BECKMAN COULTER
Life Sciences

cfDNA Extraction from Plasma for Liquid Biopsy

Apostle MiniMax™ High Efficiency cfDNA Isolation Kit

Apostle MiniMax™ High Efficiency cfDNA Isolation Kit, Apostle MiniMax is a cell-free DNA (cfDNA) isolation reagent kit, built on magnetic bead-based technology. Apostle MiniMax has been demonstrated to purify cfDNA from human plasma in both manual and automated workflows.

- Data representative of results of cfDNA extracted from 1–5 mL of plasma
- Demonstrated compatibility with a variety of collection tubes
- cfDNA purity shown to be suitable for downstream PCR based assays

Good performance with plasma collected in a variety of collection tubes.

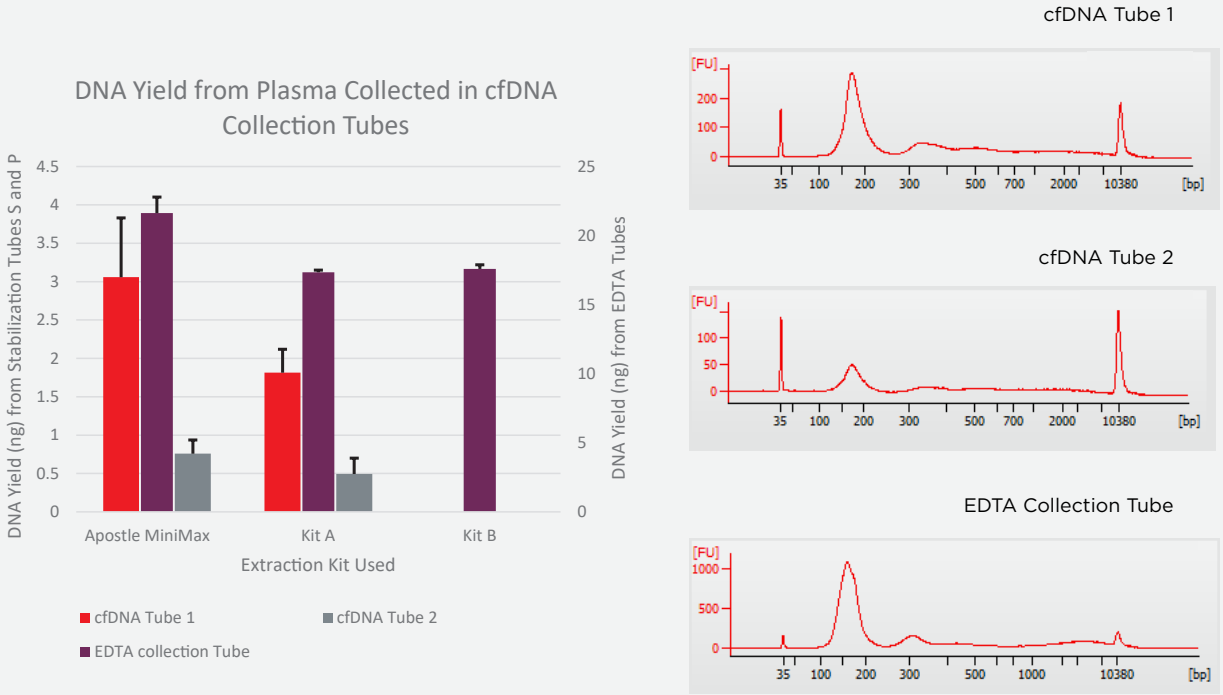


Figure 1. DNA was extracted from 1 mL of plasma collected in cfDNA Tube 1, cfDNA Tube 2 using Apostle MiniMax one other market leading column based kit (kit A). DNA was also extracted from 1 mL of plasma collect in EDTA collection tubes using Apostle MiniMax one other market leading column based kit (kit A) and a second bead based kit (kit B). DNA yield was quantified using Quant-iT PicoGreen dsDNA assay kit (Thermo Fisher Scientific). The error bars represent the standard deviation of three technical replicates. For each tube the Apostle MiniMax extracted higher total yield of DNA. DNA size was analyzed on an Agilent Bioanalyzer 2100. For all three tube types the Bioanlyzer traces indicate the DNA extracted correlates with the expected sizes of cfDNA (~170 bp)

