Troubleshooting guide

Problem	Causes	Comments and suggestions
Physical damage of the kit	Upside down during transportation may cause beads to stick with sealing film	Spin down the 'Cartridge' by hand before open it.
	Sealing film is detached and reagent is spilled to other wells due to improper storage temperature	Spin down by hand and measure reagent volume with eyes. If reagent volumes are insufficient, extraction efficiency may decrease. Do not use it and contact customer service immediately.
	Broken 'Cartridge'	Broken 'Cartridge' may lead to unfavorable result. Do not use it and contact customer service immediately.
Inappropriate specimen condition	Specimen condition is not favorable due to inappropriate storage condition (ex. coagulation)	Perform vortex and pipetting of specimen. If sample is still coagulated, add a bit of PBS or distilled water and vortex again.
	Specimen condition is not favorable due to inappropriate storage condition (ex. stored in room temperature)	Increase sample volume up to 300 µl, if extraction efficiency is low.
Abnormal extraction	Too much beads left in Elution buffer	If the total nucleic acid density is within the normal range, proceed with the eluted solution. In the case of low total nucleic acid density, transfer the eluted solution to a 1.5 ml tube and centrifuge before use.
	Eluted total nucleic acid should not appear transparent or sticky	Refer to 'Inappropriate specimen condition' part of trouble shooting if specimen condition is unfavorable, perform extraction again. If the specimen condition and total nucleic acid density are favorable, proceed with the extracted total nucleic acid. In cases where the specimen condition is favorable but the total nucleic acid density is unfavorable, transfer the eluted solution to 1.5 ml tube and centrifuge before use. If the result remains unfavorable, dilute it with distilled water before use.

Warnings and precautions

- Intended for research use only.
- Read and follow the manual before using the product.
- Use extracted Nucleic acid as soon as possible, if not, keep it at -70°C for long-term storage.
- Be cautious of contaminants such as microorganisms after opening the product.
- Be sure to wear personal protective equipment such as gloves and goggles when using this product and wash hands after handling specimens and reagents.
- Be mindful of contamination with DNase or RNase during product use.
- Store the product at the specified storage temperature and do not use it past its expiration date.
- Read and follow the IFU for the nucleic acid extraction device (AllEx®64 Automated Nucleic Acid Extraction System) used with this product.
- The reagents in this product contain irritants, do not dispose of them with bleach or acids.
- This product is a single use and should not be reused.

* Any serious incident involving the device is reported to the relevant competent authority in the country where the manufacturer, user and patient are located.

Storage conditions

- Temperature : Room temperature (15~25˚C)
- Humidity : 20~80%

Symbol	Used for	Symbol	Used for
LOT	Batch number		Manufacturer
REF	Catalogue number		Do not re-use
	Consult instructions for use		Date of manufacture
	Caution		Expiry date
	Temperature limit		

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GENEALL BIOTECHNOLOGY CO., LTD.

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www.geneall.com

Ver 1.2

GeneAll®

Store at room temperature (15~25°C)
Expiration date : 18 months after manufacture

AllEx®
Plant DNA/RNA Kit (Single Cartridge/Plate Cartridge)

Description

The AllEx® Plant DNA/RNA Kit is designed to quickly and easily extract nucleic acids from a wide range of plant samples. Nucleic acid extraction protocols for plant samples are designed to be optimized for Single Cartridge which can extract up to 8 sample, and Plate Cartridge can extract 16 sample at once. The cartridge of this kit contains the essential reagents used by experimenter to conveniently extract nucleic acids.

Intended use

The AllEx® Plant DNA/RNA Kit provides fast and easy methods for the purification of total nucleic acids from samples such as leaf, seed, bulb and bark using AllEx®64 Automated Nucleic Acid Extraction System.
The extracted plant DNA/RNA is of excellent quality and suitable for most downstream applications including PCR, qPCR, RT-PCR, or any downstream application.

