s).*
3. *Add 100µl GP2 Buffer and mix by vortexing.*
4. *Incubate on ice for 3 minute(s). Place a Filter Column into a 2 ml Collection Tube and apply the entire lysate from previous step to the Filter Column.*
5. *Centrifuge for 3 minute(s) at full speed (16,200 x g).*
6. *Discard the Filter Column and carefully transfer clarified lysate(about 400µl) in the collection tube to the XTRACT 16+ Sample Tubes.*
7. *Put the prepared Sample Tube into the correct well of T-Rack (see below).*
8. *Put Elution Tube and Pipette Tip into the correct wells of T-Rack (see below).*
9. *Run Code.301 program on the XTRACT 16+.*

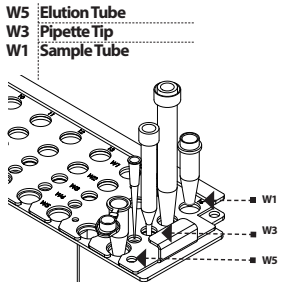
Fungal Tissue Protocol

Sample preparation

1. *Collect up to 20mg of fungal tissue.*
2. *Grind the sample with mortar and pestle under liquid nitrogen to a fine powder.*
3. *Transfer it into a microcentrifuge tube (not provided). Do not allow the sample to thaw.*

Cell Lysis

1. *Add 400µl GP1 Buffer and 5µl RNase A (10mg/ml) into the microcentrifuge tube and mix by vortexing.*
2. *Incubate at 65℃ for 10 minute(s). During incubation, invert the tube every 5 minute(s).*
3. *Add 100µl GP2 Buffer and mix by vortexing.*
4. *Incubate on ice for 3 minute(s). Place a Filter Column into a 2 ml Collection Tube and apply the entire lysate from previous step to the Filter Column.*
5. *Centrifuge for 3 minute(s) at full speed (16,200 x g).*
6. *Discard the Filter Column and carefully transfer clarified lysate(about 400µl) in the collection Tube to the XTRACT 16+ Sample Tubes.*
7. *Put the prepared Sample Tube into the correct well of T-Rack (see below).*
8. *Put Elution Tube and Pipette Tip into the correct wells of T-Rack (see below).*
9. *Run Code.301 program on the XTRACT 16+.*



XTRACT 16+ Genomic DNA Tissue Kit

For extraction of genomic DNA from a variety of animal tissues, paraffin-embedded tissue, swab, blood stain, forensic specimens and cultured yeast

Cartridge Code 401

Cat.No.XK401-96

Kit Contents

Check that the following parts are included in addition to the main unit:

Cat.No. XK401-96 Contents:

Pre-filled Cartridge Reagent	96 pcs.
Pipette Tip plus Holder Set	100 sets.
Sample Tube	100 pcs.
Elution Tube	100 pcs.
GT Buffer(30ml)	2 pcs.
Filter Column Set	100 pcs.
Proteinase K(11mg)	2 pcs.
PK Storage Buffer	2 pcs.

[Suggested Xylene Substitute: A5597(Sigma), Neo-Clear(Merck), CitriSolv(Fisher)]

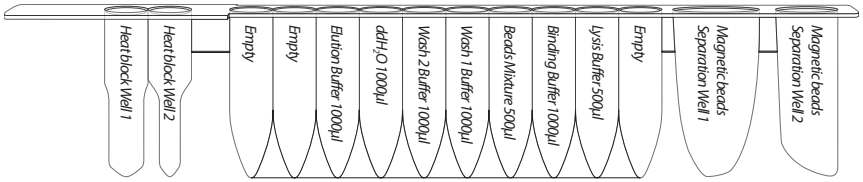
Additional items, not provided:

1. Xylene or substitute
2. Ethanol (96-100%)
3. Microcentrifuge tube
4. RNase A
5. Sorbitol buffer, Lyticase or Zymolyase
6. PBS

Storage and Stability :

1. This kit should be stored at room temperature.
2. Shelf life 12 months.

Cartridge Contents :



Description

XTRACT 16+ Genomic DNA Tissue Kit is designed for purification of total DNA (including genomic, mitochondrial and viral DNA) from a variety of animal tissues or cells. The provided Filter Column can filtrate hard tissue sample or swab sample to prevent tissue residues from obstructing pipette tips during processing. The method uses pre-filled cartridges which contain proteinase K and a chaotropic salt to lyse cells and degrade protein. DNA will bind to cellulose coated magnetic beads . After washing off the contaminants, the purified DNA is eluted by low salt elution buffer. Purified DNA of approximately 20-30 kb in length is suitable for PCR or other enzymatic reactions.

Applications

Uses magnetic-particle technology to purify genomic DNA from animal tissues, paraffin embedded tissue, swab and blood stain. The purified genomic DNA can be directly used for downstream application such as quantitative PCR, restriction enzyme digestion, southern blotting... etc.

Preparation before using

1. *Add 1.1ml PK Storage Buffer to the Proteinase K tube and mix by vortexing. Store prepared Proteinase K (10mg/ml) at 2-8 ℃ for up to 2 months .*

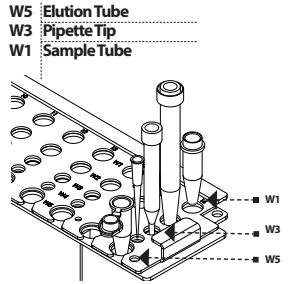
Paraffin-Embedded Tissue Protocol

Sample Preparation:

1. *Slice small section (5-10µm) of paraffin-embedded tissue and transfer to a microcentrifuge tube.*
   Discard the first 2-3 sections, if the surface of paraffin sample has been exposed to air.
2. *Add 1ml xylene (or substitute) to the tube and vortex vigorously for 10 s econd(s). Then incubate at 60℃ for 10 minute(s).*
3. *Centrifuge at full speed for 3 minute(s) at room temperature.*
4. *Remove the supernatant carefully by pipetting, then add 1ml ethanol (96-100%) to the pellet and mix by vortexing for 10 second(s).*
5. *Centrifuge at full speed for 5 minute(s) at room temperature.*
6. *Remove the supernatant carefully by pipetting, then add another 1ml ethanol (96-100%) to the pellet and mix by vortexing for 10 second(s) to wash again.*
7. *Centrifuge at full speed for 5 minute(s).*
8. *Remove residual ethanol with a fine pipette tip, then open the tube and incubate at 55℃ for 5 minute(s) until all residual ethanol has been evaporated.*
9. *Add 400µl GT Buffer and 20µl Proteinase K(10mg/ml) to the tube and mix by vortexing.*
10. *Incubate at 55℃ for 90 minute(s) until the sample has been completely lysed.*
11. *If there are any insoluble residues in the tube, transfer the supernatant to Filter Column and centrifuge at full speed for 5 minute(s) to get clear tissue solution in the Collection Tube.*
12. *Pipette 400µl of clear tissue solution to the XTRACT 16+ Sample Tube.*
13. *Put the prepared Sample Tube into the correct well of T-Rack (see below).*
14. *Put Elution Tube and Pipette Tip into the correct wells of T-Rack (see below).*
15. *Run Code.401 program on the XTRACT 16+.*

Swab Sample Protocol

1. *Separate the swab cotton from the stick. Place the swab into a 2ml microcentrifuge tube, add at least 500µl of GT Buffer and 20µl Proteinase K(10mg/ml).*
   For Buccal Swab sample, donor should not ingest anything for at least 30 minute(s) prior to sample collection.
2. *Incubate the sample lyaste at 55℃ for 30 minute(s).*
3. *If there are any insoluble residues in the tube, transfer the supernatant to Filter Column and centrifuge at full speed for 5 minute(s) to get clear tissue solution in the Collection Tube.*
4. *Pipette 400 µl of clear tissue solution to the XTRACT 16+ Sample Tube.*
5. *Put the prepared Sample Tube into the correct well of T-Rack (see below).*
6. *Put Elution Tube and Pipette Tip into the correct wells of T-Rack (see below).*
7. *Run Code.401 program on the XTRACT 16+.*



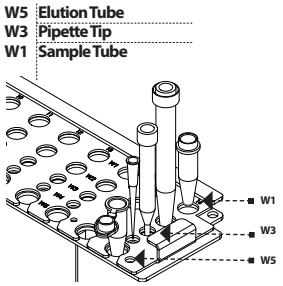
Solid Animal Tissue Protocol

1. Cut the solid tissue into small pieces (up to 30 mg) and put into a microcentrifuge tube.
2. Add 400µl GT Buffer and 20µl Proteinase K(10mg/ml) to the tube and mix by vortexing.
3. Incubate at 55℃ for 90 minute(s) until the sample has been completely lysed. Check sample every 30 minute(s).
4. If there are any insoluble residues in the tube, transfer the supernatant to Filter Column and centrifuge at full speed for 5 minute(s) to get clear tissue solution in the Collection Tube.
5. Pipette 400µl of clear tissue solution into the XTRACT 16+ Sample Tube.
6. Put the prepared Sample Tube into the correct well of T-Rack (see below).
7. Put Elution Tube and Pipette Tip into the correct wells of T-Rack (see below).
8. Run Code.401 program on the XTRACT 16+.

Stool Sample Protocol

1. Weigh180-200mg stool in a 2ml microcentrifuge tube and place on ice. If the sample is liquid, pipette 200µl into microcentrifuge tube. Cut the end of pipette tip to make pipetting easier. If the sample is frozen, use a scalpel or spatula to scrape bits of stool into microcentrifuge tube on ice.

   Recommend: Add 1ml TE buffer (10 mM Tris-Cl; 1 mM EDTA, pH 8). Resuspend the sample by vigorous vortexing for 30 second(s). Centrifuge the sample mixture for 15 minute(s) at 4,000 x g and discard supernatant.
2. Add 1.5ml GT Buffer to sample. Vortex continuously for 1 minute(s) or until the stool sample is thoroughly homogenized. This is very important to vortex sample thoroughly to ensure maximum DNA concentration in the final eluate(s).
3. Incubate the suspension for 5 minute(s) at 70℃. This step can increase DNA recovery 3-5 fold, if the sample target is Gram-positive bacteria, please increase to 95℃ for cells lysis.
4. Vortex for 15 second(s) and centrifuge sample at full speed (16,200 x g) for 1 minute(s) to pellet stool particles.
5. Pipette 400µl of the supernatant into a new 1.5ml microcentrifuge tube.
6. Add 20µl Proteinase K (10mg/ml) to the sample mixture and vortex to mix. Incubate at 60℃ for 2~3 hour(s) to lyse the sample.
7. If there are any insoluble residues in the tube, transfer the supernatant to Filter Column and centrifuge at full speed for 5 minute(s) to get clear tissue solution in the Collection Tube.
8. Pipette 400µl of clear tissue solution to the XTRACT 16+ Sample Tube.
9. Put the prepared Sample Tube into the correct well of T-Rack (see below).
10. Put Elution Tube and Pipette Tip into the correct wells of T-Rack (see below).
11. Run Code.401 program on the XTRACT 16+.



