BECKMAN COULTER
Life Sciences

Genomic DNA isolation from fresh or frozen whole blood and serum

GenFind V3 Reagent Kit

The GenFind V3 genomic DNA (gDNA) isolation reagent kit uses SPRI paramagnetic bead-based technology. It enables purification of PCR-compatible gDNA from fresh and frozen blood collected in tubes containing anticoagulants such as EDTA, citrate or heparin. The method can be run manually in a 2 mL tube format or 96-well format, or automated in 96-well format on variety of Biomek liquid handling workstations. GenFind V3 kit has several key features which provide consistent extraction of gDNA from fresh or frozen blood samples:

- Consistent high purity and quality gDNA isolation
- No carryover of inhibitors from various anticoagulants for exceptional PCR and other downstream assays
- Process up to 400 µL of fresh or frozen blood

Competitive recovery and purity of gDNA from various types of fresh and frozen blood samples

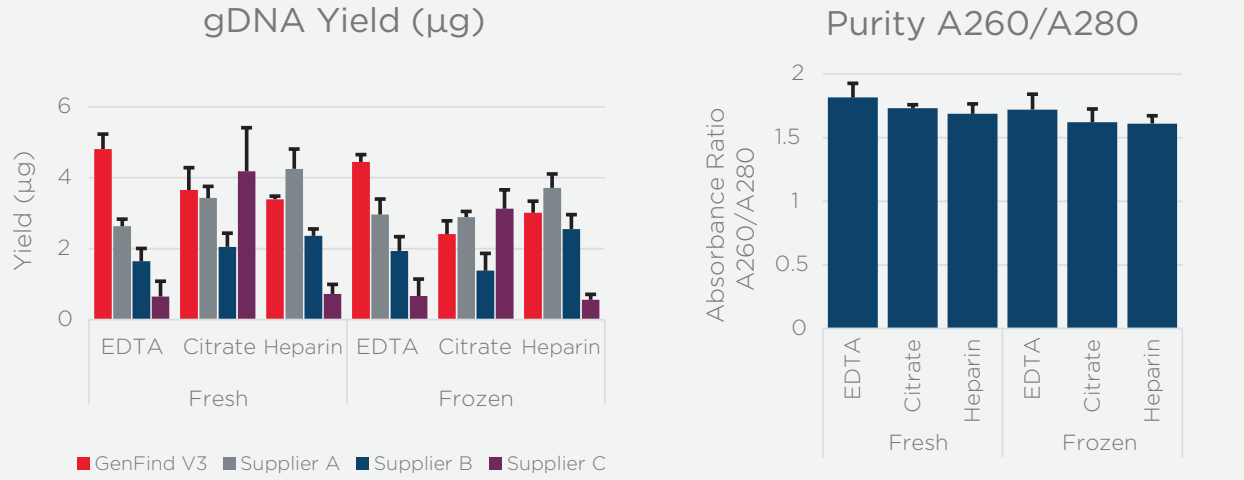

Figure 1. Genomic DNA was extracted from 200 µL of fresh or frozen blood collected in tubes containing heparin, EDTA and citrate with GenFind V3 and other suppliers' kits. (Left) Samples were quantitated with the Quant-iT DNA assay kit, Picogreen, and NanoDrop (Thermo Fisher Scientific). Higher amounts of gDNA were recovered using the GenFind V3 kit over other suppliers' kits in blood collected in EDTA tubes, and competitive yields were recovered from the other two tube types. (Right) Samples were assessed for purity using the NanoDrop (Thermo Fisher Scientific). For all types of fresh and frozen blood samples, GenFind V3 kit purified gDNA with satisfactory $A_{260/280}$ ratios.

Enhanced purity of gDNA with a GenFind V3 kit as compared to a GenFind V2 kit from fresh and frozen blood samples

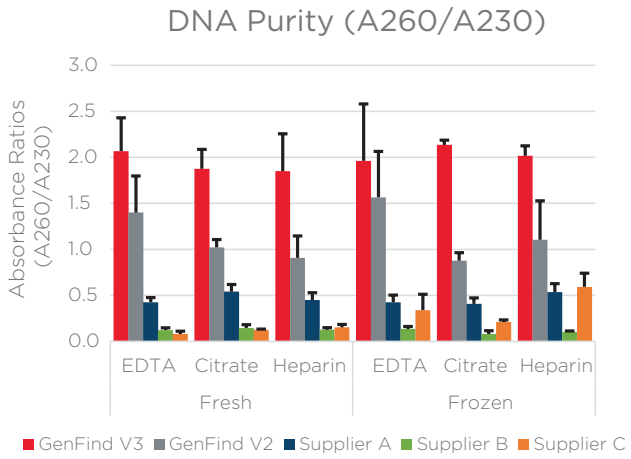

Figure 2. Genomic DNA was extracted from 200 µL of fresh or frozen blood collected in tubes containing heparin, EDTA or citrate with GenFind V3, GenFind V2 and three other suppliers' kits. Samples were assessed for purity using the NanoDrop (Thermo Fisher Scientific). For every tube type, the GenFind V3 kit extracted gDNA with a greater purity than GenFind V2 and the other supplier's kits.

