STAR BEADS cfDNA/RNA EXTRACTION Kit

#Cat : NB-78-00019-1x10 Size : 1x10
#Cat : NB-78-00019-1x96 Size : 1x96

Rapid isolation of cfDNA/RNA from plasma and other body fluids

Overview

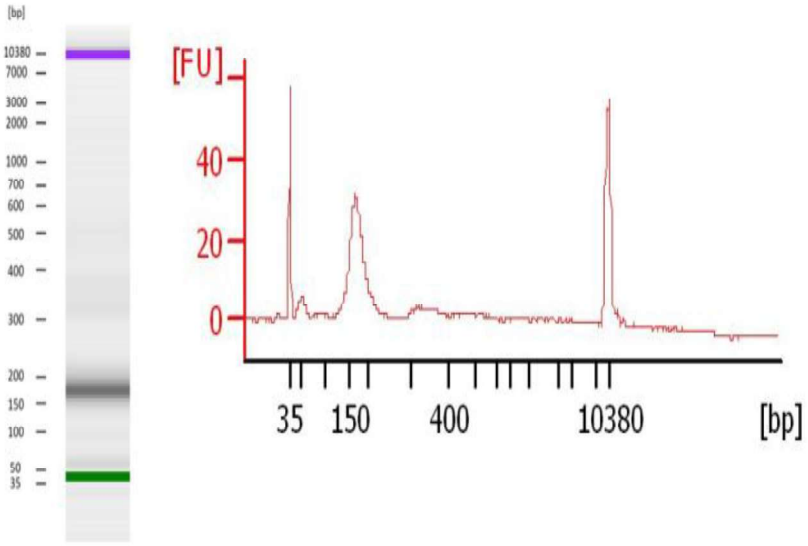
STAR BEADS cfDNA/RNA Extraction Kit provides a fast and efficient purification method to isolate high-quality cfDNA/RNA from plasma and other body fluids. The extraction procedure can be completed in less than two hours to yield highly pure cell free nucleic acids ready for downstream reactions, including real-time PCR, Sanger Sequencing and Next Generation Sequencing. The kit is designed for manual extraction. Thanks to its magnetic bead-technology, it is also fully automatable using automatic nucleic acid purification systems to process high volume samples. For automated scripts and protocols, email to tech@clinisciences.com

Features

• Co-purification of high quality cfDNA/RNA from the same sample.
• Compatibility with different biological fluids: efficient isolation of cell free nucleic acids from plasma, serum and cerebrospinal fluid.
• Minimal genomic DNA contamination
• Ultra-pure cfDNA/RNA: absence of PCR inhibitors in eluates, ready for downstream applications
• Eco-friendly: Magnetic bead-based technology allows up to 50% reduction in plastic use
• Easy to use: available in bottle format ready to use by manual procedure or on automatic extractors
• High concentrated eluates: elution volume can be reduced down to 30 µL when extracting from 1 and 2 mL of sample, down to 50 µL when extracting from 5 and 10 mL of sample.
• Easy storage: all the components can be stored at room temperature.
• Rapid: both manual extraction and automatic extraction time in less than 2 hours
• Automatable: compatible with ✓ Auto-Pure24 ✓ Procomcure Phoenix-Pure 24 ✓ MOLGEN PurePrep 24 and other extraction systems. Your workflow can be easily automated with our dedicated support.

