



PLASMA & SERUM SAMPLE PREPARATION

The New Standard in RNA Purification, Best-in-Class, Pure & Simple

Isolation of inhibitor-free RNA, microRNA
and DNA for any application



www.norgenbiotek.com

An ISO 13485:2003, ISO 9001:2008 & ISO 15189:2007 Certified Company

PLASMA/SERUM SAMPLE PREPARATION KITS

Norgen's Plasma/Serum Circulating DNA and RNA Purification Kits provide an efficient method for the purification of fragmented free-circulating nucleic acids from variable volumes of human plasma or serum. The kits are able to isolate all sizes of circulating DNA or RNA. The slurry format provides an advantage over other available kits in that it does not require extension tubes for the purification of free-circulating DNA or RNA from large sample volumes. The purified plasma/serum free-circulating DNA or RNA are eluted in an elution solution that is compatible with PCR, qPCR, methylation-sensitive PCR, Southern blot analysis, reverse transcription PCR, Northern blotting, RNase protection, primer extension and expression array assays.

Sample Preparation Selection Table:

Kit	Cat. #	Kit size	Sample Size
Single Preparation - DNA Isolation Kits			
Plasma/Serum Circulating DNA Purification Mini Kit (Slurry Format)	50600, Dx50600*	50 preps	50-400 µL
Plasma/Serum Circulating DNA Purification Midi Kit (Slurry Format)	51200	20 preps	0.4-2 mL
Plasma/Serum Circulating DNA Purification Maxi Kit (Slurry Format)	51300	10 preps	2-10 mL
Single Preparation - RNA Isolation Kits			
Total RNA Purification Kit Specific protocol for plasma/serum samples	17200, 37500, Dx17200*	50, 100 preps	Up to 200 µL
Plasma/Serum Circulating and Exosomal RNA Purification Kit (Slurry Format)	42800, Dx42800*	50 preps	0.25-5 mL
Plasma/Serum Circulating and Exosomal RNA Purification Mini Kit (Slurry Format)	51000	50 preps	0.25-2 mL
Plasma/Serum Circulating and Exosomal RNA Purification Maxi Kit (Slurry Format)	50900	25 preps	2-5 mL
Single Preparation - Nucleic Acid Isolation Kits			
Plasma/Serum Circulating Nucleic Acid Purification Mini Kit (Slurry Format)	53300	50 preps	0.25-2 mL
Plasma/Serum Circulating and Exosomal RNA Purification Maxi Kit (Slurry Format)	53400	25 preps	2-5 mL
High Throughput RNA Preparation			
Plasma/Serum Circulating RNA Purification 96-Well Kit (Slurry Format)	29500	1 x 96-well plate	0.25-2 mL

*CE-certified kit for in-vitro diagnostic purposes - not available in all regions - very similar protocol to non-Dx kit.

Single Preparation - DNA Isolation Kits

Plasma/Serum Circulating DNA Purification Mini Kit (Slurry Format)

Cat. # 50600

Plasma/Serum Circulating DNA Purification Mini Kit Dx



Cat. # Dx50600

CE-certified kit for in-vitro diagnostic purposes - not available in all regions

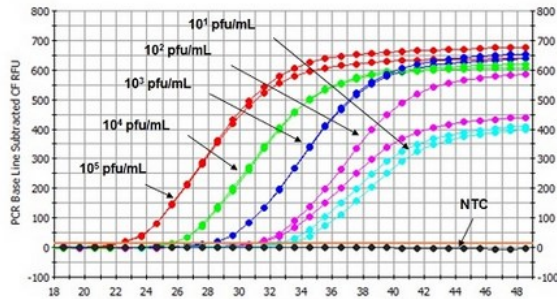


Figure 1. Highly Sensitive Isolation of Viral DNA from 0.4 mL of Plasma. A serial dilution of Adenovirus 5 (10^5 , 10^4 , 10^3 , 10^2 and 10^1) was spiked into 0.4 mL of plasma, and adenoviral DNA was then isolated using Norgen's Plasma/Serum Circulating DNA Purification Mini Kit (Slurry Format; Cat# 50600). Three microlitres of each 100 μ L elution was then used as the template in a 20 μ L PCR reaction using Ad5-specific primers, an Ad5-specific probe and Norgen's 2X PCR Master Mix (Cat #28007). The results were quantified using a standard curve that was plotted using standard adenoviral DNA of known concentration. As few as 80 pfu/mL could be isolated and detected from 0.4 mL of plasma.

