TIANGEN®

TGuide Smart Blood Genomic DNA Kit

For genomic DNA purification from blood and buffy coat.

TECHNICAL MANUAL

Cat. no. 4993703

Note: To use the TGuide Smart Blood Genomic DNA Kit, you must have the TGuide Smart Blood Genomic DNA(program no. DP601-01) installed on the TGuide S16/S32 pro Nucleic Acid Extractor.

www.tiangen.com/en

This product is for scientific research use only. Do not use in medicine, clinical treatment, food or cosmetic

Table Contents

Kit Contents 1

Blood Genomic DNA reagent composition 1

Storage condition 1

Product 2

Features 2

Notes 2

Operational steps 3

1.Preparation of blood DNA extraction reagent 4

2.Operation steps of TGuide S16 Nucleic Acid Extractor 4

Appendix 5

1.Program 5

2.Related Products 6

TGuide Smart Blood Genomic DNA Kit

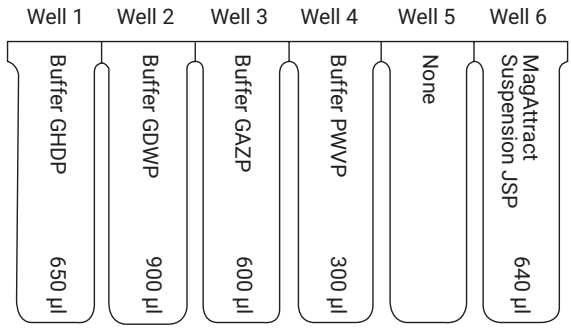
Cat. no. 4993703

Kit Contents

	Contents	4993703 (48 preps)
4993697	Blood DNA Reagents	48
	Proteinase K	1 ml
	Buffer TB	15 ml
4993546	TGuide Smart Tip Comb	12

Note: 4993546 is shipped and packaged separately

Blood Genomic DNA reagent composition



Storage condition

The kit can be stored in dry conditions at room temperature (15~30°C) for 12 months.

Product

The kit adopts magnetic beads and a unique buffer system to isolate and purify genomic DNA with high quality from blood. The uniquely embedded magnetic beads have a strong affinity for nucleic acid under certain conditions. When the conditions are changed, the magnetic beads can release the absorbed nucleic acid to rapidly separate and purify it. The whole process does not involve organic reagents and is safe and convenient. The extracted genomic DNA has large fragments and high purity and is stable and reliable in quality. It can be used to perfectly fit with TGuide S16 Nucleic Acid Extractor of TIANGEN for automated extraction.

DNA purified by this kit is suitable for downstream experiments including enzymatic digestion, PCR, chip analysis, library construction and Southern Blot.