Exceptional reproducibility

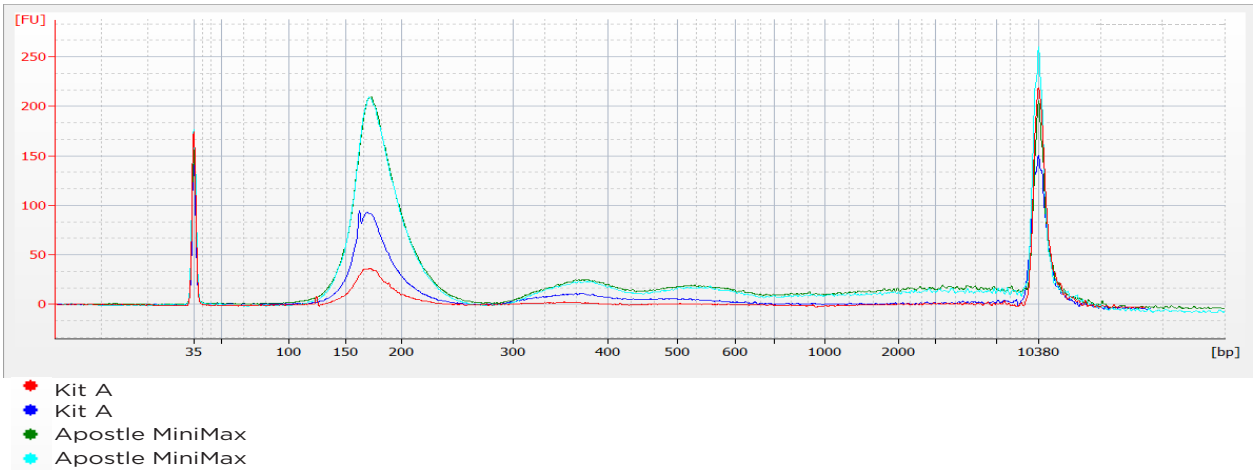


Figure 2. DNA was extracted from 1 mL of plasma collected in in cfDNA Tube 1 using Apostle MiniMax and one other kit. These are technical replicates and both of the replicates that were extracted using Apostle MiniMax are exactly the same, while the DNA extracted using kit A have two distinct traces. Isolated cfDNA was characterized on Agilent Bioanalyzer 2100; the peaks at 35 and at 10380 correspond to internal markers

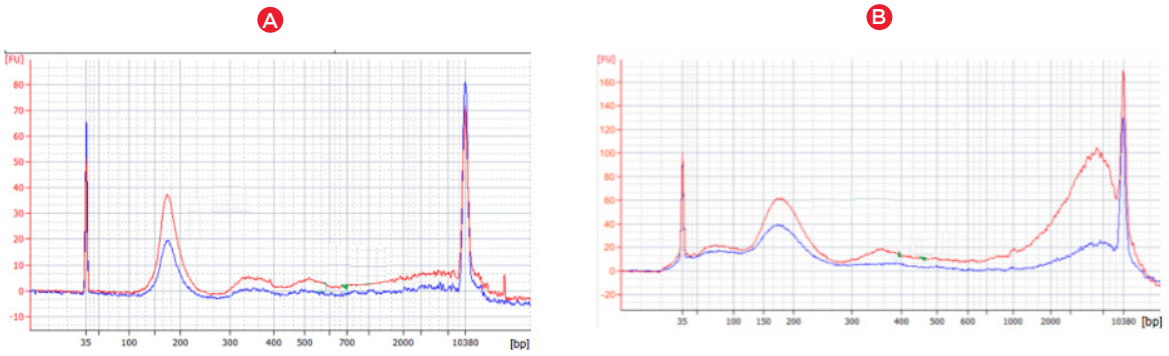
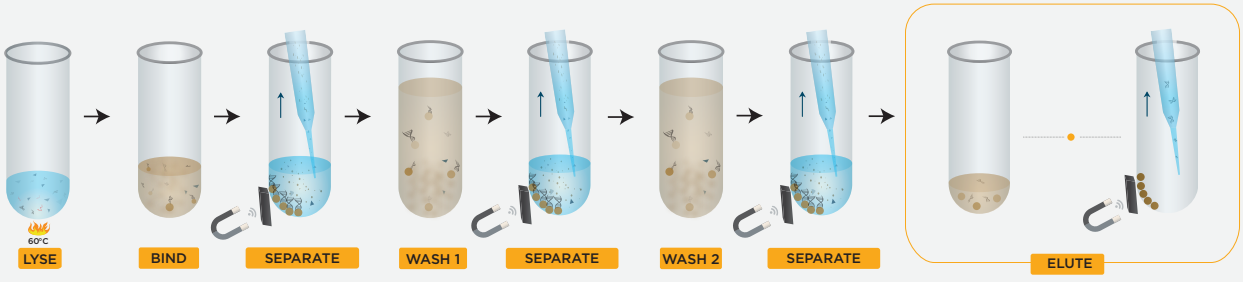


Figure 3. A) cfDNA was isolated from 4 mL of cell-free plasma with Apostle MiniMax (red curve) and market leading column based kit (blue curve). The isolated cfDNA was characterized by Bioanalyzer 2100. B) cfDNA was isolated from 20 mL of cell-free urine using the Apostle MiniMax (red curve) and market leading column based kit (blue curve). The isolated cfDNA was characterized by Bioanalyzer 2100. as indicated by higher peaks at ~150bp. The peaks at 35 and 10380 correspond to internal markers. For both plasma and urine samples Apostle MiniMax outperformed the major alternative product.