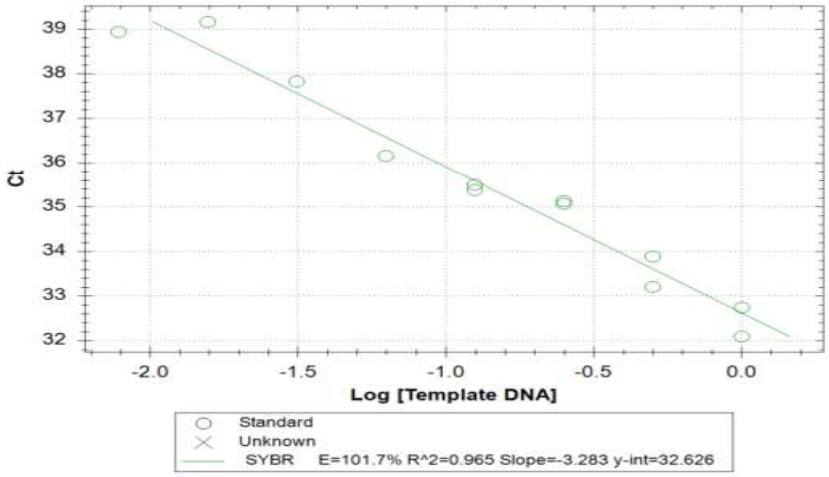
Kit Specifications and typical output

Parameter	Specification
Input volume	1 - 10 mL
Sample material	Plasma, serum, cerebrospinal fluid
Technology	Magnetic bead-based
Processing mode	Manual and Automated
Format	Bottle format
Turnaround time	Less than 2 hours for up to 16 samples in manual procedure and for up to 24 sample in automated procedure.



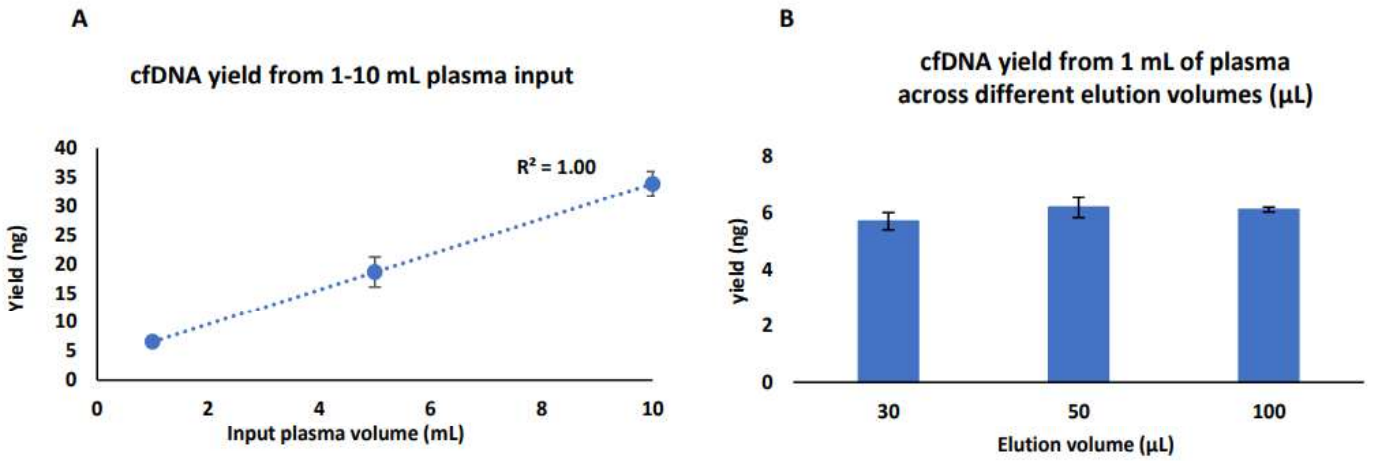
High quality cell free DNA extracted with STAR BEADS cfDNA/RNA Extraction Kit.

cfDNA was purified from 2 ml of human EDTA-plasma from healthy donor. One µL of eluate was analyzed on a High Sensitivity DNA chip on the 2100 Bioanalyzer and gave a very clear band at about 170 bp (see gel-like image on the left) corresponding to a peak at 166 bp (see electropherogram on the right).

