

# TGuide Smart Blood Genomic DNA Kit

(Prefilled 96-Deepwell plate)

*For genomic DNA purification from blood and buffy coat.*

## TECHNICAL MANUAL

Cat. no. 4995206

**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.



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

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# TGuide Smart Blood Genomic DNA Kit

Cat. no. 4995206

### Kit Contents

Contents	4995206 (96 preps)
Blood DNA Reagents	6 plates
Proteinase K	1 ml
Buffer TB	15 ml
TGuide Smart Tip Comb	12

### Blood DNA reagent composition

Column 1/7	Column 2/8	Column 3/9	Column 4/10	Column 5/11	Column 6/12
Buffer GHDP	Buffer GDWP	Buffer GAZP	Buffer PWVP	None	MagAttract Suspension JSP
650 µl	900 µl	600 µl	300 µl		640 µl

### 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.

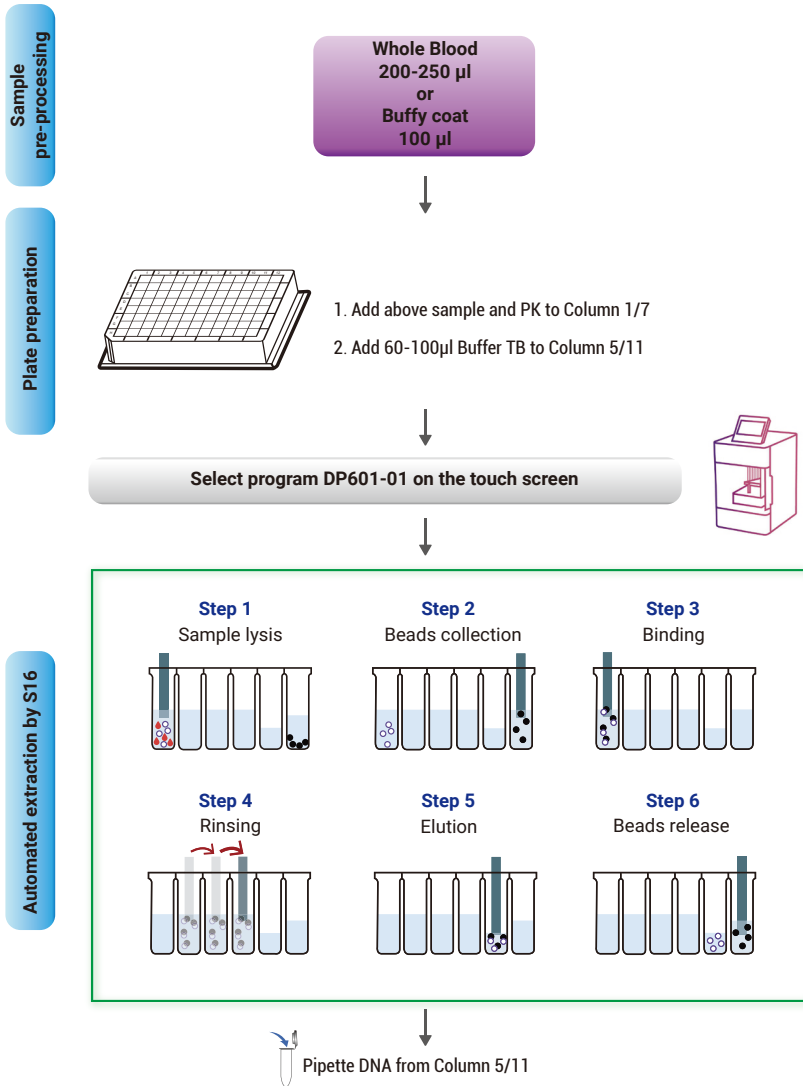
## Features

- **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 column 1/7 of the prefilled 96-deepwell plate .
4. The elution buffer (Buffer TB) is not prefilled, users need to add the Buffer TB to the column 5/11 of the prefilled 96-deepwell plate before performing on the instrument. The recommended range of Buffer TB is 60~100  $\mu$ l. 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  $\mu$ l as needed.

## Operational steps



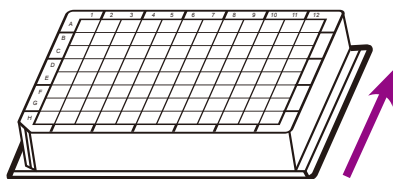
## 1. Preparation of blood DNA extraction reagent


- 1.1 Take out a prefilled 96-deepwell plate and invert it to re-suspend the magnetic beads; Gently shake to concentrate the reagent and magnetic beads to the bottom of the plate. Before use, remove the sealing film carefully to avoid liquid spatter or spills.
- 1.2 Add the Buffer TB of appropriate volume (60~100  $\mu$ l) into the column 5/11 of the prefilled 96-deepwell plate.

## 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 column 1/7 of the prefilled 96-deepwell plate.
  - (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 column 1/7 of the prefilled 96-deepwell plate.
  - (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  $\mu$ l. PBS or normal saline (self-provided) should be added to supplement to 200  $\mu$ l.
- 2.1 Add 200~250  $\mu$ l whole blood sample or 100  $\mu$ l buffy coat and 20  $\mu$ l Proteinase K respectively into column 1/7 of the prefilled 96-deepwell plate.
  - 2.2 Place the reagent plate on the 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 column 5/11 of the plate and store it under appropriate conditions. Prefilled 96-deepwell plate 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<sub>260</sub>. The OD<sub>260</sub> value is 1, equivalent to about 50 µg/ml doublestranded DNA, 40 µg/ml single-stranded DNA, and the ratio of OD<sub>260</sub> / OD<sub>280</sub> 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)	Seg-ments	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	Wash 4	2	8	—	500	—	5	5	0	2	2.5
15	4	Wash 5	1	8	—	600	—	5	5	0	2	2.5
16	6	Wash 6	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 (preps) cartridge/plate	Cat.No
TGuide Smart Magnetic Plant DNA Kit	48	4993548
TGuide Smart Soil /Stool DNA Kit	48	4993549
TGuide Smart Magnetic Tissue DNA Kit	48/96	4993547/4995038
TGuide Smart Magnetic Plant RNA Kit	48	4993552
TGuide Smart DNA Purification Kit	48	4993550
TGuide Smart Blood/Cell/Tissue RNA Kit	48/96	4993551/4995039
TGuide Smart Blood Genomic DNA Kit	48/96	4993703/4995206
TGuide Smart Viral DNA/RNA Kit	48/96	4993702/4995207
TGuide Smart Universal DNA Kit	48/96	4993704/4995040