Increase yield with increase of input volume of blood

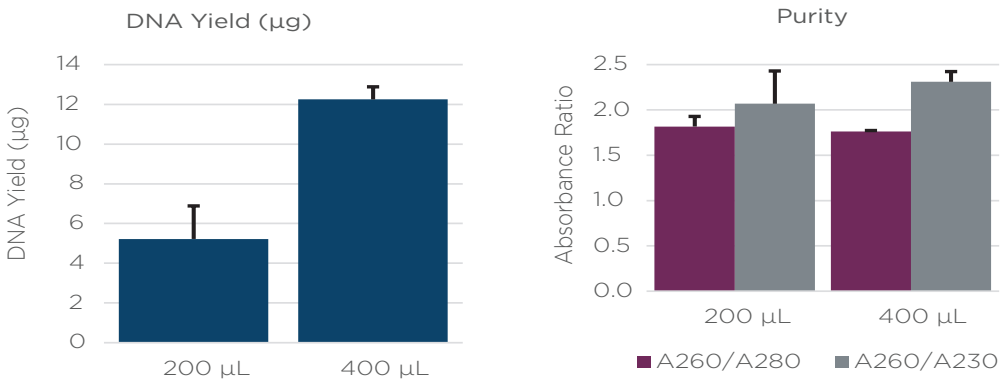

Figure 3. Increasing the volume of the input can increase total yields without affecting purity. Genomic DNA was extracted from 400 µL of fresh blood collected in tubes containing EDTA with the GenFind V3 kit. Samples were assessed for purity and yield using the NanoDrop (Thermo Fisher Scientific).

Visual Workflow

1. Lyse whole blood or serum in LBB and Proteinase K
2. Bind DNA to magnetic beads
3. Separate beads from contaminants
4. Wash the magnetic beads with WBB to remove contaminants
5. Wash the magnetic beads with WBC to remove contaminants
6. Elute DNA from magnetic beads
7. Transfer to new plate for storage

No carryover of inhibitors for exceptional PCR and downstream applications

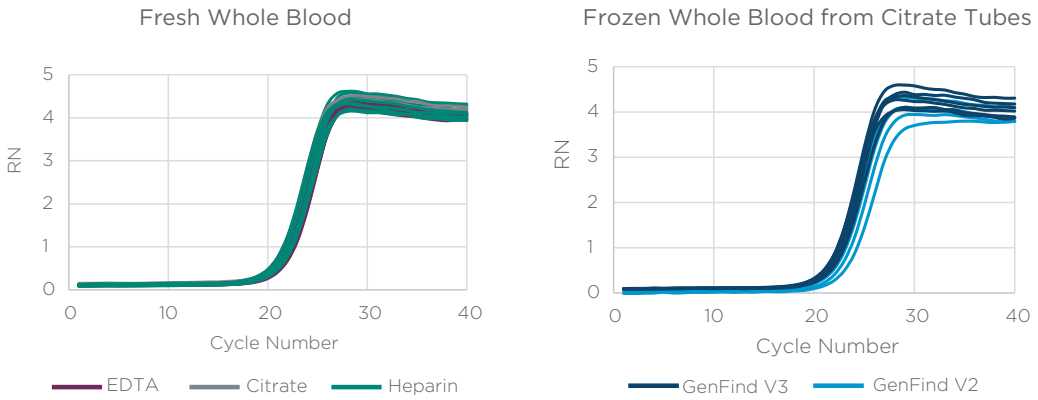

Figure 4. The ability to PCR was assessed via qPCR using a primer set (forward primer 5´-ggacttcgagcaagagatgg-3´ and reverse primer 5´-agcactgtgttggcgtacag-3´) designed to span Exon 4 and 5 of the beta (β)-actin gene (ActB) to produce 327 base pair amplicons. (Left) V2 The amplification plot of 10 ng of DNA extracted from tubes containing citrate, EDTA or heparin. For all tube types we get amplification of DNA indicating that there are no carryovers of PCR inhibitors for any of the anticoagulants. (Right) The amplification plot of 10 ng of DNA extracted from frozen tubes containing citrate using GenFind V3 and GenFind V2 kits.