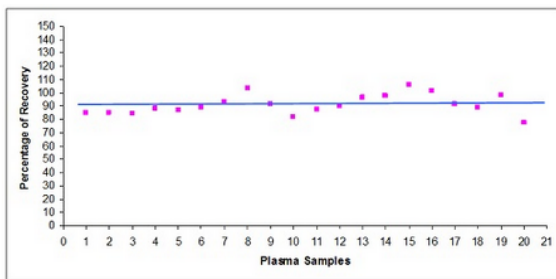
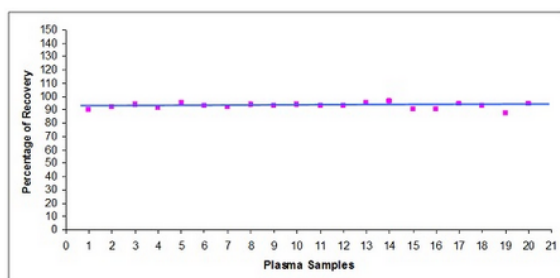


Figure 2. Reproducible Recovery of Circulating DNA. Norgen's Plasma/Serum DNA Purification Mini Kit (Slurry Format) (Cat# 50600) was used to isolate equal amounts of DNA fragments (300 bp) added to 20 plasma samples. DNA was purified from 0.4mL Plasma using Norgen's Plasma/Serum DNA Purification Mini Kit (Slurry Format) (Cat# 50600) with an elution of 100 μ L. DNA yield was quantified using real-time PCR targeting the two added DNA fragments. The blue line indicates the average percentage of recovery \pm SD (91% \pm 7).



Rapid and simple isolation of circulating DNA from plasma/serum samples

Norgen's Plasma/Serum Circulating DNA Purification Mini Kit (Slurry Format) provides an efficient method for the purification of fragmented free-circulating DNA from 50 μ L - 400 μ L of human plasma or serum. Purification is based on spin column technology without the use of organic solvents. The kit is able to isolate all sizes of circulating DNA. The slurry format provides an advantage over other available kits in that it does not require extension tubes for the purification of free-circulating DNA from large sample volumes. DNA can be isolated from either fresh or frozen samples using this kit. Typical yields of purified free-circulating DNA will vary depending on the input sample (1-100ng/mL circulating DNA in human plasma), with more concentrated samples tending to yield more free-circulating nucleic acids. Preparation time for a single sample is less than 30 minutes. The purified genomic DNA is compatible with sensitive downstream applications.

Features and Benefits

- **Fast and easy processing** - Rapid format allows for the processing of multiple samples in less than 30 minutes.
- **Versatile plasma and serum input volumes** - Isolate circulating DNA from 50 μ L - 400 μ L of plasma/serum. No requirement for extension tubes when processing larger sample volumes.
- **Concentrate circulating DNA** - Circulating DNA present in input volumes of 50 μ L - 400 μ L are concentrated into final elution volumes of 100 μ L.
- **Isolate inhibitor-free DNA** - Purified DNA can be used in a number of sensitive downstream applications including PCR, qPCR, methylation-sensitive PCR and Southern Blot analysis.
- **Isolate all sizes of circulating DNA** - The kit allows for the isolation of all sizes of fragmented circulating DNA, ranging from high molecular weight fragments down to fragments as small as 50bps.

Applications

- Quantitative PCR
- Genotyping
- SNP analysis
- Microarray analysis
- Next Generation Sequencing

Feature	Specifications
Minimum Plasma/Serum Input	50 μ L
Maximum Plasma/Serum Input	400 μ L
Minimum Elution Volume	100 μ L
Time to Complete Purifications	< 30 minutes

Ordering information

Cat #	Quantity
50600	50 preps
Dx50600	50 preps

Single Preparation - DNA Isolation Kits

 Plasma/Serum Circulating DNA Purification Midi Kit
 (Slurry Format)

