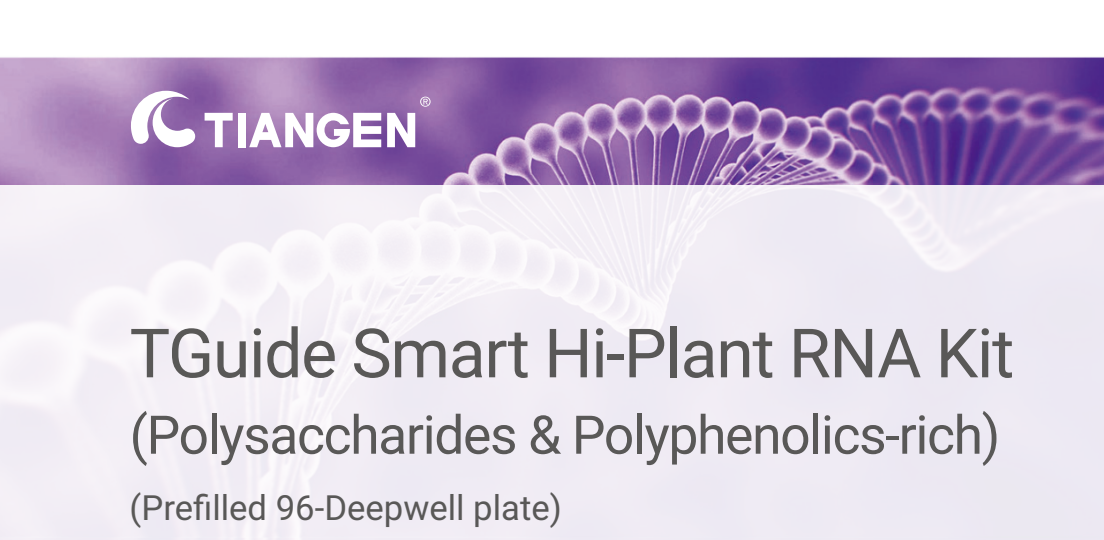


A stylized, glowing DNA double helix structure in the background, rendered in a light purple color against a darker purple gradient.

TGuide Smart Hi-Plant RNA Kit

(Polysaccharides & Polyphenolics-rich)

(Prefilled 96-Deepwell plate)

For extraction of total RNA from plant tissues, especially those rich in polysaccharides, polyphenolics, or starch.

TECHNICAL MANUAL

Cat. no. GDP672-E

Note: To use the TGuide Smart Hi-Plant RNA Kit, you must have the TGuide Smart Hi-Plant RNA Kit (program no. DP672) installed on the TGuide S16/S32/S32 Pro/ S96 Dex Nucleic Acid Extractor.



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For research use only. Not for use in diagnostic procedures.

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TGuide Smart Hi-Plant RNA Kit (Polysaccharides & Polyphenolics-rich)

Cat. no. GDP672-E

Kit Contents

	Contents	GDP672-E (96 preps)
GDP672H	Buffer TSP	100 ml
	Proteinase K	2×1 ml
	Buffer ST	5×1 ml
	Plant RNA Reagents	6 plates
	RNase-Free ddH ₂ O	15 ml
	TGuide Smart Tip Comb	12 pcs
GRT431	RNase-Free DNase I (1500 U)	1 pcs
	RNase-Free ddH ₂ O	1 ml

Note: GDP672H and GRT431 are shipped and packaged separately.

Plant RNA Reagents Composition

Column 1/7	Column 2/8	Column 3/9	Column 4/10	Column 5/11	Column 6/12
Buffer ICBP	Buffer SGBP	Buffer RDC	Buffer RW4	None	MagAttract Suspension BESP1
200 µl	800 µl	700 µl	800 µl		720 µl

Storage

RNase-Free DNase I and RNase-Free ddH₂O can be stored at 2-8°C. Other components of the kit can be stored at room temperature (15-30°C) in a dry condition.