Feed-soil Sample Protocol

1. Apply 30~40mg feed or soil samples into a 1.5 ml microcentrifuge tube.
2. Add 20µl (10mg/ml) Proteinase K and 500µl of GT Buffer. Vortex gently until the powder is suspended in GT buffer.
3. Incubate the mixture at 56℃ for 15minute(s). Invert the tube every 2~3 minute(s) during incubation.

   Typically 15 minute(s) incubation can lysis more than 90% cells . Extending incubation time to 20 minute(s) can increase 10% of yield.
4. Centrifuge the mixture for 3 minute(s) at full speed.
5. If there are any insoluble residues in the tube, transfer the supernatant to Filter Column and centrifuge at full speed for 5 minute(s) to get clear tissue solution in the Collection Tube.
6. Pipette 400µl of clear tissue solution into the XTRACT 16+ Sample Tube.
7. Put the prepared Sample Tube into the correct well of T-Rack (see below).
8. Put Elution Tube and Pipette Tip into the correct wells of T-Rack (see below).
9. Run Code.401 program on the XTRACT 16+.

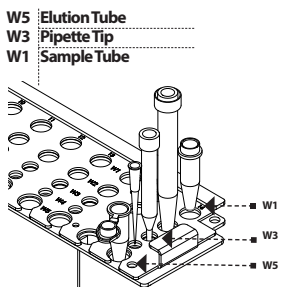
Dried Blood Spot Protocol

1. Cut 3mm diameter punches from a dried blood spot with a single-hole paper punch. Place up to 3 blood card into a 1.5ml microcentrifuge tube.
2. Add 400~500µl GT buffer into the microcentrifuge tube and continue to homogenize the sample tissue with grinding.
3. Add 20µl Proteinase K (10mg/ml) to the sample mixture and vortex to mix. Incubate at 60℃ for 1 hour(s) to lyse the sample.
4. If there are any insoluble residues in the tube, transfer the supernatant to Filter Column and centrifuge at full speed for 5 minute(s) to get clear tissue solution in the Collection Tube.
5. Pipette 400ul of clear tissue solution to the XTRACT 16+ Sample Tube.
6. Put the prepared Sample Tube into the correct well of T-Rack (see below).
7. Put Elution Tube and Pipette Tip into the correct wells of T-Rack (see below).
8. Run Code.401 program on the XTRACT 16+.

Optional Step: RNA Degradation

If RNA-Free genomic DNA is required, perform these optional steps before adding Proteinase K.

1. Add 4µl RNase A (not provided, 50mg/ml) into the sample lysate.
2. Incubate the sample at room temperature for 20 minute(s).



Cigarette Butts Protocol

Sample preparation

1. Cut 1 cm^2 piece of outer paper from the end of the cigarette or filter. Cut this piece into 6 smaller pieces. Transfer the pieces to a 1.5 ml microcentrifuge tube.

Cell Lysis

1. Add 500µl GT buffer and 20µl Proteinase K (10mg/ml), close the lid, and mix for 10 second(s). Incubate at 60℃ for 1 hour(s) to lyse the sample.
2. Briefly centrifuge the tube to remove drops from the inside of the lid.
3. Pipette 400µl of clear tissue solution into the XTRACT 16+ Sample Tube.
2. Put the prepared Sample Tube into the correct well of T-Rack (see below).
3. Put Elution Tube and Pipette Tip into the correct wells of T-Rack (see below).
4. Run Code.401 program on the XTRACT 16+.

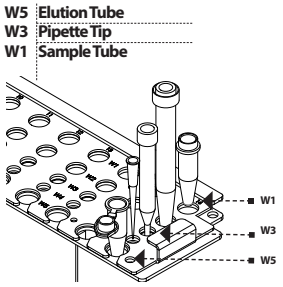
Hair Roots Protocol

Sample preparation

1. Cut the hair roots into 0.5–1 cm pieces, and transfer pieces to the 1.5 ml microcentrifuge tube.

Cell Lysis

1. Add 500µl GT buffer and 20µl Proteinase K (10mg/ml), close the lid, and mix for 10 second(s). Incubate at 60℃ for 1 hour(s) to lyse the sample.
2. Briefly centrifuge the tube to remove drops from the inside of the lid.
3. Pipette 400µl of clear tissue solution into the XTRACT 16+ Sample Tube.
4. Put the prepared Sample Tube into the correct well of T-Rack (see below).
5. Put Elution Tube and Pipette Tip into the correct wells of T-Rack (see below).
6. Run Code 401 program on the XTRACT 16+.



Chewing Gum Protocol

Sample preparation

1. Cut up to 30 mg of chewing gum into small pieces and transfer pieces to a 1.5 ml microcentrifuge tube.

Cell Lysis

1. Add 500µl GT buffer and 20µl Proteinase K (10mg/ml), close the lid, and mix for 10 second(s). Incubate at 60℃ for 1~3 hour(s) to lyse the sample.
2. Briefly centrifuge the tube to remove drops from the inside of the lid.
3. Pipette 400µl of clear tissue solution into the XTRACT 16+ Sample Tube.
4. Put the prepared Sample Tube into the correct well of T-Rack (see below).
5. Put Elution Tube and Pipette Tip into the correct wells of T-Rack (see below).
6. Run Code.401 program on the XTRACT 16+.

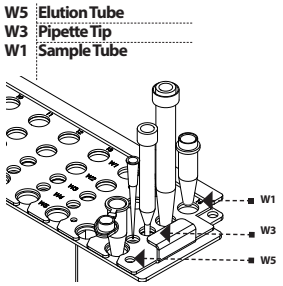
Betel Nut Residue Protocol

Sample preparation

1. Cut up to 30 mg of betel nut residue into small pieces and transfer pieces to a 1.5 ml microcentrifuge tube.

Cell Lysis

1. Add 500µl GT buffer and 20µl Proteinase K (10mg/ml), close the lid, and mix for 10 second(s). Incubate at 60℃ for 1~3 hour(s) to lyse the sample.
2. Briefly centrifuge the tube to remove drops from the inside of the lid.
3. Pipette 400µl of clear tissue solution into the XTRACT 16+ Sample Tube.
4. Put the prepared Sample Tube into the correct well of T-Rack (see below).
5. Put Elution Tube and Pipette Tip into the correct wells of T-Rack (see below).
6. Run Code 401 program on the XTRACT 16+.

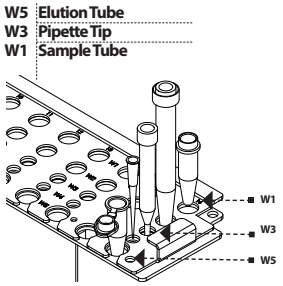


Saliva Protocol

- **Sample Preparation:** *1 x PBS Buffer and 15 ml tube.*

Cell Lysis

1. *Add 1 ml saliva from a donor who has not ingested anything for at least 30 minute(s) prior to sample collection, and 4 ml PBS buffer (not provided), to 15ml tube.*
2. *Centrifuge at 1800 x g for 5 minute(s), and then carefully discard the supernatant.*
3. *Resuspend the pellet in 400µl GT buffer.*
4. *Add 20µl Proteinase K, close the lid, and mix for 10 second(s). Incubate at 70°C for 10 minute(s) to lyse the sample.*
5. *If there are any insoluble residues in the tube, transfer the supernatant to Filter Column and centrifuge at full speed for 5 minute(s) to get clear tissue solution in the Collection Tube.*
6. *Pipette 400µl of clear tissue solution into the XTRACT 16+ Sample Tube.*
7. *Put the prepared Sample Tube into the correct well of T-Rack (see below).*
8. *Put Elution Tube and Pipette Tip into the correct wells of T-Rack (see below).*
9. *Run Code.401 program on the XTRACT 16+.*



Cultured Yeast Protocol

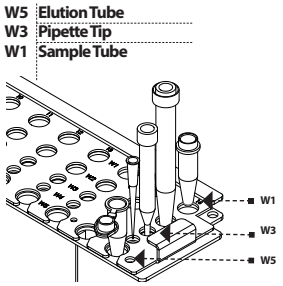
- **Preparation of Sorbitol Buffer:** *1.2 M sorbitol, 10mM CaCl2, 0.1M Tris-Cl pH 7.5. Sterilize by filtration and store at 2-8 ℃.*

Sample preparation

1. *Harvest 3ml yeast cells (up to 5x10^7 cells) by centrifugation at 5000 x g for 10 minute(s). Discard the supernatant and carefully remove any remaining media by aspiration.*
2. *Resuspend the cell pellet in 600µl sorbitol buffer (not provided).*

Cell Lysis

1. *Add 200ml Lyticase or Zymolyase (not provided). Incubate at 30°C for 30 minute(s). Centrifuge the mixture for 10 minute(s) at 2,000 x g to harvest Spheroplast.*
2. *Remove the supernatant and add 400µl of GT Buffer to the tube and vortex or pipette to resuspend the cell pellet.*
3. *Incubate at 55°C for 90 minute(s) until the sample has been completely lysed.*
4. *If there are any insoluble residues in the tube, transfer the supernatant to Filter Column and centrifuge at full speed for 5 minute(s) to get clear tissue solution in the collection tube.*
5. *Pipette 400µl of clear tissue solution into the XTRACT 16+ Sample Tube.*
6. *Put the prepared Sample Tube into the correct well of T-Rack (see below).*
7. *Put Elution Tube and Pipette Tip into the correct wells of T-Rack (see below).*
8. *Run Code.401 program on the XTRACT 16+.*



XTRACT 16+ Genomic DNA FFPE One-Step Kit

For extraction of total DNA from formalin-fixed paraffin-embedded (FFPE) tissue

Cartridge Code 405

Cat. No. XK405-72

Kit Contents

Check that the following parts are included in addition to the main unit:

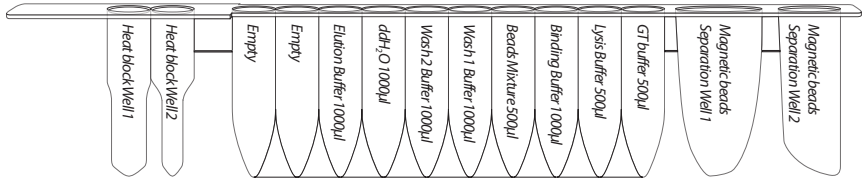
Cat.No. XK405-72 Contents:

Pre-filled Cartridge Reagent	72 pcs.
Pipette Tip plus Holder Set	150 sets.
Elution Tube	75 pcs.
Sula Oil (50ml)	1 pcs.
Proteinase K(11mg)	2 pcs.
PK Storage Buffer	2 pcs.
Thermostable cap	75 pcs.