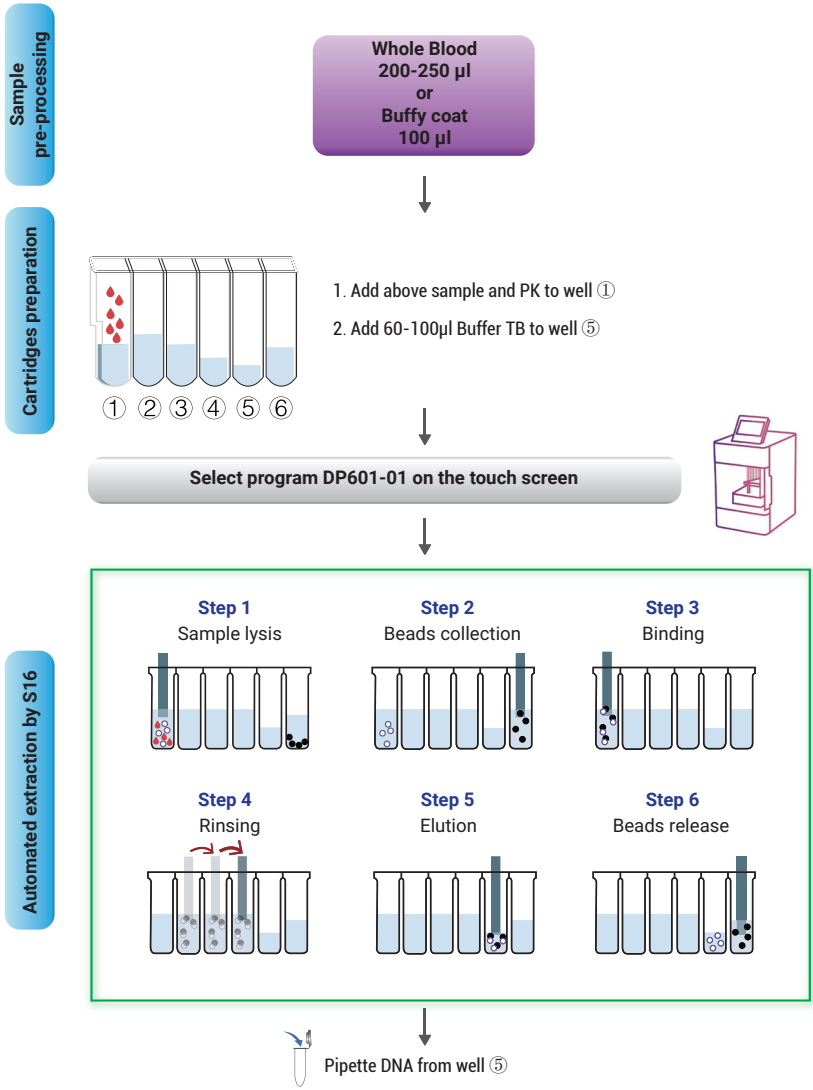
Features

- **Simple and fast:** It can be extracted automatically with TGuide S16 Nucleic Acid Extractor, and ultra-pure genomic DNA can be obtained within 1 hr.
- **Wide use:** It is suitable for frozen or fresh whole blood and buffy coat.
- **High purity:** The DNA obtained has high purity and can be directly used for PCR, enzymatic digestion, hybridization and other experiments.

Notes

1. The sample should avoid repeated freezing and thawing, otherwise the DNA fragments extracted will be small and the amount of extraction will be reduced.
2. The pre-processing methods of different samples will be slightly different. We recommend that the buffy coat samples should be mixed with a vortex mixer before loading. If blood samples have cell clusters, users also need to mix them with a vortex mixer before loading.
3. After sample pre-processing, take an appropriate amount of the sample and add it to the 1st well of the single sample reagent cartridge.
4. The elution buffer (Buffer TB) is not prefilled, so users need to add the Buffer TB to the 5th well of the single sample reagent cartridge before performing on the instrument. The recommended range of Buffer TB is 60~100 μl. The smaller the elution volume, the higher the nucleic acid concentration, but the lower the total yield may be. On the contrary, the larger the elution volume, the lower the nucleic acid concentration, and the higher the total yield may be. Users can adjust it in the range of 60~100 μl as needed.

Operational steps



1. Preparation of blood DNA extraction reagent

1.1 Take out a prefilled single sample reagent cartridge and invert it to re-suspend the magnetic beads; Gently shake to concentrate the reagent and magnetic beads to the bottom of the cartridge. Before use, remove the sealing film carefully to avoid liquid spatter or spills.

1.2 Add the Buffer TB of appropriate volume (60~100 μl) into the 5th well of the single sample reagent cartridge.

2. Operation steps of TGuide S16 Nucleic Acid Extractor

Please read the following precautions before loading:

(1) The samples should be balanced to room temperature.

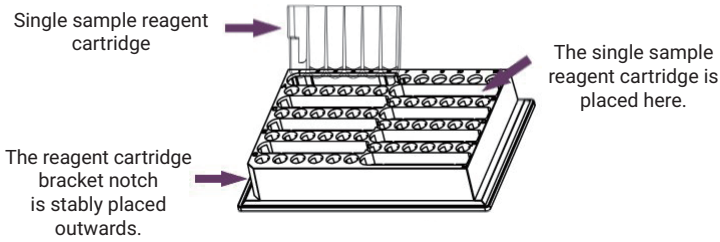
(2) For buffy coat samples, mix it with a vortex mixer for 2 min before adding to the 1st well of the single sample reagent cartridge.

(3) If the blood samples have cell clusters, they can also be mixed with a vortex mixer for 1~2 min before adding to the 1st well of the single sample reagent cartridge.