Workflow



1. Lyse plasma
2. Bind cfDNA to magnetic beads
3. Separate magnetic beads from contaminants
4. Wash magnetic beads with Wash Solution
5. Wash magnetic beads with 2nd Wash
6. Elute cfDNA from magnetic beads

Exceptional performance of DNA mutation detection and qPCR

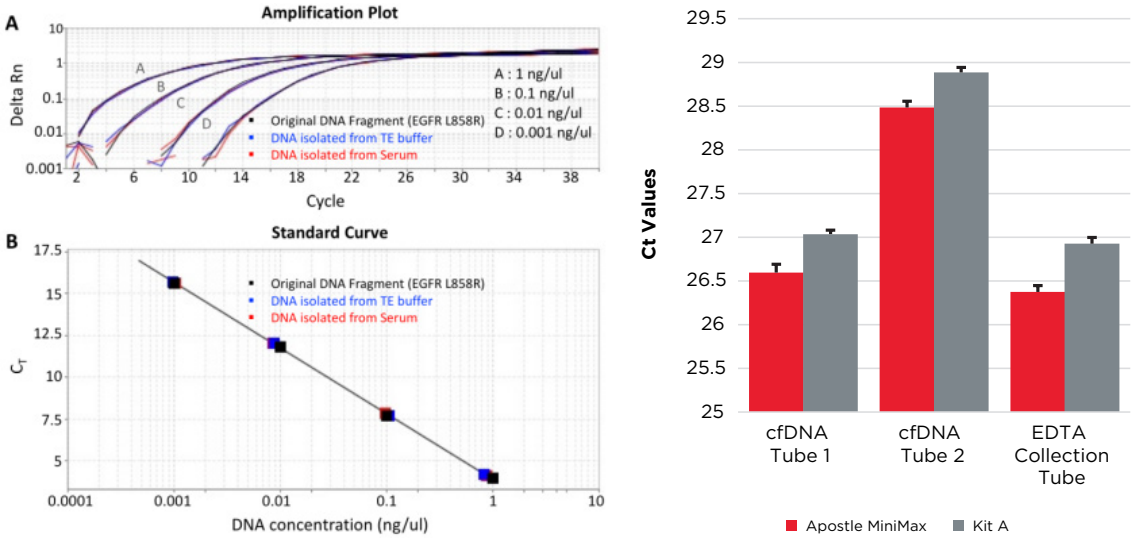


Figure 4.(Left) 20 µL of a 170 bp synthetic DNA fragment containing the EGFR C2573T>G L858R mutation was spiked into 1 mL of TE buffer (blue) or serum (red) at concentrations ranging from 1 ng/µL to 0.001 ng/µL. Apostle MiniMax was used to isolate the fragment A) Is the amplification plot, which shows highly overlapping curves for the isolated mutated DNA fragment and the original DNA solution at the different concentrations. B) To quantify the amount of DNA that Apostle MiniMax can recover a qPCR standard curve was generated using the original DNA. DNA isolation recovery rate was calculated to be >90%. (Right). qPCR performance was compared between Apostle MiniMax and one other market leading column based kit (kit A). Apostle MiniMax outperformed the kit A for DNA extracted from all three collection tubes presented.

DNA yield increases with input volume

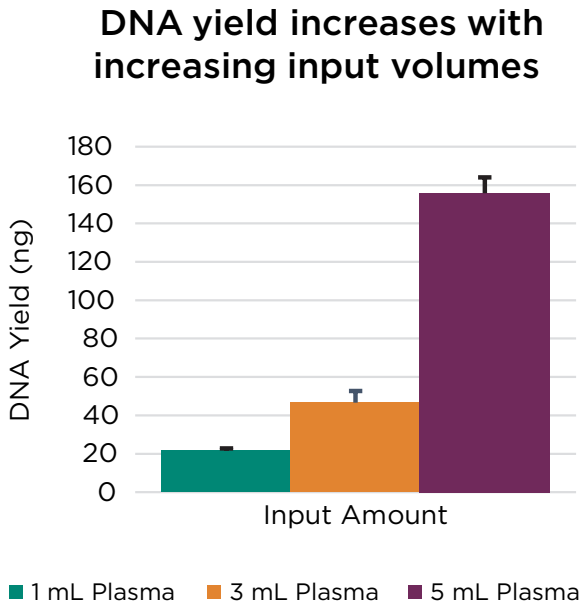


Figure 5. DNA was extracted from 1, 3, and 5 mL of plasma collected in EDTA tubes Apostle MiniMax. DNA yield increases with the amount of input if using Apostle MiniMax. DNA yield was quantified by Quant-iT PicoGreen dsDNA assay kit (Thermo Fisher Scientific). Error bars represent the standard deviation of three technical replicates.

Apostle MiniMax™ High Efficiency cfDNA Isolation Kit (Standard Edition) is available in 3 reagent kit sizes based on your throughput needs. Contact your local sales representative or visit beckman.com to request a quote.

Product tables

Apostle MiniMax™ High Efficiency cfDNA Isolation Kit (Standard Edition)

Part No	Name	Preps
C40603	Apostle MiniMax™ High Efficiency cfDNA Isolation Kit	50
C40604	Apostle MiniMax™ High Efficiency cfDNA Isolation Kit	10
C40605	Apostle MiniMax™ High Efficiency cfDNA Isolation Kit (Large Volume)	50

For more information, please contact:

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

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