Genomic DNA extraction from whole blood, plasma, buffy coat and dried blood spot using Exgene™ Blood SV mini

Experimental Conditions

Materials Required

- Exgene™ Blood SV mini (100 preps: 105-101 / 250 preps: 105-152)
- 1.5 ml microcentrifuge tube
- EDTA vacuum tube (for whole blood)
- FTA card (for dried blood spot)
- Microcentrifuge (≤14,000 x g)
- Vortex mixer
- Pipette & sterilized pipette tips
- Suitable protector (e.g., lab coat, disposable gloves, goggles, etc.)

Sample Information

- Extraction conditions

Sample	Amount	Elutoin volume
Human whole blood	200 µl	200 µl
Plasma		
Buffy coat (PBMC)		
Dried blood spot (DBS)	2 dots	

Protocol

Exgene™ Blood SV mini Protocol

*** For more details and methods, please refer to the handbook of Exgene™ Blood SV mini, midi, maxi.**

Sample Preparation

- **Human whole blood**

1. Add 20 µl of Proteinase K solution (20 mg/ml, provided) into the bottom of a 1.5 ml microcentrifuge tube (not provided).
2. Transfer 200 µl of human whole blood collected in the EDTA vacuum tube to the 1.5 ml microcentrifuge tube.
3. Follow the **A. Protocol for whole blood/body fluid/cultured cell/buffy coat (page 12).**

- **Plasma**

1. Centrifuge the human whole blood in EDTA vacuum tube at 2,000 x g above for 10 min at 15 °C to 25 °C.
2. Add 20 µl of Proteinase K solution (20 mg/ml, provided) into the bottom of a 1.5 ml microcentrifuge tube (not provided).
3. Carefully separate the upper plasma phase to a new tube and transfer the 200 µl of plasma to 1.5 ml microcentrifuge tube.
4. Follow the **A. Protocol for whole blood/body fluid/cultured cell/buffy coat (page 12).**

- **Buffy coat (PBMC)**

1. Centrifuge the human whole blood in EDTA vacuum tube at 2,000 x g above for 10 min at 15 °C to 25 °C.
2. Add 20 µl of Proteinase K solution (20 mg/ml, provided) into the bottom of a 1.5 ml microcentrifuge tube (not provided).
3. Carefully separate the intermediate buffy coat to a new tube and transfer the 200 µl of buffy coat to 1.5 ml microcentrifuge tube.
4. Follow the **A. Protocol for whole blood/body fluid/cultured cell/buffy coat (page 12).**

- **Dried blood spot (DBS)**

1. Prepare 2 dots with a diameter of 5 mm using a single-hole paper puncher from a dried blood spot.
2. Follow the **C. Protocol for dried blood spot (page 16).**

