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magnetiQ

Blood & Cell DNA Extraction kit

Introduction

The Galenvs magnetiQ Blood & Cell DNA Extraction Kit enables a rapid and efficient method of genomic DNA (gDNA) isolation and purification from whole blood samples and mammalian cell suspensions. Our magnetic bead technology allows for a combined lysis and capture step and efficient washing steps leading to high yields of concentrated gDNA free of cell debris, salts, lipid, or protein contamination under 20 minutes.

Applications

- Next Generation Sequencing (NGS)
- PCR and qPCR gene amplification
- DNA methylation studies
- Copy number variation (CNV) studies

Features

- Amenable to high-throughput methods and automation (Kingfisher Flex, Allsheng AutoPure96, etc.)
- Faster and simpler magnetic collection and resuspension steps
- Reduced clogging and contaminant/cell debris carryover
- Eliminates organic solvent hazardous waste
- Requires only the use of a magnetic rack and standard pipettes
- Does not require centrifugation steps
- Storage and operation at room temperature

Performance

Yield and Purity

In comparing the Galenvs magnetiQ Blood & Cell kit to industry leading products (DNeasy Blood & Tissue by **Qiagen)**, 100 µL of whole human blood (Potassium/EDTA stabilized) are processed as described by manufacturer recommended protocols (Figure 1).

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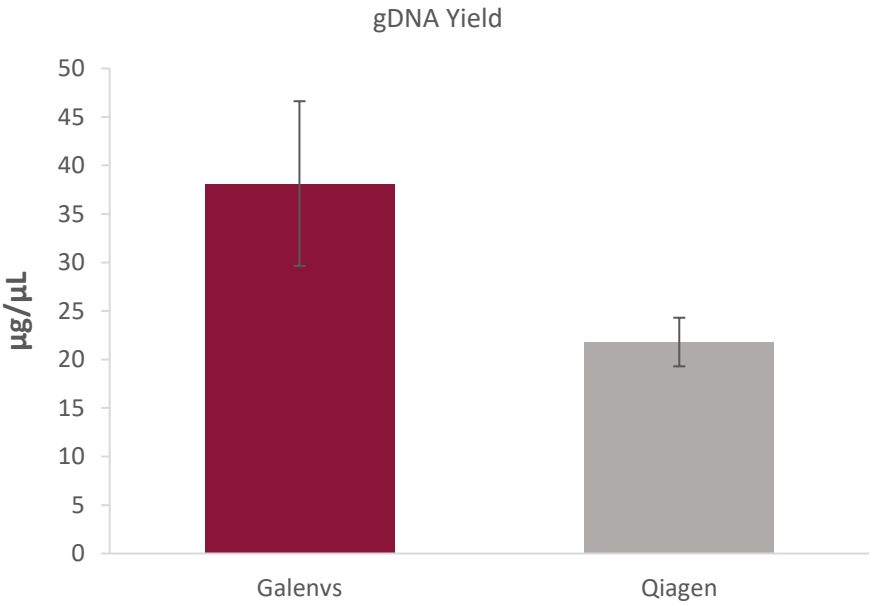

Figure 1: Extraction yield of gDNA from 100 µL of whole blood using Galenvs magnetiQ Blood/Cell kit and Qiagen DNeasy Blood & Tissue kit. Quantification of gDNA performed using Qubit BR DNA fluorescent assay measurement (n=3)

Table 1 : A260/A280 purity ratios of eluted gDNA samples from 100 µL whole blood measured by UV/Vis nanodrop (n=3)

	A260/A280
Galenvs	1.83 ± 0.03
Qiagen	2.04 ± 0.12

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qPCR

Both quantitative PCR (qPCR) (Figure 2) and gel electrophoresis results (Figure 3) confirm the higher recovery yields obtained with Qubit BR DNA assay. Eluted gDNA is added to the qPCR master mix (NEB Luna) containing primers for pre-GAPDH housekeeping gene.