Storage and Stability

1. This kit should be stored at room temperature.
2. Shelf life 12 months.

Cartridge Contents :



Description

XTRACT 16+ Genomic DNA FFPE One-Step Kit is designed for purification of total DNA from FFPE tissues. It features one-step heating to melt paraffin and lyse tissue samples at the same time without harmful reagents involved such as xylene. Two protocols are designed and optimized for different sizes of tissues: 2 hrs for small samples/ 16 hrs for large samples (Please see "Important Notes").

Applications

Uses magnetic-particle technology to purify genomic DNA from FFPE tissue. The purified genomic DNA can be directly used for downstream application such as PCR, real-time PCR, restriction enzyme digestion, southern blotting, etc.

Preparation before using

1. Add 1.1 ml PK Storage Buffer to the Proteinase K tube and mix by vortexing. Store prepared Proteinase K (10 mg/ml) at 2-8℃ for up to 2 months.

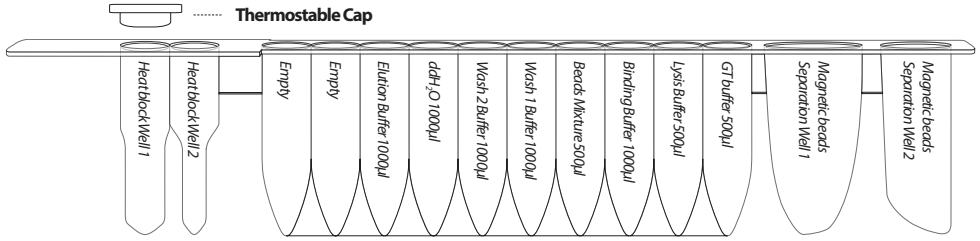
Needle-like FFPE Tissue Sections Protocol

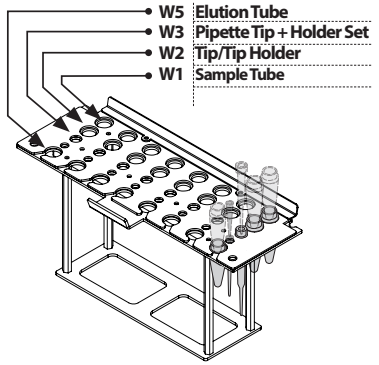
1. Cut 5-50µm sections from FFPE tissue blocks by using a microtome.
2. Take the equivalent of <50µm tissue sections into 1.5 ml microcentrifuge tube (See "Important Notes").
3. Trim the excess paraffin from the tissue sections.
4. Use an RNase-free pipette tip to put the tissue sections from step 3 into the bottom of **Heat Block Well 1** of the cartridge.
5. Add 500µl of Sula Oil, Proteinase K (10mg/ml) and the FFPE tissue sample to the bottom of **Heat Block Well 1** of the cartridge, and then cover it with the thermostable cap.

   Note: If the tissue sample is too large to lyse (the surface area over 300mm^2), cut it in 4 sections (Please see Important Notes Step 3) before adding into the Heat Block Well 1. Make sure the tissue is at the bottom of the well to avoid clipping it with the thermostable cap.
6. Put Elution Tube, Tip Plus Holder Set and Pipette Tip into the correct wells of T-Rack (see below).
7. Run Code 405 program on the XTRACT 16+.

Glass-Slide Samples Protocol

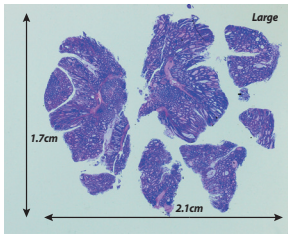
1. Put a few drops of Sula Oil on the glass slide and scrape the tissue from the slide carefully, then put in the bottom of **Heat Block well 1**.
2. Add 500 µl Sula Oil and 20 µl proteinese K (10mg/ml) into **Heat Block well 1**, rinse remaining sample on the wall and blade, then cover **Heat Block Well 1** up with the Thermostable cap.
3. Put Elution Tube, Tip Plus Holder Set and Pipette Tip into the correct wells of T-Rack (see below).
4. Run Code 405 program on the XTRACT 16+.

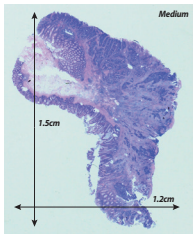


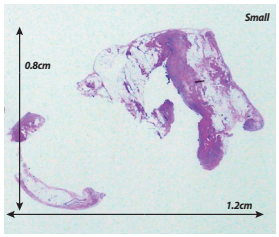


Important Notes

1. The surface area of the FFPE tissue sample could be measured like the following examples:







2. Sample amount can be 1-5 scrolls, **each with a thickness up to 5μm**. One FFPE scroll could be enough to analyze, if the surface area is over 200 mm^2. If thickness is over 5mm, only load one scroll.

Surface area (mm^2)	Sample scroll
200	1
100-200	1-2
50-100	2-3
50	3-5 (Don't load over 5 scrolls)

*Do not overload the sample or paraffin will clog the tip and decrease the yield.

3. If the tissue sample is over 300 mm^2, we recommend cutting it into 4 sections like the following examples:

4. If you have no information about the sample, we recommend starting with 1-2 scrolls and cutting it into 4 sections per preparation.
5. Sula Oil is a deparaffinization buffer. The capacity of the Sula Oil (500 μl) is about 20 mg paraffin per preparation.
6. In the XTRACT 16+405 program, two different lyse times are provided: 2 hour(s) and 16 hour(s).

Recommendation

1. Both 2 hour(s) and 16 hour(s) program can extract DNA from FFPE sample.
   Choose 2 hour(s) program for saving time; choose 16 hour(s) for higher yield.
2. If you want to increase DNA yield, an overnight incubation (16 hour(s) program) can be performed, but it may result in greater DNA fragmentation.

Troubleshooting

Symptoms	Comments and suggestions
Low or NO DNA product	1. The sample was lysed insufficiently. Make sure the proteinase K was stored at 2-8°C, and repeat the procedure using fresh PK. 2. The sample was too large to lyse completely. Cut large FFPE tissue into 4 sections, one scroll is enough for extraction. Clogging tip will affect the extraction process.
Poor PCR results	1. Poor quality FFPE samples. Fixation condition can affect PCR performance, such as long-time storage in fixative. 2. DNA fragments. DNA purified from FFPE samples may be fragmented due to formalin fixation, so we suggest keeping amplicons as short as possible for PCR.
Clogging tip or liquid up to the tip filter	1. The size of the sample was too large to pipette. Large pieces of tissue that clog the pipette tip may result in pushing the liquid up to the tip filter or prevent the extraction from completing. 2. The amount of sample was too large. Do not overload the cartridge. For large or thick tissue pieces, one slice of tissue is sufficient. For small tissue, we suggest a maximum of 20mg of FFPE.

XTRACT 16+ Forensic DNA Direct Kit

For extracting genomic DNA from forensic samples

Cartridge Code 406

Cat.No.XK406-72

Kit Contents

Check that the following parts are included in addition to the main unit:

Cat.No. XK406-72 Contents:

- Pre-filled Cartridge Reagent.....72 pcs.
- Pipettete Tip.....75 pcs.
- FS Tip.....75 pcs.
- 200 µl SP Tip.....75 pcs.
- Elution Tube.....75pcs.
- Proteinase K(11mg).....2 pcs.
- PK Storage Buffer.....2 pcs.
- Carrier RNA(1mg).....1 pcs.
- RNase Free Water.....1 pcs.

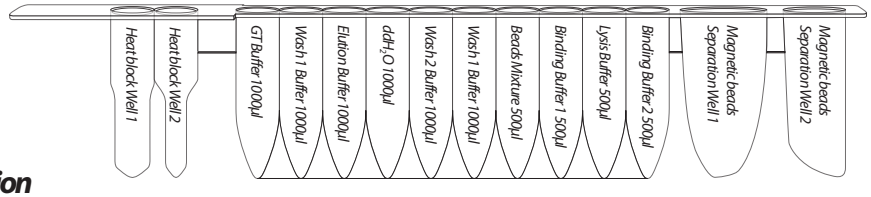
Additional items, not provided:

1. DDT (1M)

Storage and Stability:

1. This kit should be stored at room temperature.
2. Carrier RNA should be stored at -20℃ after mixing with RNase Free Water.
3. Shelf life 10 months.

Cartridge Contents :



Description

XTRACT 16+ Genomic DNA Forensic Kit is designed for purification of total DNA from forensic samples such as dried blood spot, swabs, cigarette butts, chewing gum, hair roots, seminal stain and nail clippings. Solid samples can be purified by the machine without pre-treatment.

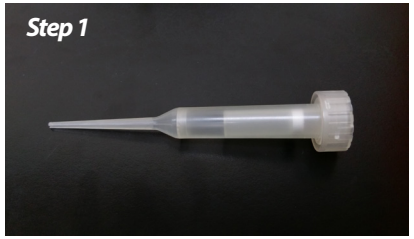
Applications

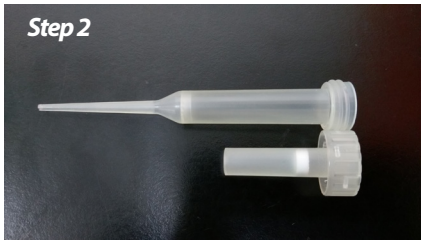
Magnetic-particle technology is used to purify genomic DNA from forensic samples. The purified genomic DNA can be directly used for downstream applications such as STR, PCR, real-time PCR, restriction enzyme digestion, southern blotting, etc.

