High Recovery of DNA for Downstream Applications

Agencourt® Genfind™ v2 System

Genomic DNA Isolation Kit

The Agencourt Genfind v2 DNA purification system isolates and purifies genomic DNA (gDNA) from whole blood, serum and FTA cards. Additional protocols are available for extracting genomic DNA from cultured eukaryotic cells, bacteria, and fresh or frozen tissue.* The kit is powered by cutting-edge SPRI® (Solid Phase Reversible Immobilization) paramagnetic bead-based technology to effectively produce a high recovery of DNA for downstream applications such as PCR[1] and genotyping. SPRI allows for fast separation, easy manipulation and simple automation compared to traditional centrifugation and vacuum filtration technologies. The method can be run manually in a 2 mL tube format or automated format on the Beckman Coulter Biomek® NXP or FXP workstations.

Key Features:

- Whole blood processing from 50 to 400 µL volumes
- High gDNA recovery up to 6 µg from 200 µL of whole blood
- No centrifugation or vacuum filtration required
- Biomek Span-8 and 96-Multichannel methods are available for whole blood
- Automated extraction of 96 samples in approximately 2.5 hours

Consistent and High Recovery of gDNA

Figure 1 demonstrates that Agencourt Genfind v2 delivers high quality and consistent yields in comparison to competitor filtration and bead-based methods. The unique properties of the SPRI technology allows for the effective capture of gDNA in the presence of various anticoagulants.

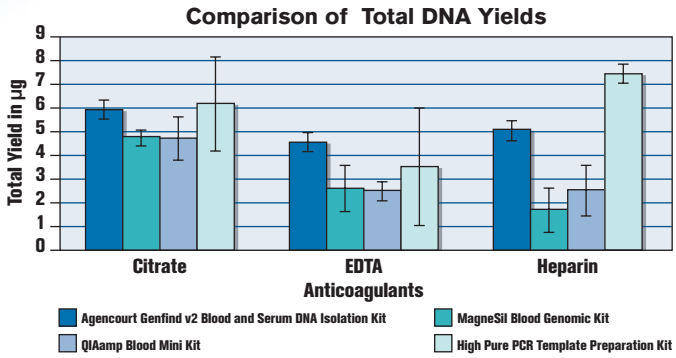

Figure 1. *Replicates of 8 200 µL samples of frozen human blood were manually extracted and eluted in 200 µL H_2O (High Pure was eluted in 10 mM tris, pH 8.5); for all kits analyzed, aliquots were taken from the same patient sample for each anticoagulant used. DNA concentrations and yields were determined using the Beckman Coulter DTX plate reader to measure the A260 absorbances.*

Table 1 - Comparison of Ct Values

Sample	Mean Ct
Agencourt Genfind v2 10 ng	**21.50 ± 0.37**
MagneSil Blood Genomic Kit 10 ng	21.40 ± 0.15
QIAamp Blood Mini Kit 10 ng	20.18 ± 0.20
High Pure PCR Template Preparation Kit 10 ng	21.35 ± 1.03
Agencourt Genfind v2 1 ng	**24.19 ± 0.17**
MagneSil Blood Genomic Kit 1 ng	24.23 ± 0.48
QIAamp Blood Mini Kit 1 ng	22.96 ± 0.31
High Pure PCR Template Preparation Kit 1 ng	24.35 ± 0.77

Comparison of Ct values for nucleic acid purified using the Agencourt Genfind v2 system, MagneSil® Blood Genomic kit, QIAamp® Blood Mini kit, and High Pure® PCR Template Preparation kit. Indicated amounts of DNA manually extracted from frozen human blood prepared with EDTA were used in the qPCR analysis.

As seen in Table 1, Ct values obtained in qPCR reactions indicate that samples purified by the Agencourt Genfind v2 system produce amplifiable gDNA with a high sample-to-sample consistency.

High Quality gDNA

The Agencourt Genfind v2 DNA isolation method isolates and purifies gDNA that is intact and suitable for downstream PCR and genotyping. Genomic DNA from human whole blood samples was isolated with Agencourt Genfind v2 and analyzed by gel electrophoresis (Figure 2A).