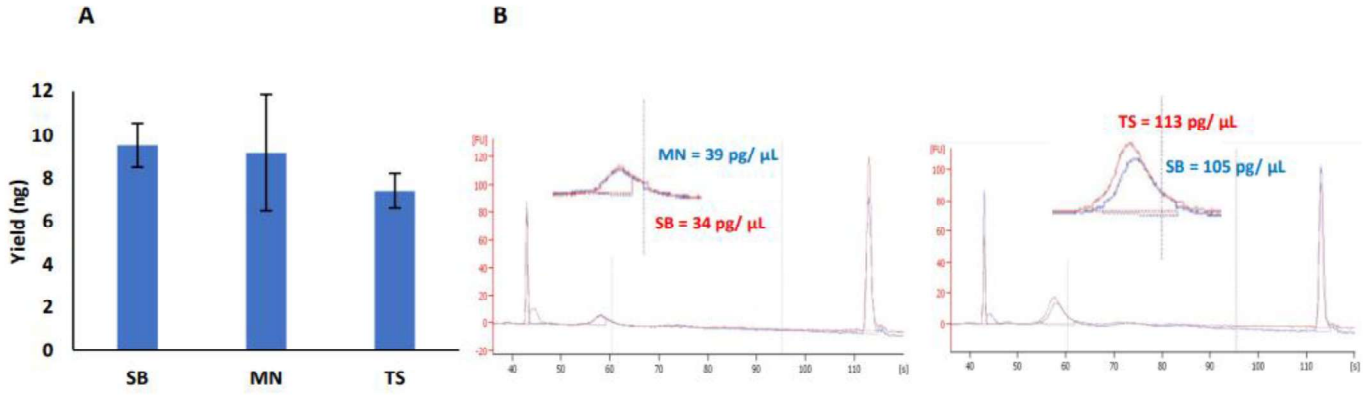


Absence of PCR inhibitors in eluates.

Realtime PCR of RNaseP gene amplified in 7 two-fold dilutions of cfDNA samples extracted from 1 mL of human plasma from healthy donor using STAR BEADS cfDNA/RNA Extraction Kit. Quantitation standard curve is obtained plotting threshold cycle values (Ct) against the log of template DNA concentration. An optimal PCR efficiency is observed (E= 101,7%, slope= -3,283) indicating the absence of PCR inhibitors.

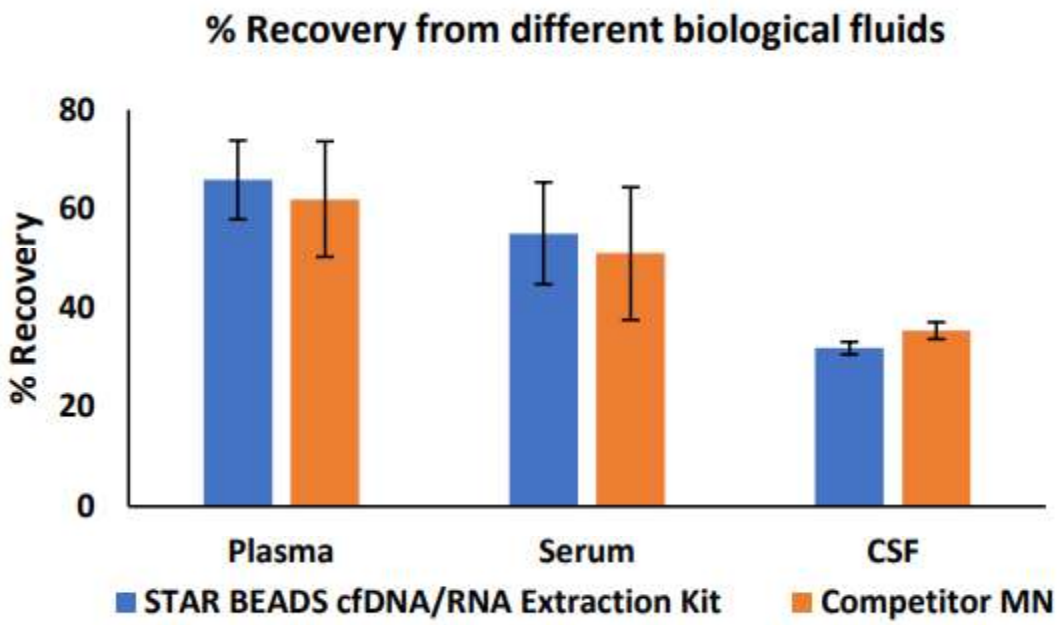


Flexible performance across a range of sample inputs and elution volumes. cfDNA was isolated using STAR BEADS cfDNA/RNA Extraction Kit from plasma from healthy donor. Yield was determined by fluorescent dye quantitation (Green Quant dsDNA NB-78-00021-1000) on Victor NIVO (Revvity).
Panel A. The cfDNA yield scales linearly across 1–10 ml of plasma volume inputs. Data represent mean ±SD, N=4 for 1 mL input; N=6 for 5 mL input and N=4 for 10 mL input.
Panel B. Yield of cfDNA is consistent between 30µl and 100µl of elution buffer volumes. Data represent mean ±SD, N=2.