Introduction

This kit can extract total RNA from plant tissues, especially those rich in polysaccharides, polyphenolics, or starch (e.g., cotton leaves, mature rice leaves, Arabidopsis seeds, white pine needles, banana, loquat leaves, potato tubers, apple, pear, watermelon pulp, kiwifruit, rose, tobacco, sea buckthorn, lily, etc.). The extracted total RNA has high purity and good integrity, with essentially no contamination from genomic DNA, proteins, or other impurities. It is suitable for various downstream experiments such as RT-PCR, Real-Time RT-PCR, microarray analysis, Northern Blot, Dot Blot, PolyA selection, in vitro translation, RNase protection assay, and molecular cloning.

Features

Simple and fast: Only sample pre-treatment is required prior to automated extraction of plant total RNA using TGuide S16/S32/S32 Pro/S96 Dex.

Widely applicable: It is suitable for a wide range of plant tissues, especially polysaccharide and polyphenol plants.

Safe and non-toxic: No toxic organic reagents such as phenol/chloroform are required.

High purity: The obtained RNA has high yield and good integrity.

Notes Please read these notes carefully before using this kit.

1. Change gloves often to prevent RNase contamination from skin-borne bacteria.
2. Avoid cross-contamination by using RNase-free plastics and tips.
3. Pay attention to the optimal storage and pretreatment conditions of the samples to avoid causing degradation of the extracted RNA.

Sample library information

Plant species	Sample library information								
Vegetable crops	Wheat	Corn	Soybean	Rice	Sweet Potato	Oilseed rape	Chili Pepper	Cauliflower	Bitter Melon
	Tomato	Lotus root	Mung Bean	Oil Tea	Tea	Chinese cabbage	Peanut	Sugar cane	Mallory Amaranth
	Castor Bean	Panicum bisulcatum							
Tree	Hibiscus	Willow	Red Raspberry	Cymbidium	Fireweed	Concrete Tree	Sycamore	Wessex	Pine
	Ginkgo	Kumquat	Pepper wood						
Fruit trees	Begonia	Fig	Pomegranate	Pear	Peach	Elm	Apple	Grape	Citrus
	Grapefruit	Winter jujube	Nanmu	apricot	Ziziphi jujuba	Mango	Dragon Fruit		
Ornamental Plants	Alstroemeria	Sunflower	Marigold	Campsis grandiflora	Chrysanthemum nigrum	Cauliflower	Viburnum	Yellow bramble	Yucca
	Mallow Flower	Lunar season	Wild Rose	Lilac	Archery Flower	Pocket Coconut	Forsythia	Cockscomb	Jasmine
	Succulent	Green Bean	Yunnan poplar	Tricuspidia	Lantana	Orchid grass	Fern	Purple Kale	
Herbal Vine	Triphala	Peacock Herb	Dogwood	Clover	Daylily	Acanthopanax	Strawberry	Arabidopsis thaliana	Polygonum
	Forsythia	Lamb's Quarter	Silene vulgaris						
Herbs	Panax ginseng	Poria	Dendrobium officinale	Lily	Hundred veins root	Forsythia	Licorice	Asparagus	Patchouli
	Semprevirens	Dandelion	Phellodendron Barkleyi	Atractylodes Macrocephalae	Angelica sinensis	Yellow Essence	Ginseng	Lohan Pine	Moneywort
	Asparagus	Lindera aggregate	Astragalus						
Algae, mosses	Cladophoron	Little blonde moss	knawweed moss	Chlorella	Diatom	Pimephales promelas	Chlamydomonas reinhardtii	Red Algae	Marchantia
	Karenia mikimotoi								
Seeds	Red bean	Pinus sylvestris	Perilla	Cotton	Sunflower	Vanilla	Cucumber	Kiwi	Sorghum
Fungus	Shiitake Mushroom	Aspergillus niger	Aspergillus terreus	Capsicum tuberculosis	Sheep's Belly Fungus	Ustilaginoidea virens	Yeast	Monascus	

Preparation of DNase I Working Solution

Dissolve the DNase I lyophilized powder (1500 U) in 1 ml of RNase-Free ddH₂O, mix gently. Add 10 µl per sample according to the protocol. Use immediately upon preparation.