Kit contents

Components	Quantity	
	937-048 (Single Cartridge)	937-096 (Plate Cartridge)
Number of Preparation	48 preps/kit	96 preps/kit
Reagents pre-filled cartridge	6 pks	6 pks
AllEx® Strip (6 pcs/pk)	4 pks	2 pks
Buffer EL 150 ml	1 ea	2 ea
Buffer BR 150 ml	1 ea	2 ea
Buffer SQ1 150 ml	1 ea	2 ea


Single Cartridge


Single Cartridge Adaptor


Combination of 8-well Single Cartridge and Adaptor

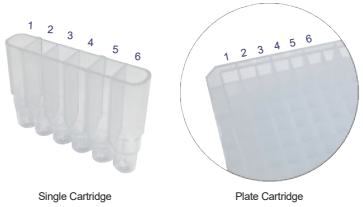
- Reagents pre-filled cartridge (Single Cartridge)
- The Single Cartridge Adaptor holds up to 8 Cartridges and users may choose to use 4 Adaptors to extract 32 samples in a single run


Plate Cartridge


AllEx® Strip

- Reagents pre-filled cartridge (Plate Cartridge)
- AllEx® Strip

Brief workflow



Single Cartridge Plate Cartridge

1. Lysis buffer
2. Washing buffer I
3. Washing buffer II
4. Washing buffer III + bead
   [Note] If particles are not visible in well 4, shake down the cartridge to dislodge particles that may have adhered to the seal material before removing the seal.
5. Elution buffer
6. Washing buffer IV

- Single Cartridge is specially designed for low to medium throughput and allows for the processing of flexible sample numbers in multiples of samples. The use of individual Single Cartridge avoids the sealing of unused wells of a Plate Cartridge when processing less than 16 samples.
- Plate Cartridge is capable of extracting 16 samples as single extraction requires 6 consequent wells. 6 consequent wells are aligned horizontally and each well contains specific reagents for extraction. Both kits can be used with same hardware allowing users to switch between the two methods according to the requirements in sample throughput. First well contains lysis buffer which destroy cell membranes and elute DNA and RNA with magnetic beads.
- Magnetic bead may be damaged if stored with lysis buffer, hence it is located in the fourth well until the extraction begins and moves to first well by AllEx®64 once initiated. Second, third, fourth and sixth well contain washing buffer I, II, III, IV in order to remove unwanted cell component and buffers. Elution buffer in fifth well detaches DNA and RNA from magnetic beads and completes extraction process.

Protocol

Protocol	Feature
P1 Protocol (19 min 46 sec)	• Rapid, efficient and PCR-compatible nucleic acid extraction
P2 Protocol (26 min 36 sec)	• Optimized protocol for nucleic acid extraction from various leaf, root, bulb, and bark samples
P3 Protocol (28 min 26 sec)	• Protocol for High-quality nucleic acid extraction from seed and leaf samples • Optimized protocol for nucleic acid extraction from starch-enriched seed samples

A. Seed (starch-enriched)

1. Grind the sample to a fine powder completely using a mortar and pestle under liquid nitrogen.
2. Place up to 1 g of the ground sample into a 15 ml tube (not provided).
3. Add 3 ml Buffer SQ1 and vortex vigorously for 20 sec.
4. Centrifuge at 13,000 rpm for 10 min at 4°C.
5. Transfer 200 µl of sample to 1st (7th) well.

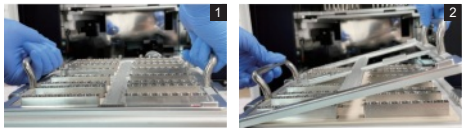
B. Bark

1. Grind the sample to a fine powder completely using a mortar and pestle under liquid nitrogen.
2. Place up to 1 g of the ground sample into a 15 ml tube (not provided).
3. Add 3 ml of Buffer EL and 3 ml of Buffer BR, then vortex vigorously for 30 sec.
4. Incubate the mixture for 10 min at room temperature.
5. Centrifuge at 13,000 rpm for 10 min at 4°C.
6. Transfer 200 µl of sample to 1st (7th) well.

