BECKMAN COULTER
Life Sciences

Genomic DNA Isolation from Fresh or Frozen whole Blood and Serum

GenFind V3

The GenFind V3 kit is a genomic DNA (gDNA) isolation reagent kit built on 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 Beckman Coulter Biomek liquid handling workstations. Consistent recovery of gDNA from various types of fresh and frozen blood samples compared to other suppliers

- Optimal and consistent purity and quality of gDNA isolates
- No carryover of inhibitors from various anticoagulants for exceptional PCR and other down stream 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

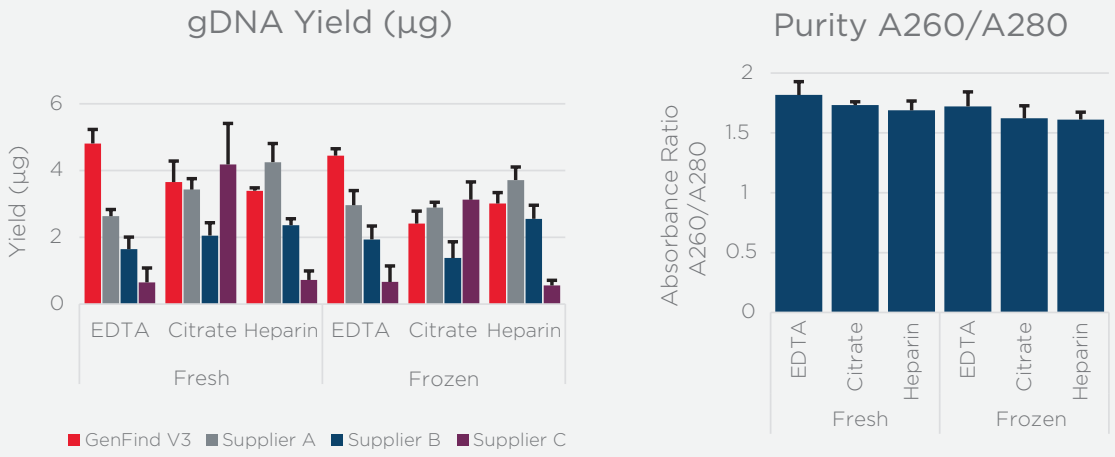


Figure 1. Genomic DNA was extracted from 200 µL of fresh or frozen blood collected in tubes containing Heparin, EDTA and Citrate with GenFind V3 and other suppliers' kits. (Left) Samples were quantitated with the Quant-iT DNA assay kit, Picogreen, and NanoDrop (Thermo Fisher Scientific) for DNA yield.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

Enhanced purity of gDNA with GenFindV3 as compared to GenFind V2 from Fresh and Frozen blood samples

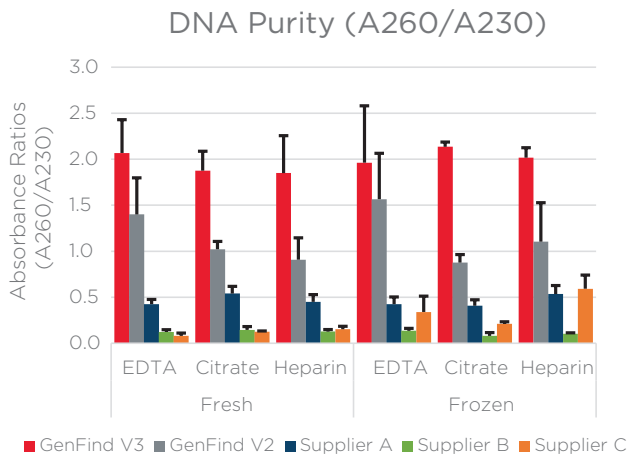


Figure 2. Genomic DNA was extracted from 200 µL of fresh or frozen blood collected in tubes containing heparin, EDTA and citrate with GenFind V3, GenFind V2 and three other suppliers' kits. Samples were accessed for purity using the NanoDrop (Thermo Fisher Scientific). For every tube type, GenFind V3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