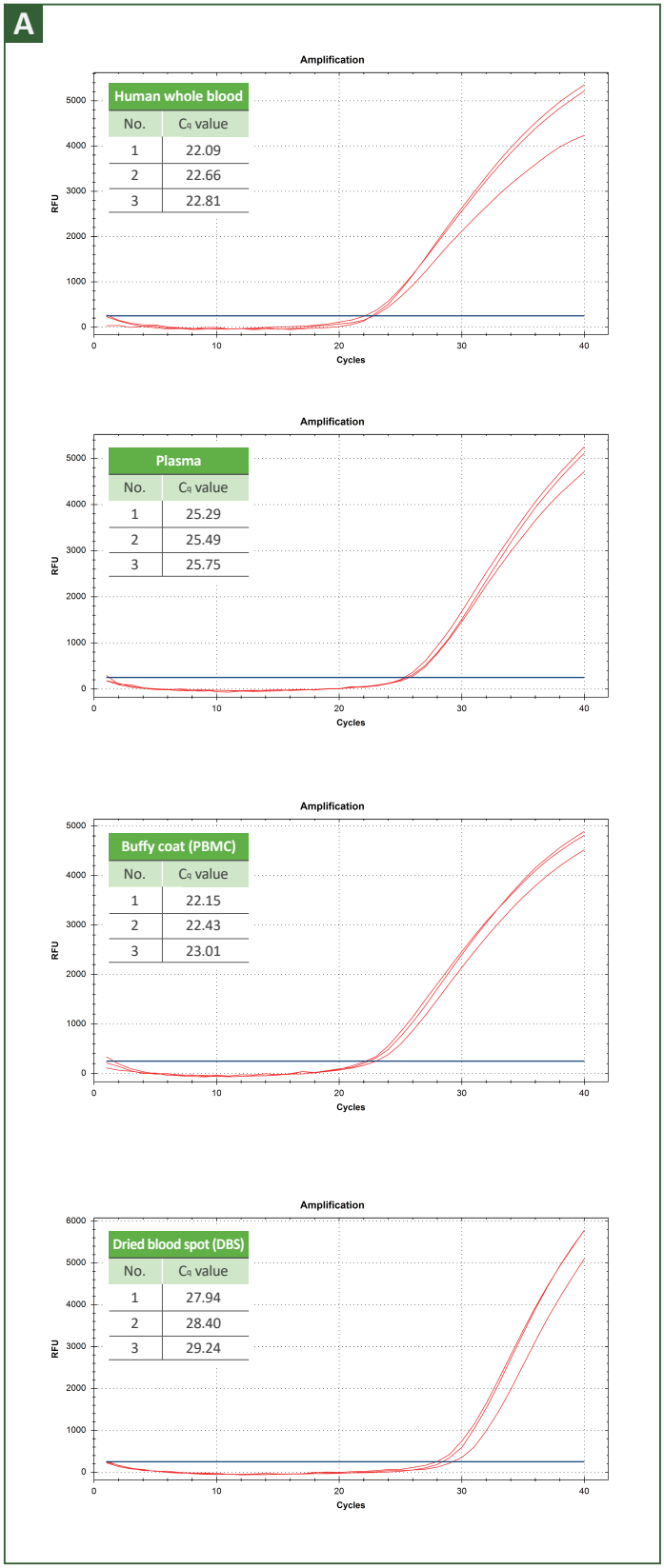
Result

Sample	Yield (µg)	$A_{260/280}$
Human whole blood	**12.50**	1.79
	13.70	1.82
	14.86	1.81
Plasma	**1.40**	1.46
	1.70	1.89
	1.72	1.71
Buffy coat (PBMC)	**11.32**	1.92
	7.08	1.79
	13.36	1.83
Dried blood spot (DBS)	**9.28**	0.33
	6.80	0.35
	8.88	0.33

Table 1. Yield and purity of DNA.
Genomic DNA was extracted from human whole blood, plasma, buffy coat, and dried blood spot using Exgene™ Blood SV mini. DNA extraction was performed three times on the same samples. Yield and purity were determined by absorbance spectroscopy.

Genomic DNA extraction from whole blood, plasma, buffy coat and dried blood spot using Exgene™ Blood SV mini

Result



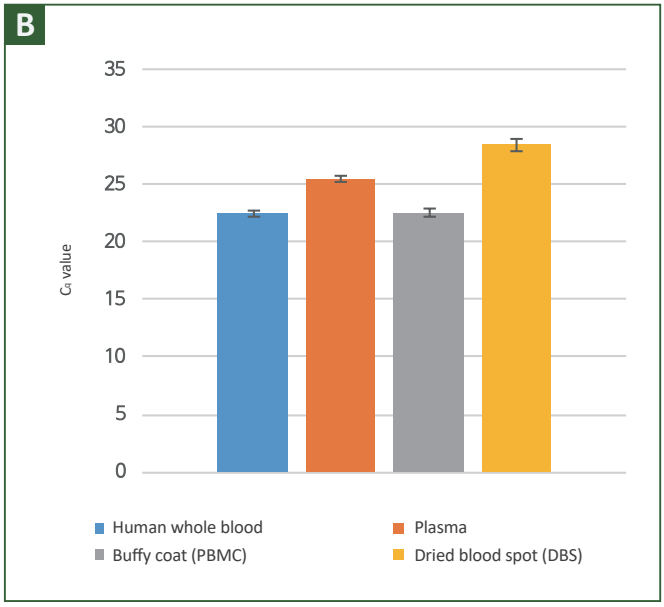


Figure 1. C_q values for extracted DNA samples.
DNA was extracted from blood, plasma, buffy coat, and dried blood spot using Exgene™ Blood SV mini. Subsequently, Real-time PCR was performed with DNA extracted as template, human GAPDH primers, and RealAmp™ 2X qPCR Master Mix (801-200) in CFX96™ System (1855201, supplier B).
A: quantitative PCR amplification for four types of blood samples using human GAPDH primer.
B: the average of C_q values from four types of blood samples.