C. Leaf

1. Add a 5 mm stainless steel bead to a 2 ml microcentrifuge tube.
2. Weigh 50~200 mg of leaf sample, then place it into the 2 ml microcentrifuge tube prepared in step 1.
3. Allow it to stand in liquid nitrogen for 5 min.
4. Use a TisseLyzer II to grind the sample into a fine powder. (30 Hz for 30 sec)
5. Depending on the sample type, add 200~300 µl of Buffer EL and 200~300 µl of Buffer BR, or add 400~600 µl of Buffer SQ1, then vortex vigorously for 30 sec.
6. Incubate the mixture for 10 min at room temperature.
7. Centrifuge at 13,000 rpm for 10 min at 4°C.
8. Transfer 200 µl of sample to 1st (7th) well.

Preparation of 'Cassette'



1. Prepare the 'Cassette'.
2. If the 'Cassette' is inside the system, tap **'Cassette Loader Move Front'** icon to detach 'Cassette' from the 'Cassette Loader'.

Preparation of Single Cartridge

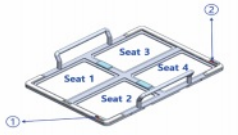

1. Cut the Single Cartridge as required.
2. Insert the 'Cartridge' into the 'Adaptor' and remove the sealing film.
3. Follow the protocol for starting sample type.

Preparation of Plate Cartridge

1. Remove the sealing film.
2. Follow the protocol for starting sample type.

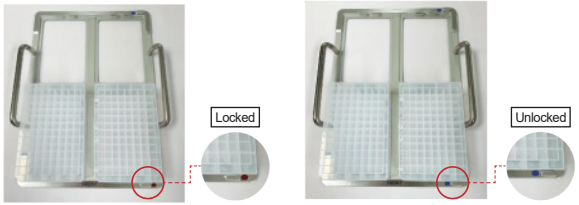
System run

1. Unlock the Seat 1 and 2 Lock Switch and the Seat 3 and 4 Lock Switch of the 'Cassette' .These switches are located on the sides of the 'Cassette'.

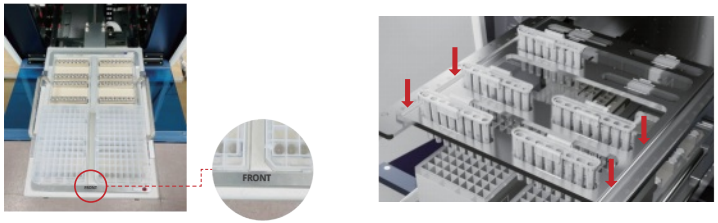


① Seat 1 and 2 Lock Switch
② Seat 3 and 4 Lock Switch

2. Install the 'Cartridge' from Seat 1 of the 'Cassette'. If there is more than one 'Cartridge', install Seats 2, 3, and 4 in that order.
3. **[Note!]** Once all the 'Cartridges' are installed, Lock the Lock Switch.



4. Load the 'Cassette' into the 'Cassette Loader' in the correct position until it clicks.The 'FRONT' of the 'Cassette' should face forward.



5. Tap the 'Sample ID' icon to open the sample data screen. Tap the appropriate number corresponding to the sample quantity and save.
6. **[Note!]** Tap the 'Strip Loader' icon to move the' Strip Loader' forward. The Strip Loading Guide will be displayed on the screen. Ensure that you insert the strip in the correct position as indicated by the Strip Loading Guide.
7. Tap the 'Strip Loader Move Home' icon to return the 'Strip Loader' to its original position.
8. Tap the 'Cassette Loader Move Home' icon to return the 'Cassette Loader' to its original position.
9. Select the protocol and tap the 'Okay' icon to run.

End of run

1. Tap the **'Cassette Loader Move Front'** icon to move 'Cassette Loader' forward and open the front door.
2. Tap the **'Strip Loader'** icon to move 'Strip Loader' forward and remove the used 'Strip'.
3. Hold up the handle of 'Cassette' up with both hands to detach it from the 'Cassette Loader'.
4. Tap the **'Cassette Loader Move Home'** icon to return the 'Cassette Loader' to its original position.
5. Regular UV sterilization eliminates bacteria and virus, minimizing internal pollution within the system. Before/after the extraction, remove the 'Cartridge' and 'Strip', and then press. The sterilization will continue for 10 min.