Increase yield with increase of input volume of blood

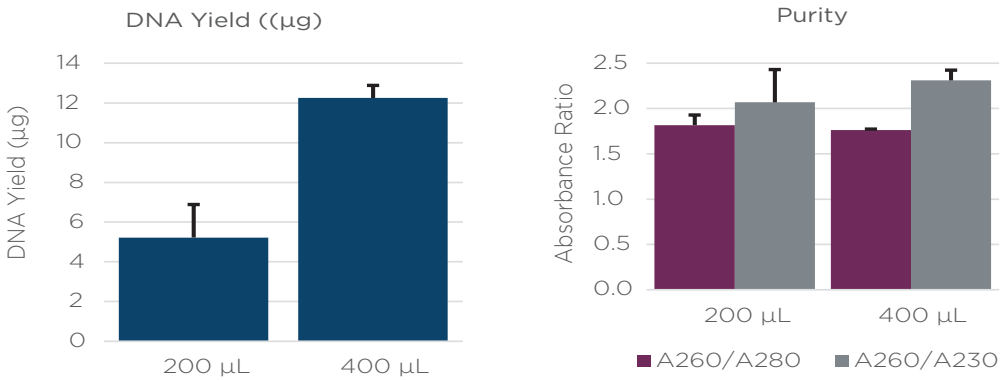
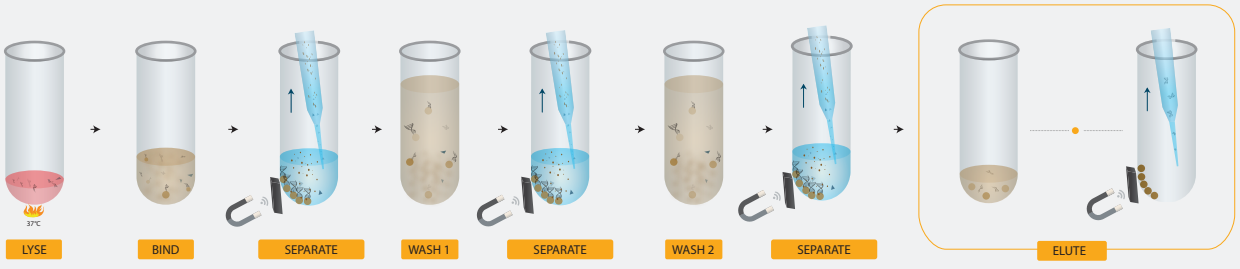


Figure 3. Increasing the volume of the input can increase total yields without affecting purity. Genomic DNA was extracted from 400 µL of fresh blood collected in tubes containing EDTA with GenFind V3. Samples were accessed for purity and yield using the NanoDrop (Thermo Fisher Scientific).

Visual Workflow



1. Lyse whole blood or serum in Lysis Buffer and Proteinase K
2. Bind DNA to magnetic beads
3. Separate beads from contaminants
4. Wash the magnetic beads with Wash Buffer 1 to remove contaminants
5. Wash the magnetic beads with Wash Buffer 2 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

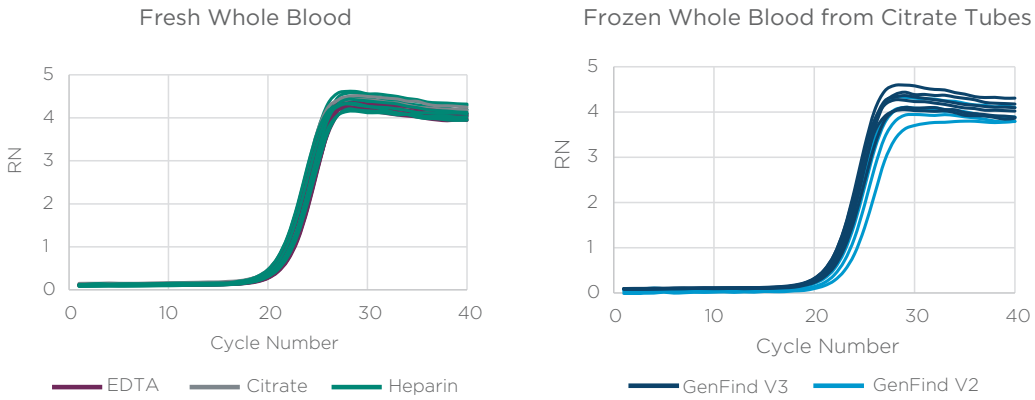


Figure 4. The ability to PCR was assessed via qPCR using a primer set (forward primer 5´-ggacttcgagcaagagatgg-3´ and reverse primer 5´-agcactgtgttggcgtacag-3´) designed to span Exon 4 and 5 of the beta (β)-actin gene (ActB) to produce 327 base pair amplicons. (Left) V2 The amplification plot of 10ng 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 10ng of DNA extracted from frozen tubes containing citrate using GenFind V3 and GenFind V2.