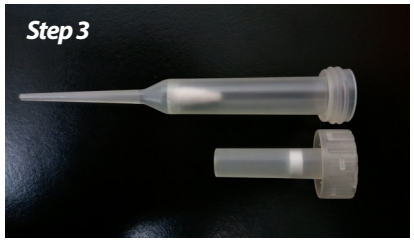
Preparation before using

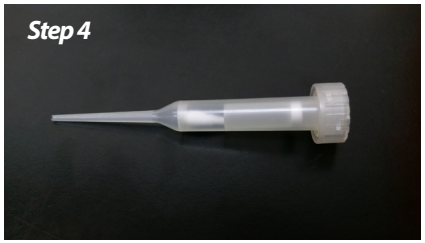
1. *Add 1.0 ml RNase Free Water to the Carrier RNA tube and mix by vortexing. Store prepared Carrier RNA (1mg/ml) at -20℃.*
2. *Add 1.1ml PK Storage Buffer to the Proteinase K tube and mix by vortexing. Store prepared Proteinase K (10mg/ml) at 2-8℃ for up to 2 months.*

FS Tip operation steps



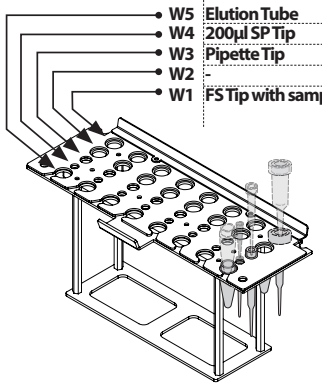






1. *Take FS Tip out.*
2. *Unscrew the FS Tip lid.*
3. *Transfer the sample into the bottom of FS Tip.*

⚠ **4. *Screw the lid moderately, not over tight to prevent tip deformation and leakage of liquid.***



Notes

1. *Sample must be placed at the bottom of the FS Tip.*
2. *5µl of Carrier RNA (1mg/ml) and 20µl of proteinase K (10mg/ml) must be added to the bottom of Heat block Well1.*

Dried Blood Spot Protocol

Sample preparation

1. Punch 3mm-diameter holes from a dried blood spot with a single-hole paper punch. Place up to 3 punches into the bottom of FS Tip.
2. Add 5µl Carrier RNA (1mg/ml) and 20µl proteinase K (10mg/ml) to the bottom of **Heat block Well 1**.
3. Put the 406 cartridges into Cartridge Rack.
4. Place the FS Tip (with Sample) into **well 1**, the Pipette Tip into **well 3**, the 200µl SP Tip into **well 4** and the Elution Tube into **well 5** of T-rack.
5. Run Code **406C** program on the XTRACT 16+.

Swab Protocol

Sample preparation

1. Separate the swab cotton from its stick with scissors. Place the cotton at the bottom of the FS Tip.
2. Add 5µl Carrier RNA (1mg/ml) and 20µl proteinase K (10mg/ml) to the bottom of **Heat block Well 1**.
3. Put the 406 cartridges into Cartridge Rack.
4. Place the FS Tip (with Sample) into **well 1**, the Pipette Tip into **well 3**, the 200µl SP Tip into **well 4** and the Elution Tube into **well 5** of T-rack.
5. For blood swab, run Code **406C** program on the XTRACT 16+; for saliva swab, run Code **406A** program on the XTRACT 16+.

Cigarette Butts Protocol

Sample preparation

1. Cut off 0.5cm thick of the filter with tipping paper from the filtration zone. Transfer a piece into the bottom of FS Tip.
2. Add 5µl Carrier RNA (1mg/ml) and 20µl proteinase K (10mg/ml) to the bottom of **Heat block Well 1**.
3. Put the 406 cartridges into Cartridge Rack.
4. Place the FS Tip (with Sample) into **well 1**, the Pipette Tip into **well 3**, the 200µl SP Tip into **well 4** and the Elution Tube into **well 5** of T-rack.
5. Run Code **406B** program on the XTRACT 16+.

Chewing Gum Protocol

Sample preparation

1. Cut off a piece of chewing gum(≤30mg). Transfer it into the bottom of FS Tip.
2. Add 5µl Carrier RNA (1mg/ml) and 20µl proteinase K (10mg/ml) to the bottom of **Heat block Well 1**.
3. Put the 406 cartridges into Cartridge Rack.
4. Place the FS Tip (with Sample) into **well 1**, the Pipette Tip into **well 3**, the 200µl SP Tip into **well 4** and the Elution Tube into **well 5** of T-rack.
5. Run Code **406B** program on the XTRACT 16+.

Hair Roots Protocol

Sample preparation

1. Cut off 0.5-1cm piece starting from the hair bulb and transfer it into the bottom of FS Tip.
2. Add 5µl Carrier RNA (1mg/ml) and 20µl proteinase K (10mg/ml) to the bottom of **Heat block Well 1**.
3. Add 10µl DTT (1M) (not provided) to the bottom of **Heat block Well 1**.
4. Put the 406 cartridges into Cartridge Rack.
5. Place the FS Tip (with Sample) into **well 1**, the Pipette Tip into **well 3**, the 200µl SP Tip into **well 4** and the Elution Tube into **well 5** of T-rack.
6. Run Code **406B** program on the XTRACT 16+.

Seminal stain Protocol

Sample preparation

1. Place a piece of stained fabric or tissue paper (≤0.5cm2) into the bottom of the FS Tip.
2. Add 5µl Carrier RNA (1mg/ml) and 20µl proteinase K (10mg/ml) to the bottom of **Heat block Well 1**.
3. Add 10µl DTT (1M) (not provided) into Heat block Well 1.
4. Put the 406 cartridges into Cartridge Rack.
5. Place the FS Tip (with Sample) into **well 1**, the Pipette Tip into **well 3**, the 200µl SP Tip into **well 4** and the Elution Tube into **well 5** of T-rack.
6. Run Code **406C** program on the XTRACT 16+.

Nail Clippings Protocol

Sample preparation

1. Transfer the nail clippings(≤10mg) into the bottom of FS Tip.
2. Add 5µl Carrier RNA (1mg/ml) and 20µl proteinase K (10mg/ml) to the bottom of **Heat block Well 1**.
3. Add 10µl DTT (1M) (not provided) to the bottom of **Heat block Well 1**.
4. Put the 406 cartridges into Cartridge Rack.
5. Place the FS Tip (with Sample) into **well 1**, the Pipette Tip into **well 3**, the 200µl SP Tip into **well 4** and the Elution Tube into **well 5** of T-rack.
6. Run Code **406C** program on the XTRACT 16+.

Selection Guide

Sample / Program	Guthrie card/Paper		Swab		Fabric		Cigarette butt	Hair root	Seminal stain	Chewing gum	Nail clipping
	Blood	Saliva	Blood	Saliva	Blood	Saliva					
406A		■		■		■					
406B	□		□		□		■	■	□	■	
406C	■		■		■				■		■

■: Recommended program □: Compatible program

XTRACT 16+ Genomic DNA Bacterial Kit

For extraction of genomic DNA from bacteria

Cartridge Code 502

Cat.No.XK502-96

Kit Contents

Check that the following parts are included in addition to the main unit:

Cat.No. XK502-96 Contents:

Pre-filled Cartridge Reagent	96 pcs.
Pipette Tip plus Holder Set	100 sets.
Sample Tube	100 pcs.
Elution Tube	100 pcs.
Lysozyme Reaction Buffer(30ml)	1 pcs.
Proteinase K(11mg)	4 pcs.
PK Storage Buffer	4 pcs.
RNase A(50mg/ml, 400µl)	1 pcs.

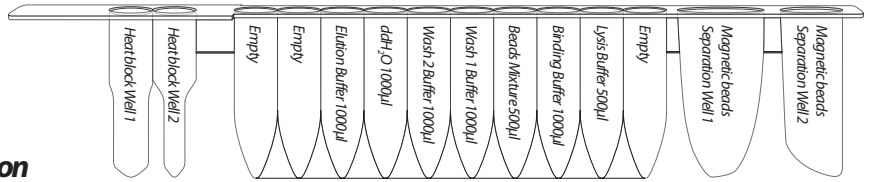
Additional items, not provided:

1. Lysozyme
2. NALC-NaOH
3. PBS

Storage and Stability:

1. This kit should be stored at room temperature.
2. For long term storage, RNase A should be stored at 2-8 ℃.
3. Shelf life 12 months.

Cartridge Contents :



Description

XTRACT 16+ Genomic DNA Bacterial kit is designed to extract genomic DNA from both Gram+ and Gram- bacteria. The kit contains all required reagents and labware for automated purification using magnetic-particle technology. Select program code number 502 on the XTRACT 16+ and use the Genomic DNA Bacterial Kit to extract high quality genomic DNA.

Applications

Uses magnetic-particle technology to purify genomic DNA from both Gram+ and Gram- bacteria. The purified genomic DNA can be directly used for downstream application such as quantitative PCR, restriction enzyme digestion, southern blotting, etc.

Preparation before using

1. Add 1.1ml PK Storage Buffer to the Proteinase K tube and mix by vortexing. Store prepared Proteinase K (10mg/ml) at 2-8 ℃ for up to 2 months.
2. Freshly prepare 20mg/ml Lysozyme solution before use. (for Gram + bacteria isolation, Lysozyme solution is necessary)
   Lysozyme (not provided) + Lysozyme Reaction Buffer = Lysozyme Solution

Sputum Specimens Protocol

Specimens Decontamination

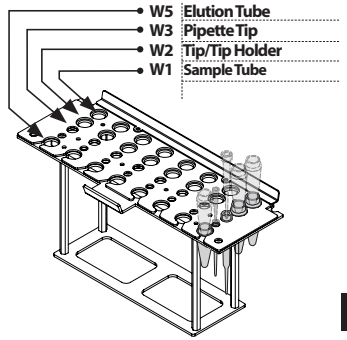
1. Prepare 0.5% NALC in 2% NaOH, 1.5% Na-Citrate solution.
   (Ex: 0.25g NALC in 50mL NALC-NaOH solution)
2. Mix 10mL specimen with 10mL NALC-NaOH sol'n, incubate at room temperature for 15 minute(s).
3. Add 25mL PBS, mix and centrifuge 3000 x g for 15 minute(s).
4. Discard supernatant, resuspend pellet with 200µl Lysozyme solution and transfer to the XTRACT 16+ Sample Tube.
5. Incubate for at least 30 minute(s) at 37℃. During incubation, vortex the tube every 5 minute(s).

Cell Lysis

1. Add 4µl RNase A (50mg/ml) to sample mixture(including any precipitate) and vortex to mix sample.
2. Incubate at room temperature for 10 minute(s).
3. Resuspend sample mixture by pipetting.
4. Add 40µl Proteinase K(10mg/ml) to sample mixture and vortex for 10 second(s).
5. Put the prepared Sample Tube into the correct well of T-Rack (see below).
6. Put Elution Tube and Pipette Tip into the correct wells of T-Rack (see below).
7. Run Code.502 program on the XTRACT 16+.