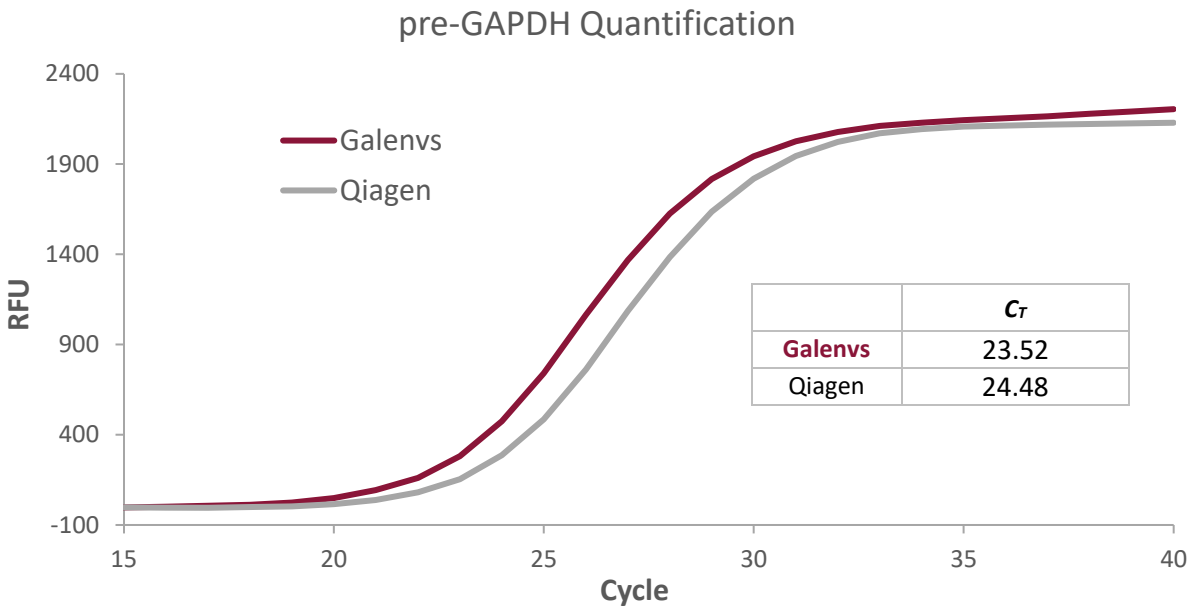

Figure 2: Amplification of the pre-GAPDH gene by qPCR from 100 µL of whole blood comparing Galenvs and Qiagen extraction kits

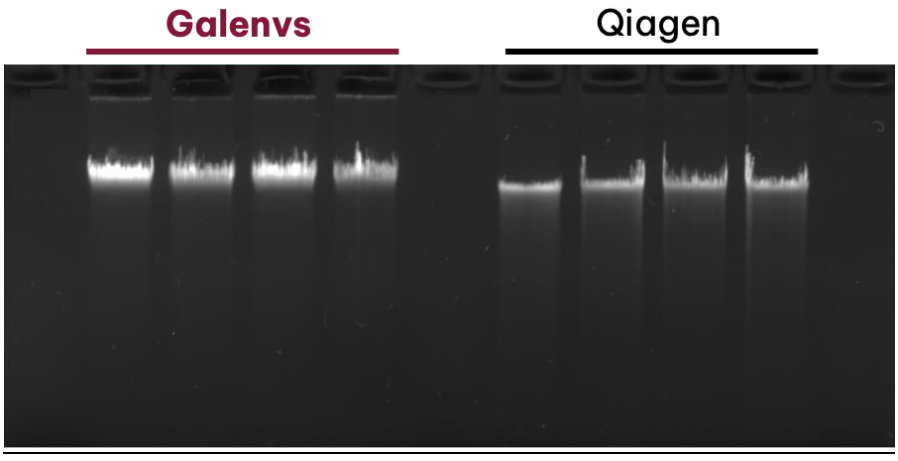

Figure 3: Gel electrophoresis of extracted gDNA from 100 µL whole blood samples (4x) comparing Galenvs and Qiagen kits. Galenvs isolated gDNA is higher molecular weight while Qiagen extraction shows DNA smears below gDNA bands

Sample Volume

To illustrate the scalability of the Galenvs protocol, higher volumes of whole blood were processed while scaling the lysis buffer volume accordingly. The elution volumes can be further tuned to obtain the desired final concentration of isolated gDNA. Figures 4 and 5 show the yield and purity, respectively, from varying volumes of whole blood. The total yield of gDNA increases linearly and matches the scaling factor of processed whole blood volume – while maintaining high purity ratios. This is also confirmed in the gel electrophoresis analysis (Figure 6).