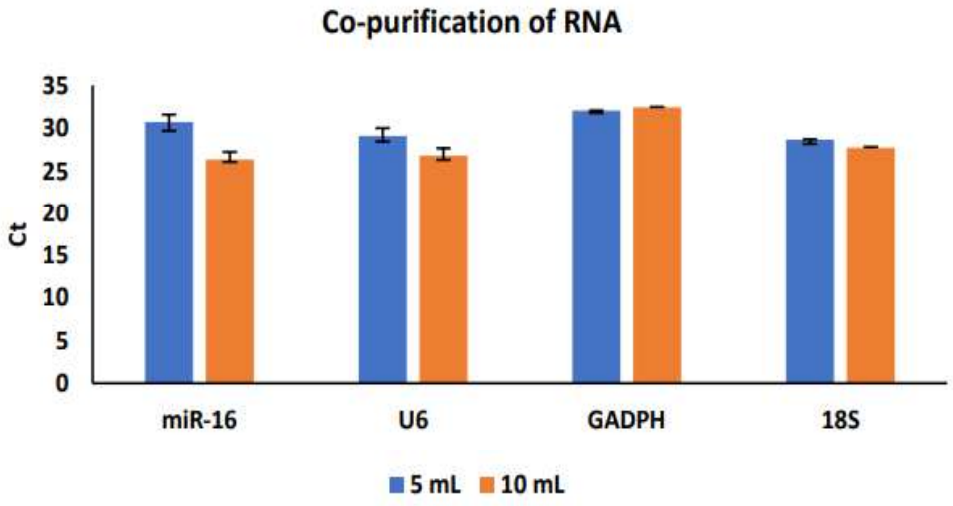


Comparable performance of STAR BEADS cfDNA/RNA Extraction Kit with other magnetic cfDNA Extraction kits.

Panel A. cfDNA yield obtained from 1 mL of human EDTA-plasma from healthy donor using STAR BEADS cfDNA/RNA Extraction kit (SB), Competitor MN and Competitor TS. Each extraction kit is used in accordance to manufacturers' instructions. The yield was determined by fluorescent dye quantitation (Green Quant dsDNA Neo Biotech) on Victor NIVO (Revvity). Data represent mean ±SD, N=2.
Panel B. Quality and yield of cfDNA evaluated on Agilent 2100 Bioanalyzer (Agilent Technologies). One µL of eluate was loaded for each kit. A single peak at about 150-170 bp is observed for all the extraction kits and cfDNA yield is comparable.



Compatibility with different biological fluids. Percent recovery of a DNA ladder in the range of 25 bp to 700 bp (Generuler Low range DNA ladder, Thermo Scientific) spiked into 1 mL DNA Cleared Plasma (SBI), human serum (Sigma Aldrich) and Artificial Cerebrospinal fluid (Tocris) at a concentration of 100 ng/mL. DNA was extracted using STAR BEADS cfDNA/RNA Extraction Kit and Competitor MN according to the manufacturer's instructions. Isolated DNA was quantified with GreenQuant dsDNA Kit (Neo Biotech) on Victor Nivo (Revvity). Data represent mean ±SD, N=3.



Co-purification of cell free RNA from the same sample. Realtime RT-qPCR of miR-16 (miRNA), U6 (snRNA), GADPH (mRNA) and 18S (rRNA) from eluates obtained from 5 and 10 mL of EDTA-plasma using STAR BEADS cfDNA/RNA Extraction Kit. For miR-16 and U6, 9 µL of eluate were used in a total volume of 15 µL for cDNA synthesis and then 4 uL were used for qPCR. For GADPH and 18S, 5 µL of eluate were directly amplified in one step qPCR. Data expressed in Ct mean ± SD, N=4 for mir16 and U6; N=2 for GADPH and 18S.

Order information

PRODUCT	ORDER NO.	FORMAT	UNIT SIZE
STAR BEADS cfDNA/RNA Extraction kit	NB-78-00019-1x96	bottles	96 preps