Cat. # 51200

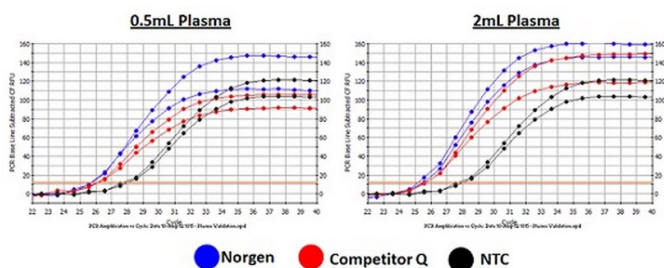


Figure 1. Detection of Human 5S Gene from 0.5mL and 2mL of Plasma. Norgen's Plasma/Serum Circulating DNA Purification Midi Kit was compared to a leading Competitor's kit for their ability to isolate high quality plasma DNA ready for sensitive downstream applications such as qPCR. Norgen's samples (blue) were found to amplify sooner than competitor Q's samples (red), when both 0.5mL and 2mL of plasma were processed, indicating a higher recovery of high quality circulating DNA present in Norgen's samples.

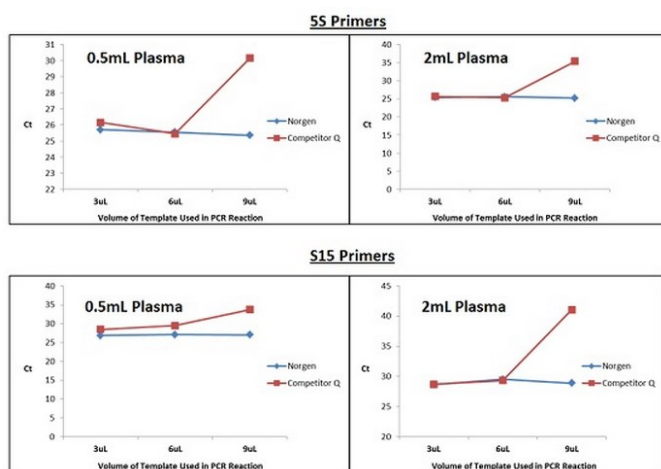


Figure 2. Determination of the Rate of Inhibition Present in Plasma DNA Samples. A common issue with processing high volumes of plasma is that inhibitors naturally present in plasma samples are often co-eluted, and with higher volumes of plasma comes higher concentrations of these inhibitors. Therefore, DNA was isolated from 0.5 and 2mL of plasma using Norgen's Plasma/Serum Circulating DNA Purification Midi Kit and a leading Competitor's kit. Increasing volumes of elution (3, 6 and 9 µL) were then used in a 20 µL reaction containing 10 µL of Norgen's 2X PCR Mastermix (Cat# 28007) spiked with SYBR green, 5 mM of either the 5S or S15 primer pair, and nuclease-free water. The PCR samples were amplified under the real-time program; 95°C for 3 minutes for an initial denaturation, 40 cycles of 95°C for 15 seconds for denaturation, 60°C for annealing and 72°C for extension. The reaction was run on an iCycler iQ Realtime System (Bio-Rad). It was found that an increase in elution volume used in the PCR did not greatly affect the Ct value generated from Norgen samples. Competitor samples, on the other hand, were found to show a higher degree of PCR inhibition as 9µL of elution led to a drastic increase in Ct value. This trend was apparent for both 0.5mL and 2mL, as well as for 5S and S15 primers.

Rapid and simple isolation of circulating DNA from plasma/serum samples

Norgen's Plasma/Serum Circulating DNA Purification Midi Kit (Slurry Format) provides an efficient method for the purification of fragmented free-circulating DNA from 0.4 mL to 2 mL of human plasma or serum. Purification is based on spin column technology without the use of organic solvents. The kit is able to isolate all sizes of circulating DNA. The slurry format provides an advantage over other available kits in that it does not require extension tubes for the purification of free-circulating DNA from large sample volumes. DNA can be isolated from either fresh or frozen samples using this kit. Typical yields of purified free-circulating DNA will vary depending on the input sample (1-100ng/mL circulating DNA in human plasma), with more concentrated samples tending to yield more free-circulating nucleic acids. The purified genomic DNA is compatible with sensitive downstream applications.