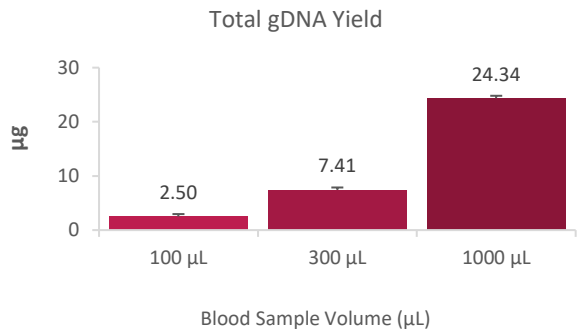

Figure 4: Total extraction yield of gDNA from varying whole blood volumes

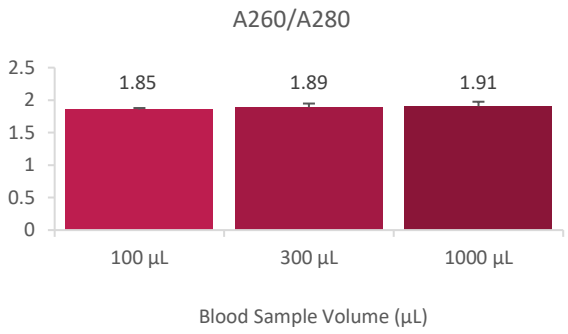

Figure 5: Extracted gDNA purity from whole blood samples of different volumes

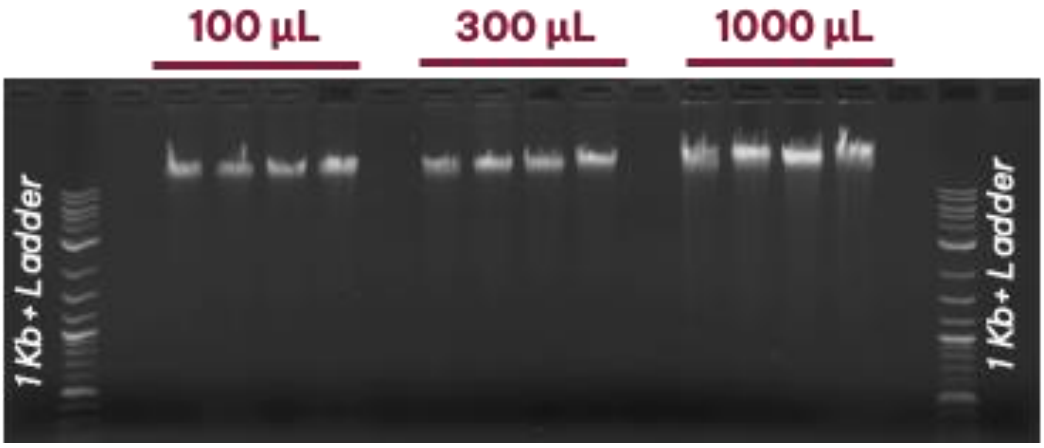

Figure 6: Gel electrophoresis of extracted gDNA from 100 µL, 300 µL, and 1000 µL of whole blood samples processed with Galenvs magnetiQ kit

Specifications

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Sample Type	**Blood, Cells, Bacteria**
Quantity	100 or 250 assays / Prefilled plates (16-96 preps)
Elution Volume	100 µl
Processing Mode	Automated – Manual
Sample Volume	100 µL – 1000 µL
Binding Technology	Magnetic beads
Binding Capacity	Scalable
Components	(i) Lysis/Binding Buffer (ii) Wash Buffer #1 (iii) Wash Buffer #2 (iv) Elution Buffer (v) Proteinase K
Storage	Room temperature

Product codes

100 preps	BC0100
250 Preps	BC0250
Prefilled plates 96-well	BC0096
Prefilled plates 16-well	BC0016

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