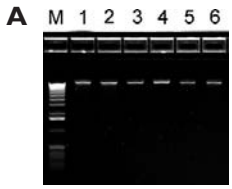

Figure 2A. *Gel electrophoresis of 1 µL genomic DNA through a 0.8% agarose gel. DNA was isolated from 200 µL blood with the Agencourt Genfind v2 purification method and eluted in 200 µL H_2O. Key: M = 1 kb ladder, lanes 1 & 2 = Citrate, lanes 3 & 4 = EDTA, and lanes 5 & 6 = Heparin.*

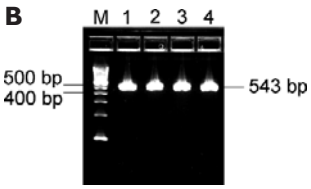

Figure 2B. *PCR for the human ADP ribosylation factor 1 (ARF1) gene was performed using 2 µL of extracted gDNA in a 20 µL reaction and 10 µL of each reaction was resolved through a 4% agarose gel Key: M = 100 bp ladder, lanes 1 – 2 = EDTA, and lanes 3 – 4 = Heparin.*

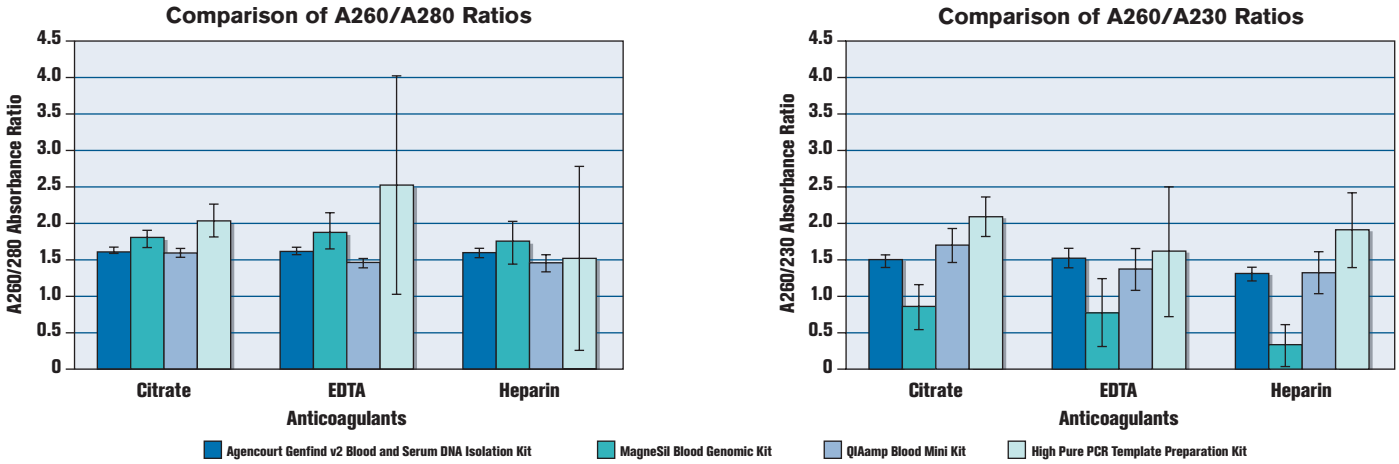

Figure 3. Absorbances were determined using 2 µL for Nanodrop[2] analysis. Replicates of 8 were performed for each anticoagulant sample.

No Inhibition from Anticoagulants

Heparin can be a powerful PCR inhibitor that can make DNA amplification a challenge. Agencourt Genfind v2 efficiently removes common anticoagulants from blood such as Citrate, EDTA and Heparin. Figure 2B shows that the DNA from a blood sample containing Heparin amplifies as easily as the DNA from blood containing EDTA.

High Purity

Contaminants, such as salt and protein, can negatively affect downstream application of genomic DNA. As seen in Figure 3 Agencourt Genfind v2 produces gDNA with consistent A260/A280 and A260/A230 ratios improving success in downstream applications.

Summary

The Agencourt Genfind v2 system is efficient and automation friendly. By automating the process using Agencourt software methods on either Biomek Span-8 or 96 Multichannel Biomek workstation, gDNA can be isolated and purified in approximately 2.5 hours. With the power of SPRI chemistry, the Agencourt Genfind v2 system produces highly pure DNA and consistent data thus allowing researchers to minimize retesting of precious samples.

Ordering Information

For more information, please visit our website at **www.agencourt.com** or contact your local sales representative.

Product	Size	Product #
Agencourt Genfind v2 DNA Isolation 2 mL Tube Kit	50 preps	A41499
Agencourt Genfind v2 DNA Isolation 96-well Plate Kit	384 preps (4 x 96)	A41497
Agencourt Genfind v2 96 Batch Software Method, v3.x		A42568
Agencourt Genfind v2 Span-8 96 Batch Software Method, v3.x		A42569

Related Products	Size	Product #
Agencourt Orapure™ Buccal Cell DNA Isolation Kit	100 preps	001053
Agencourt AMPure® PCR Purification 60 mL Kit	1333 preps (25 µL PCR reaction volume)	000130

[1] The PCR process is covered by patents owned by Roche Molecular Systems, Inc., and F. Hoffman-La Roche, Ltd.
[2] All trademarks are property of their respective owners.
* Please inquire with your Agencourt sales representative for these additional protocols.

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