Note: For long-term storage of dissolved DNase I powder, prepare the DNase I Stock Solution instead. Dissolve the DNase I lyophilized powder (1500 U) in 550 µl of RNase-Free ddH₂O, mix gently. Aliquot and store at -30 to -15°C (stable for up to 9 months). When using the stock solution, add 5 µl per sample. Thawed DNase I stock solution retrieved from -30 to -15°C storage can be kept at 2-8°C (stable for up to 6 weeks). Do not refreeze.

Protocol

1. Preparation of Plant RNA Reagents

- 1.1 Take out the prefilled 96-deepwell plate from the kit. Invert and mix the plate several times to resuspend the magnetic beads. Remove the packaging bag and gently flick the plate to concentrate the reagents and magnetic beads at the bottom (Alternatively, use a plate centrifuge at 500 rpm for 1 minute). Carefully remove the sealing film to prevent plate vibration and liquid spillage.
- 1.2 Add appropriate volume (60-100 µl) of RNase-Free ddH₂O to well columns 5/11 before starting the run.

2. Sample pre-treatment

- 2.1 Take 30-100 mg of plant leaves or fruit pulp and quickly grind into powder in liquid nitrogen. Add 800 µl of Buffer TSP, 20 µl of Proteinase K, and 50 µl of Buffer ST. Immediately vortex and mix vigorously. Allow to stand at room temperature for 5 min.

Note 1: For seed samples, use about 30 mg. For general samples, use about 50 mg. For samples with low RNA content, a starting amount of 100 mg can be used.

Note 2: Due to the rich diversity of plants and the fact that the RNA content of the same plant varies in different stages of growth and development and in different tissues, please choose the appropriate amount of plant material according to the specific experimental situation.

- 2.2 Centrifuge at 12,000 rpm (~13,400×g) at 4°C for 5 min.

3. Operation Steps for TGuide S16/S32/S32 Pro/S96 Dex Nucleic Acid Extractor

- 3.1 Add 700 µl of the supernatant from the processed sample to the well columns 1 and 7 of the 96-deepwell plate. Add 10 µl of DNase I Working Solution to the wells columns 3 and 9.

Note: To avoid affecting the activity of DNase I, DNase I is added to columns 3/9 immediately before the run.

- 3.2 Mount the 96-deepwell plate onto the base platform inside TGuide S16/S32/S32 Pro/S96 Dex instrument. Insert tip combs into the corresponding comb rack slots and fully lock the buckles in place.
- 3.3 Select the corresponding program and press the Start button to begin running the extraction program.
- 3.4 After completion of the automated extraction procedure, collect RNA from well columns 5/11 of the 96-deepwell plate and store under appropriate conditions.

The experimental procedure is shown in the table below:

Table 1: TGuide S16 Automated Nucleic Acid Extractor Plant Total RNA Extraction Program

Step	Hole site	Name	Mix time (min)	Mix speed	Dry time (min)	Volume (μl)	Temp. (°C)	Seg-ments	Every time (sec)	Magnetization time(sec)	Cycle	Magnet speed (mm/s)
1	6	Pipette beads	0.5	7	0	720	–	5	5	3	2	2
2	2	Collect beads	0.5	7	0	900	–	1	0	0	–	–
3	1	Lysis	5	8	0	900	–	1	0	0	–	–
4	2	Pipette beads	0.5	7	0	800	–	5	5	3	2	2
5	1	Bind	5	8	0	900	–	5	5	3	2	2
6	2	Wash 1	3	7	0	800	–	5	5	0	2	2
7	3	DNase I	12	3	0	710	–	1	5	0	2	2
8	2	Wash 2	5	7	0	800	–	5	5	3	2	2
9	4	Wash 3	3	7	0	800	–	5	5	0	2	2
10	6	Wash 4	3	7	6	720	–	5	5	0	2	2
11	5	Elution	5	7	0	100	45	5	5	5	2	2
12	6	Discard	0.5	5	0	720	–	1	0	0	–	–

Table 2: TGuide S32/S32 Pro Automated Nucleic Acid Extractor Plant Total RNA Extraction Program