Features and Benefits

- **Fast and easy processing** - Rapid format allows for the processing of multiple samples in less than 45 minutes.
- **Versatile plasma and serum input volumes** - Isolate circulating DNA from 400 µL - 2mL of plasma/serum. No requirement for extension tubes when processing larger sample volumes.
- **Concentrate circulating DNA** - Circulating DNA present in input volumes of 400 µL - 2 mL are concentrated into final elution volumes of 100 µL.
- **Isolate inhibitor-free DNA** - Purified DNA can be used in a number of sensitive downstream applications including PCR, qPCR, methylation-sensitive PCR and Southern Blot analysis.
- **Isolate all sizes of circulating DNA** - The kit allows for the isolation of all sizes of fragmented circulating DNA, ranging from high molecular weight fragments down to fragments as small as 50bps.

Applications

- Quantitative PCR
- Genotyping
- SNP analysis
- Microarray analysis
- Next Generation Sequencing

Feature	Specifications
Minimum Plasma/Serum Input	400 µL
Maximum Plasma/Serum Input	2 mL
Minimum Elution Volume	100 µL
Time to Complete Purifications	< 45 minutes

Ordering information

Cat #	Quantity
51200	20 preps

Single Preparation - DNA Isolation Kits

Plasma/Serum Circulating DNA Purification Maxi Kit (Slurry Format)

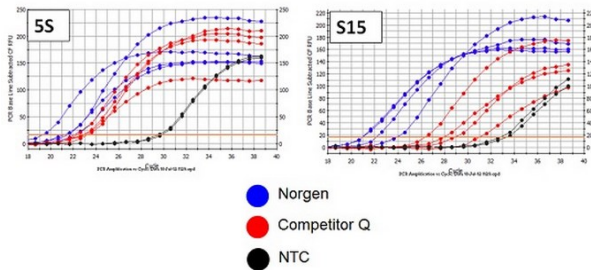
Cat. # 51300


Figure 1. Detection of Human 5S and S15 Genes from 5mL of Plasma. Norgen's Plasma/Serum Circulating DNA Purification Maxi Kit (Slurry Format) was compared to a leading competitor's kit for their ability to isolate high quality plasma DNA ready for sensitive downstream applications such as qPCR. Three microliters of each elution was used in a 20 μ L reaction containing 10 μ L of Norgen's 2X PCR Mastermix (Cat# 28007) spiked with SYBR green, 5 mM of either the 5S or S15 primer pair, and nuclease-free water. As it can be seen, Norgen's samples (blue) were found to amplify sooner than the competitor samples (red), for both 5S and S15, indicating a higher recovery of high quality circulating DNA present in Norgen's samples.

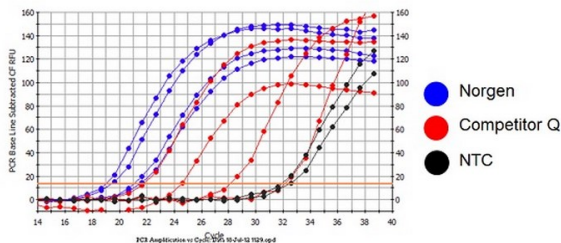


Figure 2. Detection of Spiked Viral DNA from 5mL of Plasma. Norgen's Plasma/Serum Circulating DNA Purification Maxi Kit (Slurry Format) was compared to a leading competitor kit for the ability to isolate viral DNA from 1×10^6 spiked viral particles. Adenovirus (AdV, 1×10^6) was spiked into 5mL of plasma, and total DNA was isolated from the plasma using Norgen's Plasma/Serum Circulating DNA Purification Maxi Kit (Slurry Format) or the competitor's kit. Detection of the viral DNA was then based on the AdV DNA Binding Protein (DBP). Three microliters of each elution was used in a 20 μ L reaction containing 10 μ L of Norgen's 2X PCR Mastermix (Cat# 28007) spiked with SYBR green, 5 mM of the DBP primer pair, and nuclease-free water. Norgen's samples (blue) were found to amplify sooner than the competitor's samples (red), indicating a higher recovery of viral DNA present in Norgen's samples.