General Protocol

1. Harvest bacteria (maximum 5x 10^6 cells) in the XTRACT 16+ Sample Tube by centrifuging at 5000 x g for 3 minute(s). Discard supernatant.
2. Resuspend bacterial pellet in 200µl Lysozyme Solution by vortexing or pipetting. (If target is Gram + bacteria, please use Lysozyme Reaction Buffer)
3. Incubate for at least 30 minute(s) at 37℃ and vortex the tube every 5 minute(s). (For Gram - bacteria isolation, you can skip this step)
4. Add 4µl RNase A (50mg/ml) to sample mixture (including any precipitate) and vortex to mix sample.
5. Incubate at room temperature for 10minute(s).
6. Resuspend sample mixture by pipetting.
7. Add 40µl Proteinase K(10mg/ml) to sample mixture and vortex for 10 second(s).
8. Put the prepared Sample Tube into the correct well of T-Rack (see below).
9. Put Elution Tube and Pipette Tip into the correct wells of T-Rack (see below).
10. Run Code.502 program on the XTRACT 16+.



XTRACT 16+ Gut Microbiome DNA Kit

For extraction of microbial and host genomic DNA from stool samples.

Cartridge Code 504

Cat.No.XK504-72

Kit Contents

Check that the following parts are included in addition to the main unit:

Cat.No. XK504-72 Contents:

Pre-filled Cartridge Reagent	72pcs.	GM-L1 Buffer	40ml x 2
Pipette Tip plus Holder Set	75pcs.	GM-L2 Buffer	10ml
Sample Tube	75pcs.	GM-IR Buffer	20ml x 2
Elution Tube	75pcs.	GM-P1 Buffer	10ml
Beads-Beading Tube	75pcs.	GM-P2 Buffer	15ml x 2
		GM-LY Buffer	40ml x 2

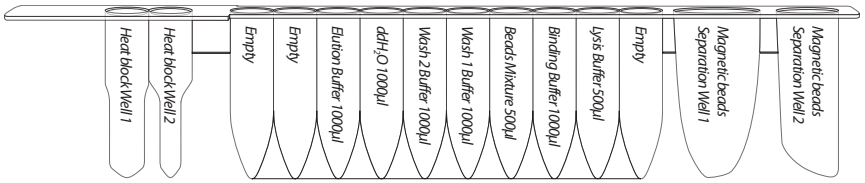
Additional items, not provided:

1. 1.5 ml screw tube
2. Vortex Genie 2 or vortex adapter
3. 50-1000ul pipette tip/microspatula
4. Copan FecalSwab® (not sold by AutoGen)

Storage and Stability:

1. GM-IR and GM-P1 Buffers should be stored at 2-8℃ upon arrival
2. The rest of the kit contents should be stored at room temperature (15-25℃).
3. Shelf life is 12 months

Cartridge Contents :



Description

XTRACT 16+ Gut Microbiome DNA Kit is designed for isolating microbial and host genomic DNA from stool and gut samples. This kit can be used to isolate DNA from tough-to-lyse Gram-positive and Gram-negative bacteria. Inhibitor substances (e.g. polysaccharides, protein, etc.) commonly found in stool are removed by the one-step GM-IR Buffer.

Applications

Uses magnetic-particle technology to purify genomic DNA from stool samples. The purified DNA can be directly used for molecular-based downstream application such as qPCR, 16S rRNA gene sequencing, etc.

Preparation before using

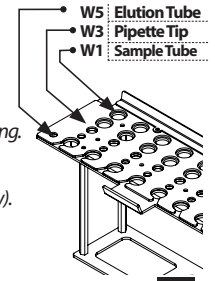
1. *Recommended Step: Place the Beads-Beating Tube on a vortex adapter with horizontal orientation and balanced loading during sample homogenization. Vortex at maximum speed for 10 minutes.*
2. *Cut a 1000µl pipette tip or use a microspatula to scrape samples.*

Standard Protocol (200±20mg stool samples)

1. *Add a 200±20mg stool sample to a Beads-Beating Tube then add 900µl GM-L1 Buffer and 100µl GM-L2 Buffer immediately.*
2. *Centrifuge briefly to ensure the samples immerse in the buffer.*
3. *Secure tubes horizontally on a vortex adapter. Vortex at maximum speed for 10 minutes.*
4. *Centrifuge at 13,000 x g for 1 minute.*
5. *Transfer up to 800µl supernatant to a new 1.5ml microcentrifuge tube.*
6. *Add 460µl GM-IR Buffer (store at 2-8℃). Vortex for 10 seconds then flash spin in a microcentrifuge.*
7. *Incubate the sample tube on ice for 5 minutes.*
8. *Centrifuge at 13,000 x g for 1 minute. Transfer up to 800µl supernatant (avoiding the pellet) to a new 1.5 microcentrifuge tube. **Do not vortex. *Do not add GM-P1 Buffer and GM-P2 Buffer prior to the mixture from step 5.*
9. *Add 75µl GM-P1 Buffer (store at 2-8℃) then add 250µl GM-P2 Buffer, inverting the tube 10-15 times then spin down.*
10. *Incubate on ice for 10 minutes.*
11. *Centrifuge at 13,000 x g for 3 minutes, discard supernatant (residual liquid should be less than 30µl).*
12. *Pipette 800µl GM-LY Buffer to resuspend the pellet. Avoid generating too many bubbles while resuspending.*
13. *Transfer up to 850µl to the Sample Tube.*
14. *Place the prepared Sample Tubes, Elution Tubes and Pipette Tips into the correct wells of T-rack (see below).*
15. *Run Code 504 (it is recommended to select a 200µl elution volume for the best DNA yield).*
16. *If the eluate DNA product's A260/230 ratio is lower than 1.8, please centrifuge at 16,200 x g for 1 minute, then transfer the supernatant and store at -20℃.*

Fast Protocol ≤100mg liquid stool sample (ie. Copan FecalSwab®)

1. *Vortex the collection tube for 10-15 seconds, then pipette 200µl into a Beads-Beating tube. (If the feces-containing solution still has some particles, please cut ~10mm off the end of the pipette tip to make pipetting easier.)*
2. *Add 900µl GM-L1 Buffer and 100µl GM-L2 Buffer, centrifuge briefly to ensure the sample is immersed in the buffer.*
3. *Secure tube horizontally on a vortex adapter. Vortex at maximum speed for 10 minutes.*
4. *Centrifuge at 13,000 x g for 1 minute. Transfer up to 800µl supernatant to a new 1.5ml microcentrifuge tube.*
5. *Add 460µl GM-IR Buffer (store at 2-8℃), vortex for 10 seconds.*
6. *Centrifuge at 13,000 x g for 1 minute.*
7. *Transfer up to 800µl supernatant (avoiding the pellet) to a new 1.5ml microcentrifuge tube. **Do not vortex. *Do not add GM-P1 Buffer and GM-P2 Buffer prior to the mixture from step 5.*
8. *Add 75µl GM-P1 Buffer (store at 2-8℃) then add 250µl GM-P2 Buffer, inverting the tube 10-15 times then spin down. Incubate on ice for 5 minutes.*
9. *Centrifuge at 13,000 x g for 3 minutes, discard supernatant (residual liquid should be less than 30µl).*
10. *Pipette 800µl GM-LY Buffer to resuspend the pellet. Avoid generating too many bubbles while resuspending.*
11. *Transfer up to 850µl to the Sample Tube.*
12. *Place the prepared Sample Tubes, Elution Tubes and Pipette Tips into the correct wells of T-rack (see below).*
13. *Run Code 504 on the XTRACT 16+.*
14. *If the eluate DNA product's A260/230 ratio is lower than 1.8, please centrifuge at 16,200 x g for 1 minute, then transfer the supernatant and store at -20℃.*



XTRACT 16+ Total RNA Whole Blood Kit

For total RNA extraction from human whole blood

Cartridge Code 601

Cat.No.XK601-72

Kit Contents

Check that the following parts are included in addition to the main unit:

Cat.No. XK601-72 Contents:

Pre-filled Cartridge Reagent	96 pcs.
Pipette Tip plus Holder Set	100 sets.
Sample Tube	100 pcs.
Elution Tube	100 pcs.
RBC Lysis Buffer(200ml)	1 pcs.
RB Buffer(30ml)	1 pcs.

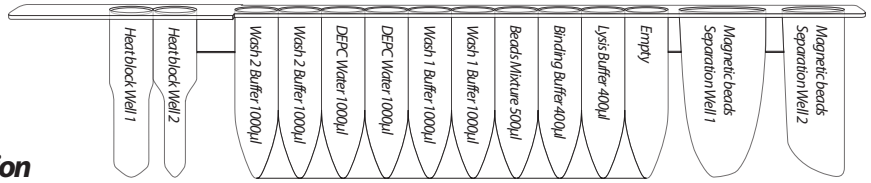
Additional items, not provided:

1. β-Mercaptoethanol (β-ME)
2. 1.5 ml screw tube
3. DNase 1

Storage and Stability :

1. This kit should be stored at room temperature.
2. Shelf life 12 months.

Cartridge Contents :



Description

XTRACT 16+ Total RNA Whole Blood Kit is specially designed for total RNA purification for up to 400µl human whole blood. The program provides optional protocol for contaminated genomic DNA removal. Combining high quality RNase-free DNase I with XTRACT 16+ Total RNA Whole Blood Kit can provide high quality DNA-free total RNA.

Applications

Uses magnetic-particle technology to purify total RNA. The purified RNA can be directly used for downstream application such as real-time PCR, RT-PCR, cDNA synthesis, etc.