High recovery of high molecular weight DNA

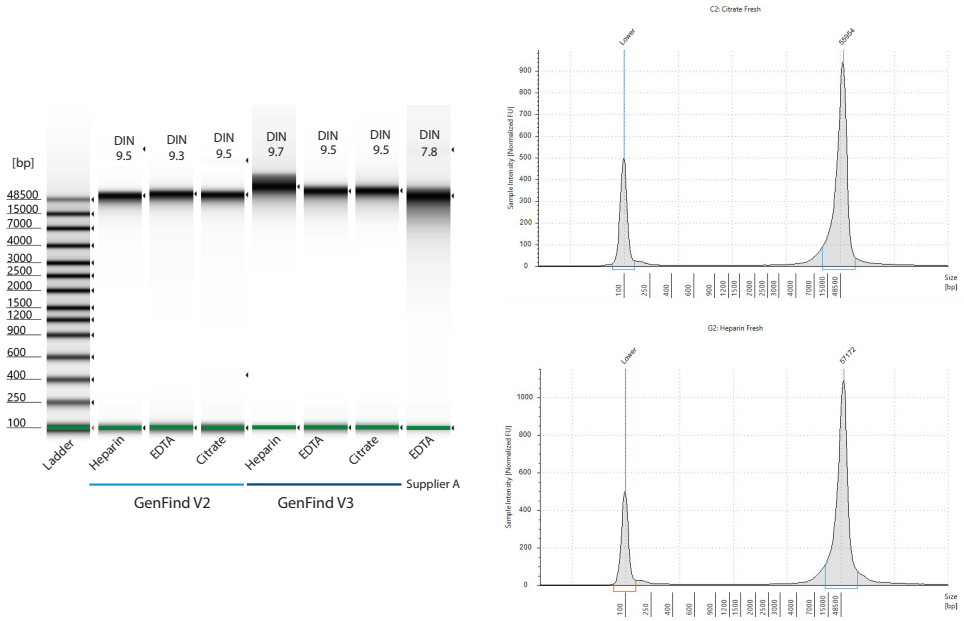


Figure 5. GenFind V3 isolates high quality gDNA. Genomic DNA isolated from various blood collected in heparin, EDTA and citrate tubes was run on the Agilent Genomic DNA ScreenTape to assess quality. (Left) DIN values from all samples isolated with GenFind V3 were all ≥ 9.0, indicating that high quality 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 with less pipette actions compared to users of column based kits

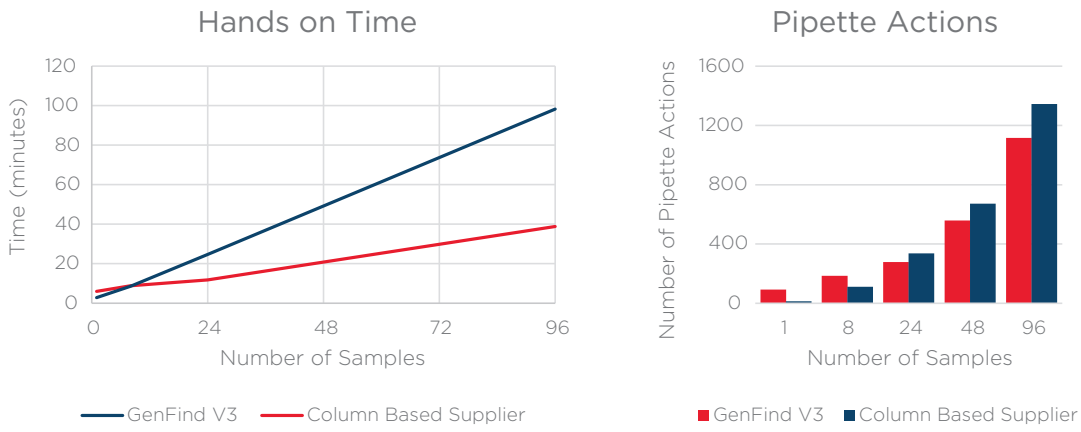


Figure 6. (Left) Represents hands on time to extract gDNA for 1 to 96 samples using GenFind V3 or a column based supplier. Even at 10 samples hands on time to extract DNA from blood is faster using GenFind V3. (Right) The total number of pipette actions required for 1, 8, 24, 48, and 96 samples. Pipette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

GenFind V3 Reagent Kit is available in 2 kit sizes based on your throughput needs. Contact you local sales representative or visit beckman.com to request a quote.

Product Information

Part No	Name	Preps
C34880	GenFind V3	50
C34881	GenFind V3	384

For more information, please contact:

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