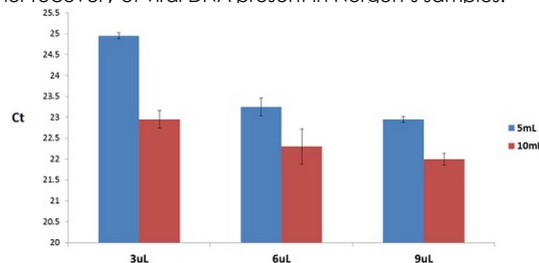


Figure 3. Determination of the Rate of Inhibition Present in Plasma DNA Samples. A common issue with processing high volumes of plasma is that inhibitors naturally present in plasma samples are often co-eluted, and with higher volumes of plasma comes higher concentrations of these inhibitors. To test for the presence of inhibitors, DNA was isolated from 5 and 10 mL of plasma using Norgen's Plasma/Serum Circulating DNA Purification Maxi Kit (Slurry Format). Increasing volumes of elution (3, 6 and 9 μ L) were then used in a 20 μ L PCR reaction containing 10 μ L of Norgen's 2X PCR Mastermix (Cat# 28007) spiked with SYBR green, 5 mM of the 5S primer pair, and nuclease-free water. It was found that as the volume of elution used in the PCR reaction increased, the Ct values subsequently decreased in a linear fashion, indicating minimal PCR inhibition present in these plasma DNA samples.

Rapid and simple isolation of circulating DNA from plasma/serum samples

Norgen's Plasma/Serum Circulating DNA Purification Midi Kit (Slurry Format) provides an efficient method for the purification of fragmented free-circulating DNA from 2 mL to 10 mL of human plasma or serum. Purification is based on spin column technology without the use of organic solvents. The kit is able to isolate all sizes of circulating DNA. The slurry format provides an advantage over other available kits in that it does not require extension tubes for the purification of free-circulating DNA from large sample volumes. DNA can be isolated from either fresh or frozen samples using this kit. Typical yields of purified free-circulating DNA will vary depending on the input sample (1-100ng/mL circulating DNA in human plasma), with more concentrated samples tending to yield more free-circulating nucleic acids. The purified genomic DNA is compatible with sensitive downstream applications.

Features and Benefits

- **Fast and easy processing** - Rapid format allows for the processing of multiple samples in less than 45 minutes.
- **Versatile plasma and serum input volumes** - Isolate circulating DNA from 2mL - 10 mL of plasma/serum. No requirement for extension tubes when processing larger sample volumes.
- **Concentrate circulating DNA** - Circulating DNA present in input volumes of 2 mL - 10 mL are concentrated into final elution volumes of 100 μ L.
- **Isolate inhibitor-free DNA** - Purified DNA can be used in a number of sensitive downstream applications including PCR, qPCR, methylation-sensitive PCR and Southern Blot analysis.
- **Isolate all sizes of circulating DNA** - The kit allows for the isolation of all sizes of fragmented circulating DNA, ranging from high molecular weight fragments down to fragments as small as 50bps.

Applications

- Quantitative PCR
- Genotyping
- SNP analysis
- Microarray analysis
- Next Generation Sequencing

Feature	Specifications
Minimum Plasma/Serum Input	2 mL
Maximum Plasma/Serum Input	10 mL
Minimum Elution Volume	100 μ L
Time to Complete Purifications	< 45 minutes

Ordering information

Cat #	Quantity
51300	10 preps

Single Preparation - RNA Isolation Kits

Total RNA Purification Kit

Cat. # 17200 & 37500

Specific protocol for total RNA isolation from different types of plasma or serum samples

Total RNA Purification Kit Dx



Cat. # Dx17200

CE-certified kit for in-vitro diagnostic purposes - not available in all regions

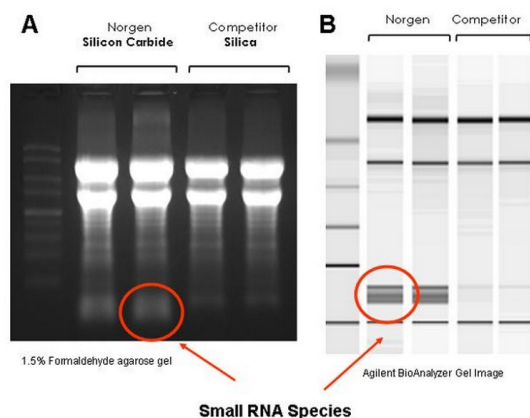


Figure 1. High Quality of Isolated RNA with Complete Size Range. Unlike most competitors' kits, Norgen's Total RNA Purification Kit allows for the isolation of all sizes of RNA, from the very large RNA down to the microRNA without the use of phenol. Total RNA was isolated from 1×10^9 *E. coli* cells using Norgen's Total RNA Purification Kit and a competitor's kit.