Preparation before using

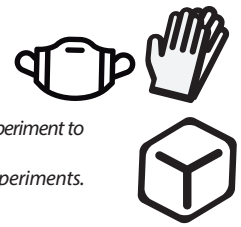
1. *β-Mercaptoethanol (β-ME; not provided) must be added to RB Buffer before use. Add 10µl of β-ME per 1 ml of RB Buffer.*
2. *Recommended Step: DNA residue degradation. Prepare DNase I (RNase-free) working solution according to the table below. Add 10µl DNase I with 190µl DNase reaction buffer (1X) in the 1.5 ml screw tube (not provided) and place it into well 2 of T-Rack.*

Healthy Whole blood	DNase I	DNase buffer 1X
Up to 400 µl	10 µl	190 µl

3. *RNase-free DNase I. We recommend using RNase-free DNase I for genomic DNA treatment. Please contact AutoGen for product information.*

Important notes

1. *When fresh samples (including whole blood, cells, and tissues) are obtained, samples must be subjected to the following protocol as soon as possible (within one day). If you do not extract RNA immediately, lyse the samples in the RB buffer for stabilization. The samples can be stored at -80°C up to 1 month in the RB buffer.*
2. *Always wear a suitable lab coat, disposable gloves, and protective mask. Also, **always keep the samples on ice as much as possible**. Do not talk during the experiment to avoid contamination.*
3. *Ensure that the experimental environment is suitable for operating RNA experiments. Performing the extraction in a hood is recommended.*



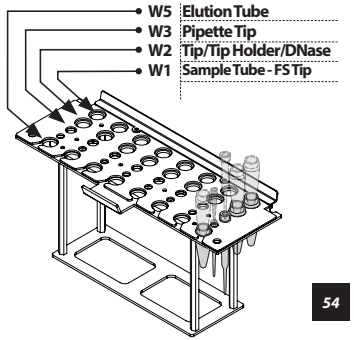
Fresh Whole Blood Protocol

Without DNase I treatment

1. *Add 1 volume of human whole blood with 3 volumes of RBC lysis Buffer in an appropriately sized tube (not provided) and mix by inversion. Do not vortex. (For example, add 1200µl of RBC lysis Buffer to 400µl of whole blood.) Keep the sample on ice whenever possible.*
2. *Incubate the tube for 10 minute(s) on ice and invert 2~3 times during incubation.*
3. *Centrifuge for 3 minute(s) at 500 x g at 4°C and completely discard the supernatant.*
4. *Add 500µl RBC lysis Buffer to the cell pellet. Resuspend cells by vortexing briefly.*
5. *Transfer the suspended cells to the XTRACT 16+ Sample Tube.*
6. *Centrifuge for 3 minute(s) at 500 x g at 4 °C and completely discard the supernatant.*
7. *Add 200µl RB buffer (containing β-ME) to the white pellet and mix by vortexing. (can store up to 1 month at -80°C)*
8. *Put the prepared Sample Tube into the correct well of T-Rack (see below).*
9. *Put Elution Tube and Pipette Tip into the correct wells of T-Rack (see below).*
10. *Run Code.601 program on the XTRACT 16+ and select (2) NO for "Select DNase Treatment".*

With DNase I treatment

1. *Follow step 1~9 of without DNase I treatment protocol to prepare whole blood cell sample.*
2. *Place the 200µl DNase I mixture (in 1.5 ml screw tube) into the well 2 of T-Rack.*
3. *Run Code.601 program on the XTRACT 16+ and select (1)YES for "Select DNase Treatment".*



XTRACT 16+ Total RNA FFPE One-Step Kit

For extraction of total RNA from formalin-fixed paraffin-embedded (FFPE) tissue by using XTRACT 16+ System.

Cartridge Code 605

Cat No.XK605-72

Kit Contents

Check that the following parts are included in addition to the main unit:

Cat.No. XK605-72 Contents:

Pre-filled Cartridge Reagent.....72 pcs.
Pipette Tip plus Holder Set.....150 sets.
Elution Tube.....75 pcs.
Sula Oil (50ml).....1 pcs.
Thermostable cap .....75 pcs.

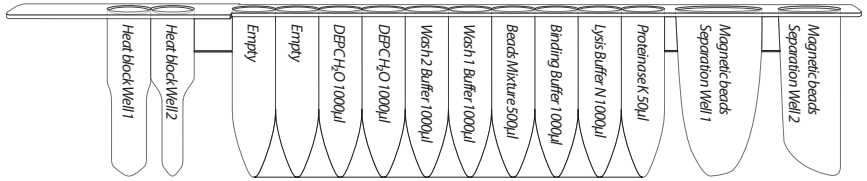
Additional items, not provided:

1. DNase 1
2. 1.5ml screw tube

Storage and Stability :vvv

1. This kit should be stored at room temperature.
2. Shelf life 12 months.

Cartridge Contents :



Description

XTRACT 16+ Total RNA FFPE One-Step Kit is specially designed for total RNA purification from FFPE tissues. It features one-step heating to melt paraffin and lyse tissue samples at the same time without harmful reagents involved such as xylene or other organic solvents. The XTRACT 16+ total RNA FFPE One-Step Kit System optimizes the lysis conditions to reverse the formalin fixation without the need for overnight digestion and retains both large and small RNAs. The program provides optional DNase I treatment to remove contaminated DNA.

Applications

Uses magnetic-particle technology to purify total RNA from FFPE tissues. The purified RNA can be directly used for downstream application such as real-time PCR, RT-PCR, cDNA synthesis, etc.

Preparation before using

1. ***Recommended Step:*** *DNase I Treatment. Prepare DNase I (RNase-free) working solution and place it into the W1 of T-Rack for each sample.*
2. *We recommend using RNase-free DNase I for reducing the possibility of genomic DNA carryover. For more product information, please contact AutoGen.*

RNase precautions

1. *Before working with RNA, it is a good idea to use RNA decontamination solution to clean the lab bench, pipettors, and microtome.*
2. *When performing extraction with XTRACT 16+ Total RNA FFPE One-step Kit, always wear a suitable lab coat, disposable gloves, and protective mask. Do not talk during the experiment to avoid contamination.*
3. *Ensure that the experimental environment is suitable for operating RNA experiments.*

Needle-like FFPE Tissue Sections Protocol

1. *Cut 5-50µm sections from FFPE tissue blocks by using a microtome.*
2. *Take the equivalent of <50µm tissue sections into 1.5 ml microcentrifuge tube (See Important Notes).*
3. *Trim the excess paraffin from the tissue sections.*
4. *Use an RNase-free pipette tip to put the tissue sections from step 3 into the bottom of* ***Heat Block Well 1*** *of the cartridge.*
5. *Add 500µl of Sula Oil, ensure the tissue sections can totally immerse in Sula Oil, and then cover it with the thermostable cap.*

   Note: If the tissue sample is too large to lyse (the surface area over 300mm^2), cut it in 4 sections (Please see Important Notes Step 3) before adding into the ***Heat Block Well 1****. Make sure the tissue is at the bottom of the well to avoid clipping it with the thermostable cap.*
6. *Put Elution Tube, Tip Plus Holder Set and Pipette Tip into the correct wells of T-Rack (see below).*
7. *Run Code 605 program on the XTRACT 16+.*

Important Notes for needle-like FFPE tissue sections

Tissue section (µm)	Sample scroll
50	1-3
20	1-4
10	1-5 (Don't load over 5 scrolls)

Glass-slide FFPE Tissue Samples Protocol

1. Put a few drops of Sula Oil on the glass slide and scrape the tissue from the slide carefully, then put in the bottom of **Heat Block well 1** (see "Important notes")
2. Add 500µl Sula Oil into **Heat Block well 1**, rinse remaining sample on the wall and blade, then cover **Heat Block Well 1** up with the Thermostable cap.

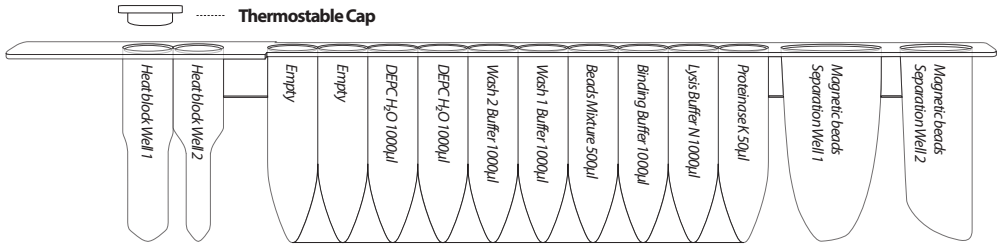
XTRACT 16+ Operation

Without DNase I treatment

1. Follow the **Glass-slide FFPE tissue samples Protocol step 1-2**.
2. Put Elution Tube, Pipette Tip and Tip Plus Holder Set into the correct wells of T-Rack (see below).
3. Run Code.605 program on the XTRACT 16+ and select (2) NO for "Select DNase treatment".

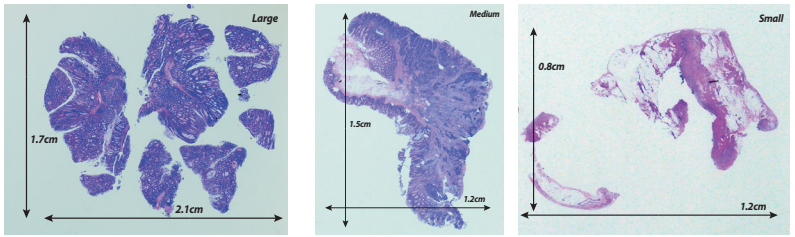
With DNase I treatment

1. Follow the **Glass-like FFPE samples Protocol step 1-2**.
2. Place the 26 µl DNase I mixture (in 1.5 ml screw tube) into the W1 of T-Rack for each sample.
3. Put Elution Tube, Pipette Tip and Tip Plus Holder Set into the correct wells of T-Rack (see below).
4. Run Code.605 program on the XTRACT 16+ and select (1) YES for "Select DNase treatment".



Important Notes

1. The surface area of the FFPE tissue slide samples can be measured as the following examples:



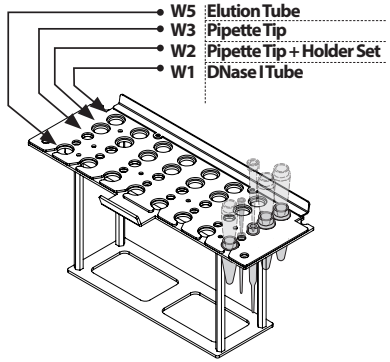
2. Sample preparation amount can be 1-5 scrolls, **each with a thickness up to 5µm**. One FFPE scroll could be enough to analyze, if the surface area is over 200 mm^2. If thickness is over 5µm, only add 1 scroll.

Surface area (mm^2)	Sample scroll
200↑	1
100-200	1-2
50-100	2-3
50↓	3-5 (Don't over load 5 scrolls)

*Do not overload the sample or paraffin will clog the tip and decrease the yield.

3. If the tissue sample is over 300 mm^2, we recommend cutting it into 4 sections like the following examples:

4. If you have no information about the sample, we recommend starting with 1-2 scrolls and cutting it into 4 sections per preparation.
5. Sula Oil is a deparaffinization solution. The capacity of the Sula Oil (500µl) is about 20mg paraffin per preparation.