(4) If the blood sample is anticoagulant blood of poultry, birds, amphibians or lower organisms, their red blood cells have nucleus cells, and the sample processing volume should be adjusted to 5~20 μl. PBS or normal saline (self-provided) should be added to supplement to 200 μl.

2.1 Add 200~250 μl whole blood sample or 100 μl buffy coat and 20 μl Proteinase K respectively into 1st well of the single sample reagent cartridge, and place the cartridge on the reagent tank bracket of TGuide S16 Nucleic Acid Extractor.

2.2 Place the reagent tank bracket on the plate base in the TGuide S16 Nucleic Acid Extractor. Insert the Tip Combs into the slots to ensure they are well connected and firmed.



2.3 If you use the TGuide S16 Nucleic Acid Extractor, select the corresponding program DP601-01 file on the touch screen, click the icon ▶ in the lower right corner of the screen and click the "RUN" button at the bottom of the screen to start the experiment.

2.4 At the end of the automated extraction process, take the DNA out of the 5th well of the cartridge and store it under appropriate conditions. Single sample reagent cartridge and tip comb are for single use only.

Detection of DNA concentration and purity

Due to significant individual differences in blood samples, the concentration and total yield of the blood genomic DNA are directly related to the number of white blood cells in blood samples, and the purity can be affected by blood samples rich in sugar, protein, lipid and other substances in blood samples.

The size of the genomic DNA fragment obtained is related to the sample preservation time, the shearing force during the operation and other factors. The concentration and purity of the obtained DNA fragments can be detected by agarose gel electrophoresis and ultraviolet spectrophotometer.

DNA should have a significant absorption peak at OD_{260}. The OD_{260} value is 1, equivalent to about 50 μg/ml doublestranded DNA, 40 μg/ml single-stranded DNA, and the ratio of OD_{260} / OD_{280} should be 1.7~1.9.

Appendix

1.Program

The automated extraction process of blood genomic DNA is shown in the following table:

Step	Hole site	Step name	Mix time (min)	Mix speed	Dry time (min)	Volume (μl)	Temp. (°C)	Segments	Every time (sec)	Magnetization time(sec)	Cycle	Magnet speed (mm/s)
1	6	Transfer beads	0	8	—	600	—	5	5	0	2	2.5
2	2	Collect beads	1	8	—	900	—	0	0	0	0	2.5
3	1	Lysis	2	8	—	900	90	1	0	0	1	2.5
4	1	Lysis	3	8		500	90	1	0	0	1	2.5
5	1	Lysis	2	8	—	900	90	1	0	0	1	2.5
6	1	Lysis	3	8	—	500	90	1	0	0	1	2.5
7	1	Lysis	2	8	—	900	90	1	0	0	1	2.5
8	2	Transfer beads	0	8	—	900	—	5	5	0	2	2.5
9	1	Bind	3	8	—	500	—	1	0	0	1	2.5
10	1	Bind	2	8	—	900	—	5	10	0	2	2.5
11	2	Wash 1	0.5	8	—	100		1	0	0	1	2.5
12	2	Wash 2	2	8	—	900	—	5	5	0	2	2.5
13	3	Wash 3	0.5	8	—	100	—	1	0	0	1	2.5
14	3	Wash4	2	8	—	500	—	5	5	0	2	2.5
15	4	Wash5	1	8	—	600	—	5	5	0	2	2.5
16	6	Wash6	1	6	8	300	—	3	20	0	1	2.5
17	5	Elution	8	8	—	100	75	5	12	0	2	2.5
18	6	Discard	0.5	8	—	300	—	1	0	0	1	2.5

2. Related Products

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	4968939
TGuide Single Sample Tank Bracket	5 pieces/box	4993270

TGuide Smart Reagent Kits

Product name	Packing Size	Cat.No
TGuide Smart Magnetic Plant DNA Kit	48 preps	4993548
TGuide Smart Soil /Stool DNA Kit	48 preps	4993549
TGuide Smart Magnetic Tissue DNA Kit	48 preps	4993547
TGuide Smart Magnetic Plant RNA Kit	48 preps	4993552
TGuide Smart DNA Purification Kit	48 preps	4993550
TGuide Smart Blood/Cell/Tissue RNA Kit	48 preps	4993551
TGuide Smart Viral DNA/RNA Kit	48 preps	4993702
TGuide Smart Universal DNA Kit	48 preps	4993704