Step	Slot	Name	Wait time (min)	Mix time (min)	Magnetic suction time (min)	Mix speed	Volume (μl)	Temp (°C)	Adsorption mode
1	6	Pipette beads	0	0.5	1	Fast	720	--	Cycle
2	2	Collect beads	0	0.5	0	Fast	800	--	---
3	1	Lysis	0	5	0	Fast	900	--	---
4	2	Pipette beads	0	0.5	1	Fast	800	--	Cycle
5	1	Blending	0	5	1	Fast	900	--	Cycle
6	2	Wash 1	0	3	1	Fast	800	--	Cycle
7	3	DNase I	0	12	1	Slow	710	--	Cycle
8	2	Wash 2	0	5	1	Fast	800	--	Cycle
9	4	Wash 3	0	3	1	Fast	800	--	Cycle
10	6	Wash 4	0	3	1	Fast	720	--	Cycle
11	5	Elution	6	5	2	Fast	100	45	Cycle
12	6	Discard	0	0.5	0	Fast	800	--	--

Table 3: TGuide S96 Dex Automated Nucleic Acid Extractor Plant Total RNA Extraction Program

Step	Well site	Name	Wait Time (mm:ss)	Mix Speed	Mix Time (mm:ss)	Mix Mode	Liquid Volume (μl)	Magnetic suction time (mm:ss)	Number of magnetic aspirations	Heating Temp (°C)	Pause After Completion
1	6	Pipette beads	0	Fast	0:30	Normal mode	720	0:30	2	-	-
2	2	Collect beads	0	Fast	0:30	Normal mode	800	0:00	0	-	-
3	1	Blending	0	Fast	5:00	Normal mode	900	0:00	0	-	-
4	2	Pipette beads	0	Fast	0:30	Normal mode	800	0:30	2	-	-
5	1	Bind	0	Fast	5:00	Normal mode	900	0:30	2	-	-
6	2	Wash 1	0	Fast	3:00	Normal mode	750	0:30	2	-	-
7	3	DNase I	0	Slow	12:00	Normal mode	710	0:30	2	-	-
8	2	Wash 2	0	Fast	5:00	Normal mode	800	0:30	2	-	-
9	4	Wash 3	0	Fast	3:00	Normal mode	800	0:30	2	-	-
10	6	Wash 4	0	Fast	3:00	Normal mode	720	0:30	2	-	-
11	5	Elution	6:00	Fast	5:00	Normal mode	100	0:30	3	45	-
12	6	Discard	0	Fast	0:30	Normal mode	720	0	0	-	-

Appendix

Related Products

1. Instrument and Accessories

Product name	Packing Size	Cat.No
TGuide S16 Nucleic Acid Extractor	1 set	OSE-S16-AM
TGuide Smart Magnetic Tip Comb	200 pieces/box	OSE-TGA-S03
TGuide Single Sample Tank Bracket	5 pieces/box	OSE-TGA-S32

2. TGuide Smart Reagents Kits

Product name	Cartridge	Cat.No
TGuide Smart Viral DNA/RNA Kit	48 preps	GDP604-DE
TGuide Smart Universal DNA Kit	48 preps	GDP605-DE
TGuide Smart Envir-DNA Kit	48 preps	GDP613-DE
TGuide Smart Hi-Plant DNA Kit	48 preps	GDP617-DE
TGuide Smart DNA Purification Kit	48 preps	GDP642-DE
TGuide Smart Micro Cell Total RNA Kit	48 preps	GDP670-DE
TGuide Smart Universal RNA Kit	48 preps	GDP671-DE
TGuide Smart Hi-Plant RNA Kit	48 preps	GDP672-DE
TGuide Smart Processed Food DNA Kit	48 preps	GDP680-DE
TGuide Smart Viral DNA/RNA Kit	96 preps	GDP604-E
TGuide Smart Universal DNA Kit	96 preps	GDP605-E
TGuide Smart Envir-DNA Kit	96 preps	GDP613-E
TGuide Smart Hi-Plant DNA Kit	96 preps	GDP617-E
TGuide Smart DNA Purification Kit	96 preps	GDP642-E
TGuide Smart Micro Cell Total RNA Kit	96 preps	GDP670-E
TGuide Smart Universal RNA Kit	96 preps	GDP671-E
TGuide Smart Hi-Plant RNA Kit	96 preps	GDP672-E
TGuide Smart Processed Food DNA Kit	96 preps	GDP680-E