XTRACT 16+ Total RNA Cultured Cells Kit

For extraction of RNA from cultured cells

Cartridge Code 610

Cat.No.XK610-72

Kit Contents

Check that the following parts are included in addition to the main unit:

Cat.No. XK610-72 Contents:

Pre-filled Cartridge Reagent.....96 pcs.
Pipette Tip plus Holder Set.....100 sets.
Sample Tube.....100 pcs.
Elution Tube.....100 pcs.
RB Buffer(30ml).....1 pcs.

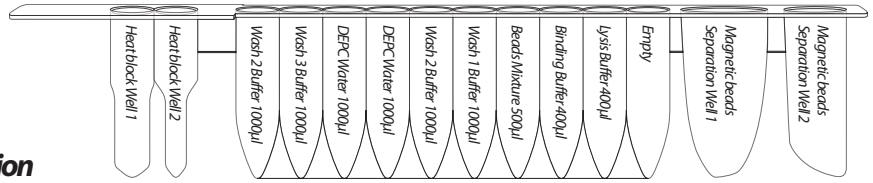
Additional items, not provided:

1. DNase 1
2. 1.5 ml screw tube
3. β-Mercaptoethanol (β-ME)
4. PBS
5. Trypsin

Storage and Stability :

1. This kit should be stored at room temperature.
2. Shelf life 12 months.

Cartridge Contents :



Description

XTRACT 16+ Total RNA Cultured Cells Kit is specially designed for total RNA purification from up to 1x10^6 cultured cells. The program provides optional protocol for removal of genomic DNA. Combine high quality RNase-free DNase I with the Total RNA Cultured Cells Kit for high quality DNA-free total RNA.

Applications

Uses magnetic-particle technology to purify total RNA. The purified RNA can be directly used for downstream application such as real-time PCR, RT-PCR, cDNA synthesis, etc.

Preparation before using

1. *β-Mercaptoethanol (β-ME; not provided) must be added to RB Buffer before use. Add 10µl of β-ME per 1 ml of RB Buffer.*
2. *Recommended Step: DNA residue degradation. Prepare DNase I (RNase-free) working solution according to the table below. Add 10µl DNase I with 190µl DNase reaction buffer (1X) in the 1.5 ml screw tube (not provided) and place it into well 3 of T-Rack for each sample.*

Cultured Cells	DNase I	1X DNase Buffer
Up to 1x10^6	10 µl	190 µl

3. *RNase-free DNase I is not included in XTRACT 16+total RNA Cultured Cells Kit, we recommend to use RNase-free DNase I for genomic DNA treatment. For product information, please contact Autogen. Please refer to Important Notes on Page 60.*

Cultured Cells Protocol

Sample Preparation

A. Cells grown in suspension

Cells grown in suspension(up to 1 x 10^6 cells). Determine the number of cells. Transfer appropriate number of cells to the XTRACT 16+ Sample Tube and centrifuge for 5 minute(s). at 300 x g. Remove the supernatant completely and discard, Continue with XTRACT 16+ Operation section below.

B. Cells grown in a monolayer

Cells grown in a monolayer(up to 1 x 10^6 cells). Cells grown in a monolayer can be detached from the culture flask by either trypsinization or using a cell scraper.

To trypsinize cells:

Determine the number of cells. Aspirate the medium and wash cells with PBS (not provided). Aspirate the PBS, and add 0.10–0.25% trypsin. After cells have detached from the dish or flask, collect them in medium, and transfer the appropriate number of cells(up to 1 x 10^6 cells) to the XTRACT 16+ Sample Tube. Centrifuge for 5 minute(s). at 300 x g. Remove the supernatant completely and discard, taking care not to disturb the cell pellet. Continue with XTRACT 16+ Operation section below.

Using a cell scraper:

Detach cells from the dish or flask. Transfer the appropriate number of cells(up to 1 x 10^6 cells) to the XTRACT 16+ Sample Tube and centrifuge for 5 minute(s). at 300 x g. Remove the supernatant completely and discard, taking care not to disturb the cell pellet. Continue with XTRACT 16+ Operation section below.

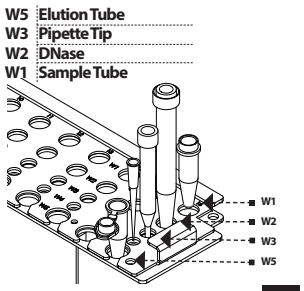
XTRACT 16+ Operation

Without DNase I treatment

1. *Add 200µl RB buffer (containing β-ME) to the cells pellet and mix by vortexing (can store up to 1 month at -80°C).*
2. *Put the prepared Sample Tube into the correct well of T-Rack (see below).*
3. *Put Elution Tube and Pipette Tip into the correct wells of T-Rack (see below).*
4. *Run Code.610 program on the XTRACT 16+ and select (2)NO for "Select DNase Treatment".*

With DNase I treatment

1. *Follow step 1~3 of without DNase I treatment protocol to prepare culture cell sample.*
2. *Be sure to place the 200µl DNase I mixture (in 1.5 ml screw tube) into the well 2 of T-Rack.*
3. *Run Code.610 program on the XTRACT 16+ and select (1)YES for "Select DNase Treatment".*



XTRACT 16+ Plasma miRNA Extraction Kit

For extraction of free circulating miRNA from human plasma or serum

Cartridge Code 620

Cat.No.XK620-72

Kit Contents

Check that the following parts are included in addition to the main unit:

Cat.No. XK620-72 Contents:

Pre-filled Cartridge Reagent	72 pcs.
Pipette Tip plus Holder Set	75 sets.
Sample Tube	75 sets.
Elution Tube	75 sets.
RB Buffer(15ml)	1 pcs.
RP Buffer(10ml)	1 pcs.

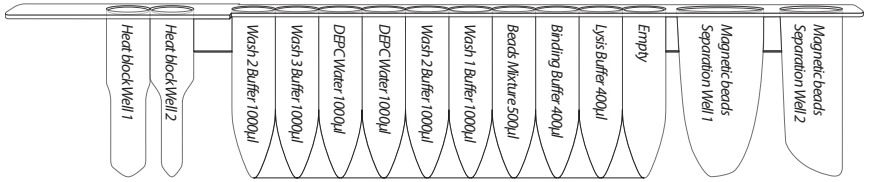
Additional items, not provided:

1. DNase 1
2. 1.5 ml screw tube

Storage and Stability :

1. This kit should be stored at room temperature.
2. Shelf life 12 months.

Cartridge Contents :



Description

XTRACT 16+ Plasma miRNA Extraction Kit is designed for purification of miRNA from 0.4ml of serum or plasma. All of the plastic consumables are DNase/RNase - Free. There is an individual processing track for each loaded sample, eliminating all possible cross contamination between samples. The built-in protocol allows for flexibility in sample source volumes, and plasma miRNA can be extracted using this kit in a fast and economical way.

Applications

Using magnetic-particle technology to purify miRNA from serum and plasma; the purified total nucleic acid is suitable for highly sensitive and quantitative PCR.

Preparation before using

1. *Recommended Step: DNase I Treatment. Prepare DNase I (RNase-free) working solution: add 10 µl DNase I with 190 µl DNase reaction buffer (lx) in 1.5 ml screw tube (not provided) and place it into the correct wells of T-Rack (see below).*
2. *RNase-free DNase I is not included in Plasma miRNA Kit, we recommend using RNase-free DNase I for genomic DNA treatment. For more product information, please contact AutoGen.*

Protocol

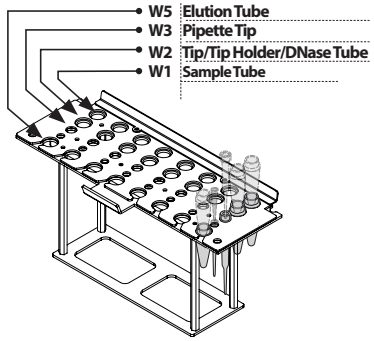
1. *Add 0.4 ml of serum or plasma into a RNase-free 1.5 ml tube (not provided).*
2. *Add 120 µl RB Buffer into 1.5 ml tube and mix by vortexing for 5 seconds)..*
3. *Incubate at room temperature for 3 minute(s).*
4. *Add 40 µl RP Buffer into 1.5 ml tube and mix by vortexing for 20 second(s).*
5. *Incubate at room temperature for 3 minute(s).*
6. *Centrifuge for 3 minute(s) at 12000 x g and transfer 400µl of the supernatant to the XTRACT 16+ Sample Tube.*
7. *Put the prepared Sample Tube into the correct well of T-Rack (see below).*
8. *Put Elution Tube and Pipette Tip into the correct wells of the T-Rack (see below).*

Without DNase I treatment

1. *Run Code 620 program and select (2) NO to "Select DNase treatment".*

With DNase I treatment

1. *Place the 200 µl DNase I mixture (in 1.5 ml screw tube) into the correct well of T-Rack (see below).*
2. *Run Code 620 program on the XTRACT 16+ and select (1) YES for "Select DNase treatment".*



XTRACT 16+ triXact RNA Kit

For extraction of total RNA from cultured cells, whole blood and tissues

Cartridge Code 631

Cat.No.XK631-72

Kit Contents

Check that the following parts are included in addition to the main unit:

Cat.No. XK631-72 Contents:

Pre-filled Cartridge Reagent	*72pcs.*
Pipette Tip plus Holder Set	*75pcs.*
Sample Tube	*75pcs.*
Elution Tube	*75pcs.*
RBC Lysis Buffer (200 ml)	*1 pcs.*
RB Buffer(60ml)	*1 pcs.*
Filter column Set	*75pcs.*

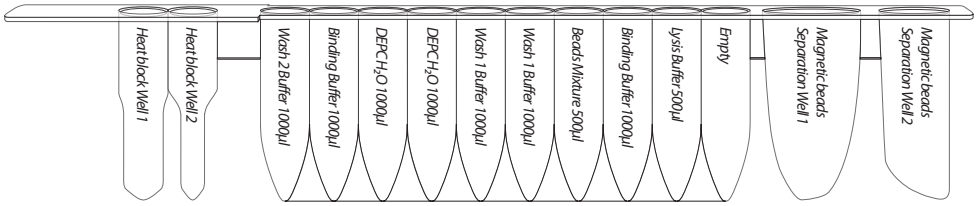
Additional items, not provided:

1. DNase 1
2. 1.5 ml screw tube
3. β-Mercaptoethanol (β-ME)
4. PBS
5. Trypsin
6. Micropestle
7. Microcentrifuge tube(s)

Storage and Stability :

1. This kit should be stored at room temperature.
2. Shelf life 12 months.

Cartridge Contents :



Description

XTRACT 16+ triXact RNA Kit is specially designed for total RNA purification from up to 5x10^6 cultured cells, a variety of tissues, or whole blood. The program provides optional DNase I treatment to remove residual DNA. High quality DNA-free RNA can be extracted using this kit along with RNase-free DNase I.