High recovery of high molecular weight DNA

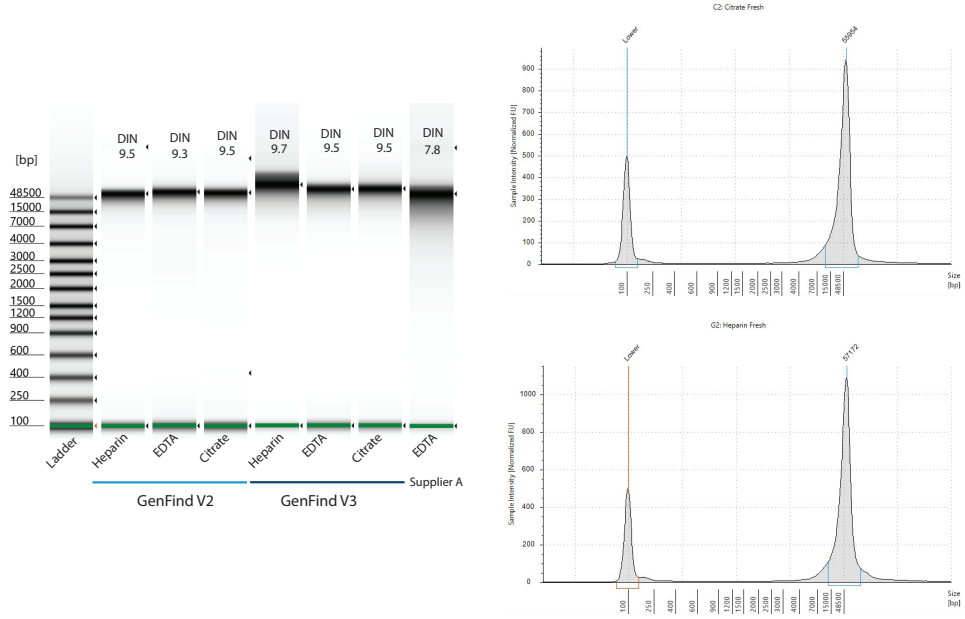

Figure 5. The GenFind V3 kit isolates high-quality gDNA. Genomic DNA isolated from various blood collected in heparin, EDTA and citrate tubes was run on the Agilent Genomic DNA ScreenTape to assess quality. (Left) DIN values from all samples isolated with the GenFind V3 kit were all ≥ 9.0, indicating that high-quality and intact gDNAs were recovered. DNA isolated using Supplier A's kit were of lower quality indicated with a DIN score of 7.8. (Right) Sample traces of the Genomic DNA isolated from tubes containing heparin and citrate.

Users can extract DNA from samples with less hands-on time and fewer pipette actions compared to users of column-based kits

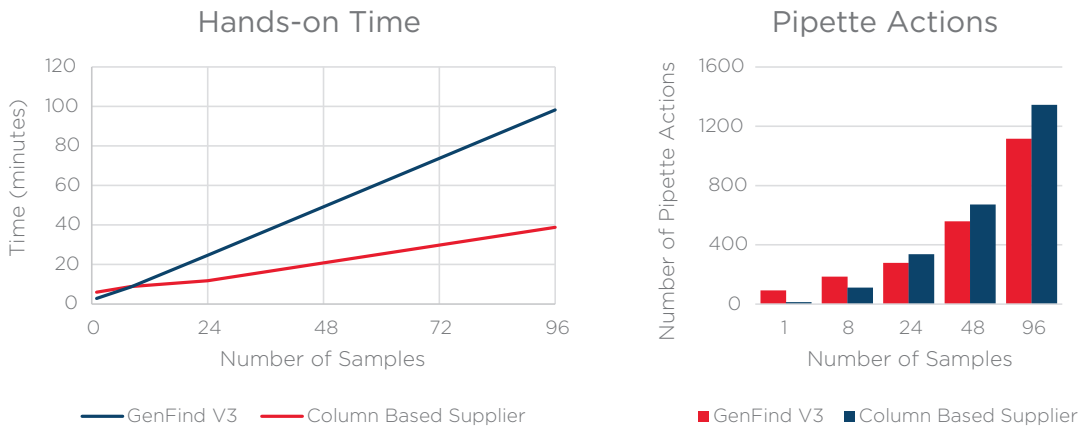

Figure 6. (Left) Represents hands-on time to extract gDNA for 1 to 96 samples using a GenFind V3 kit or a column-based supplier. Even at 10 samples, hands-on time to extract DNA from blood is faster using the GenFind V3 kit. (Right) The total number of pipette actions required for 1, 8, 24, 48, and 96 samples. Pipette actions include dispensing the sample, mixing the sample and discarding the supernatant. With the ability to use a multichannel pipette fewer pipette actions need to take place at 24 or more samples than with column-based suppliers.

GenFind V3 for use in manual or automated methods based on batch size or overall throughput

- Scalable based on throughput
- Quick transition with ready-to-implement methods
- Knowledgeable support for reagents, automation and methods from a single vendor

GenFind V3 Reagent Kit is available in 3 kit sizes based on your throughput needs. Contact your local sales representative or visit beckman.com to request a quote.

Product Information

Part No	Name	Preps
C34880	GenFind V3 kit	50
C34881	GenFind V3 kit	384
C42216	GenFind V3	4800

BECKMAN COULTER Life Sciences

Not intended or validated for use in the diagnosis of disease or other conditions.

For Beckman Coulter's worldwide office locations and phone numbers, please visit Contact Us at beckman.com

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