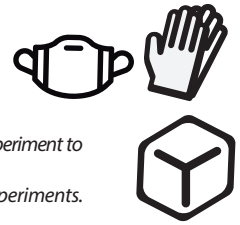
Applications

Uses magnetic-particle technology to purify total RNA from cultured cells, human whole blood, and animal tissue samples. The purified RNA can be directly used for downstream application such as real-time PCR, RT-PCR, cDNA synthesis, etc.

Preparation before using

1. *β-Mercaptoethanol (β-ME; not provided) must be added to RB Buffer before use. Add 10 µl of β-ME per 1 ml of RB Buffer.*
2. *Recommended Step: DNase I Treatment. Prepare DNase I (RNase-free) working solution: add 10 µl DNase I with 190 µl DNase reaction buffer (1X) in 1.5 ml screw tube (not provided) and place it into the correct wells of T-Rack (see below).*
3. *RNase-free DNase I is not included in triXact RNA Kit, we recommend using RNase-free DNase I for genomic DNA treatment. For more product information, please contact AutoGen.*

Important notes



1. *When fresh samples (including whole blood, cells, and tissues) are obtained, samples must be subjected to the following protocol as soon as possible (within one day). If you do not extract RNA immediately, lyse the samples in the RB buffer for stabilization. The samples can be stored at -80°C up to 1 month in the RB buffer.*
2. *Always wear a suitable lab coat, disposable gloves, and protective mask. Also, **always keep the samples on ice as much as possible**. Do not talk during the experiment to avoid contamination.*
3. *Ensure that the experimental environment is suitable for operating RNA experiments. Performing the extraction in a hood is recommended.*

Cultured Cells Protocol

Sample Preparation

A. Cells grown in suspension

For cells grown in suspension (up to 5x10^6 cells), first determine the number of cells. Transfer appropriate number of cells to the XTRACT 16+ Sample Tube and centrifuge at 300xg for 5 minute(s). Remove the supernatant completely and discard. Continue with XTRACT 16+ Operation steps.

B. Cells grown in a monolayer

For cells grown in a monolayer (up to 5x10^6 cells), cells can be detached from the culture flask by either trypsinization or using a cell scraper.

To trypsinize cells:

Determine the number of cells. Aspirate the medium and wash cells with PBS (not provided). Aspirate the PBS, and add 0.10-0.25% trypsin. Once cells have detached from the dish or flask, collect them in medium, and transfer the appropriate number of cells(up to 5x10^6 cells) to the XTRACT 16+ Sample Tube. Centrifuge at 300xg for 5 minute(s). Remove the supernatant completely and discard. Be careful not to disturb the cell pellet. Continue with XTRACT 16+ Operation steps.

Using a cell scraper:

Detach cells from the dish or flask. Transfer the appropriate number of cells (up to 5x10^6 cells) to the XTRACT 16+ Sample Tube and centrifuge at 300xg for 5 minute(s). Remove the supernatant completely and discard. Be careful not to disturb the cell pellet. Continue with XTRACT 16+ Operation steps.

XTRACT 16+ Operation

Without DNase I treatment

1. *Add 400 µl RB Buffer (containing β-ME) to the cell pellet and mix by vortexing, keep the samples on ice (can store up to 1 month at -80°C).*
2. *Put the prepared Sample Tube into the correct well of T-Rack (see below).*
3. *Put Elution Tube and Pipette Tip into the correct wells of T-Rack (see below).*
4. *Run Code.631 program at XTRACT 16+ and select (2) NO for "Select DNase treatment".*

With DNase I treatment

1. *Follow step 1~3 of without DNase I treatment protocol to prepare cultured cells sample.*
2. *Place the 200 µl DNase I mixture (in 1.5 ml screw tube) into the correct well of T-Rack (see below).*
3. *Run code.631 program on the XTRACT 16+ and select (1) YES for "Select DNase treatment".*

Fresh Whole Blood Protocol

Without DNase I treatment

1. *Add 1 volume of human whole blood to 3 volumes of RBC lysis Buffer in an appropriately sized tube (not provided) and mix by inversion. Do not vortex. (For example, add 1200 µl of RBC lysis Buffer to 400 µl of whole blood.) Keep the sample on ice whenever possible.*
2. *Incubate the tube on ice for 10 minute(s) and invert 2~3 times during incubation.*
3. *Centrifuge for 3 minute(s) at 500 x g at 4℃ and completely discard the supernatant.*
4. *Add 500 µl RBC lysis Buffer to the cell pellet. Resuspend cells by brief vortexing, keep the samples on ice.*
5. *Transfer the suspended cells to the XTRACT 16+ Sample Tube.*
6. *Centrifuge for 3 minute(s) at 500 x g at 4℃ and discard the supernatant completely.*
7. *Add 400 µl RB buffer (containing β-ME) to the pellet and mix by vortexing, keep the samples on ice (can store up to 1 month at -80℃).*
8. *Put the prepared Sample Tube into the correct well of T-Rack (see below).*
9. *Put Elution Tube and Pipette Tip into the correct wells of T-Rack (see below).*
10. *Run code.631 program on XTRACT 16+ and select (2) NO to "select DNase treatment".*

With DNase I treatment

1. *Follow step 1~9 of the protocol above (without DNase I treatment) to prepare whole blood cell sample.*
2. *Place the 200 µl DNase I mixture (in 1.5 ml screw tube) into the correct well of T-Rack (see below).*
3. *Run Code.631 program on the XTRACT 16+ and select (1) YES for Select DNase treatment.*

Tissue Protocol

Cell Lysis

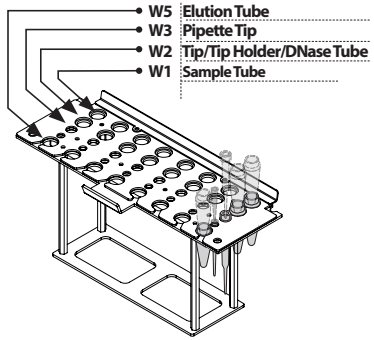
1. *Cut off up to 50 mg of fresh or frozen animal tissue and transfer into a RNase-free microcentrifuge tube(not provided).*
2. *Add 400 µl RB Buffer (containing β-ME) into the tube and use RNase-free micropestle (not provided) to sufficiently grind the tissue.*
3. *Incubate at room temperature for 5 minute(s). Use a Filter Column Set and apply sample mixture to the column.*
4. *Centrifuge the filtrate for 2 minute(s) at full speed 10000 x g and transfer the clear supernatant to Sample Tube, keep the samples on ice.*

Without DNase I treatment

1. *Put the prepared Sample Tube into the correct well of T-Rack (see below).*
2. *Put Elution Tube and Pipette Tip into the correct wells of T-Rack (see below).*
3. *Run Code.631 program on the XTRACT 16+ and select (2) NO to "Select DNase treatment".*

With DNase I treatment

1. *Follow step 1~2 of without DNase I treatment protocol to prepare tissue sample.*
2. *Place the 200 µl DNase I mixture (in 1.5 ml screw tube) into the correct well of T-Rack (see below).*
3. *Run code.631 program on the XTRACT 16+ and select (1) YES for "Select DNase treatment".*



Product Selection Guide

		Cat No. 72preps	Cat No. 96preps	Whole Blood	Buffy Coat	Plasma/Serum	Cell-free body fluids	Urine	Circulating DNA	Cultured Cells	Animal Tissue	Plant Tissue	Bacteria/Sputum	Swab	FFPE	Stool	Forensic Specimens
Genomic DNA	**101** XTRACT 16+ Genomic DNA Whole Blood Kit (Speedy installation)		XK101-96	■	■	■								■			
	102 XTRACT 16+ Genomic DNA Whole Blood Kit		XK102-96	■	■												
	104 XTRACT 16+ Genomic DNA Large Volume Whole Blood Kit (1.2 ml)		XK104-96	■													
	105 XTRACT 16+ Plasma DNA Extraction Kit (1.2 ml)		XK105-96			■	■		■								
	106 XTRACT 16+ Genomic DNA Whole Blood Kit (For Genotyping)		XK106-96	■													
	110 XTRACT 16+ Cultured Cells DNA Kit		XK110-96							■							
	115 XTRACT 16+ Liquid Biopsy Kit (4ml)		XK115-96				■										
	301 XTRACT 16+ Genomic DNA Plant Kit		XK301-96									■					
	401 XTRACT 16+ Genomic DNA Tissue Kit		XK401-96								■			■	■	■	■
	405 XTRACT 16+ Genomic DNA FFPE One-Step Kit	XK405-72													■		
	406 XTRACT 16+ Forensic DNA Direct Kit	XK406-72												■			■
	502 XTRACT 16+ Genomic DNA Bacterial Kit		XK502-96										■				
	504 XTRACT 16+ Gut Microbiome DNA Kit		XK504-72													■	
Viral Nucleic Acids	**201** XTRACT 16+ Viral Nucleic Acid Extraction Kit		XK201-96			■	■	■						■			
	202 XTRACT 16+ Viral Nucleic Acid Extraction Kit (Low PCR Inhibition)		XK202-96			■	■	■									
	203 XTRACT 16+ Viral Nucleic Acid Extraction Kit (High Sensitivity)		XK203-96			■	■	■						■			
	203-COV XTRACT 16+ Viral Nucleic Acid Extraction Kit (SARS-COV-2)		XK203-96-COV											■			
	210 XTRACT 16+ Viral Nucleic Acid Large Volume Extraction Kit (2.4 ml)		XK210-96			■	■	■									
	211 XTRACT 16+ Viral Nucleic Acid Large Volume Extraction Kit (1.2 ml)		XK211-96			■	■	■									
Total RNA	**601** XTRACT 16+ Total RNA Whole Blood Kit	XK601-72		■													
	605 XTRACT 16+ Total RNA FFPE One-step Kit	XK605-72													■		
	610 XTRACT 16+ Total RNA Cultured Cells Kit	XK610-72								■							
	620 XTRACT 16+ Plasma miRNA Kit	XK620-72				■											
	631 XTRACT 16+ triXact RNA Kit	XK631-72		■						■	■						

autogen
XTRACT 16+

An electronic copy of this manual can be found by typing in https://autogen.com/007manuals/ into a web browser and entering in the password "allthedetails".

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