Panel A: Five microliters of the 50 μ L isolated RNA was analyzed on an agarose gel

Panel B: One microliters of the 50 μ L isolated RNA was analyzed on the Agilent® 2100 BioAnalyzer RNA Nano 6000 chip.

Note the presence of small RNA species (red circle) in the samples isolated via Norgen's kit and the absence of these RNA species in the competitor RNA preparation.

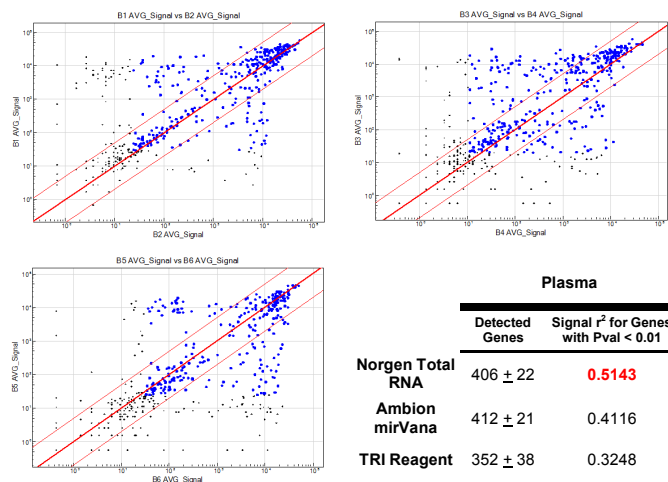


Figure 2. Recovering Diverse miRNA Species from Plasma with Better Consistency. Total RNA including miRNA was isolated from 100 mL of mouse plasma using Norgen Total RNA Purification Kit, Ambion mirVana miRNA Kit or Sigma TRI Reagent and applied to Illumina microRNA expression profiling kit. Scatter plots displaying better consistency (better clustering) of Norgen replicate signal of Plasma RNA. Gene with Pval < 0.01 for both replicates were in blue. Norgen Protocol recovered same diversity of miRNA with better consistency (higher r^2 value).

Rapid preparation of plasma or serum total RNA - including microRNA - without phenol

Principle

Purification is based on spin column using Norgen's proprietary resin as the separation matrix. Briefly, the blood sample of interest is first lysed using the provided Lysis Solution, ethanol is added and the RNA is bound to Norgen's column. Under these conditions only the RNA will bind to Norgen's resin while most of the contaminating cellular proteins are removed in the flowthrough or retained on top of the resin. The bound RNA is then washed to remove any remaining impurities. Lastly, the purified total RNA is eluted into 50 μ L of the provided Elution Buffer.

Norgen's proprietary resin provides superior affinity to the full size range of RNA molecules, resulting in large and small RNA (miRNA) purification with better linearity and sensitivity. The purified RNA is of the highest integrity, and can be used in a number of downstream applications including real time RT-PCR, RT-PCR, Northern blotting, RNase protection and primer extension, expression profiling, miRNA cloning and amplification and Next Generation Sequencing.

Performance

Norgen's Total RNA Purification Kit provides a rapid method for the isolation and purification of total RNA in as little as 20 minutes. The kit purifies all sizes of RNA, from large mRNA and ribosomal RNA down to microRNA (miRNA) and small interfering RNA (siRNA), without the use of phenol or chloroform. Norgen's kit is the only kit on the market that isolates true total RNA, as other kits must use phenol to recover all sizes of RNA. Therefore Norgen's kit offers significant advantages in functionality, savings on cost, ease-of-use, no hazardous organic waste, and no inhibitory effect on PCR amplifications as a result of residual phenol. With this kit both miRNA and mRNA can be studied from the same sample without further purifications, thus offering considerable advantages when comparing and relating expression of miRNA to other RNA. Furthermore, this is an excellent kit for the extraction of miRNA from all samples including plasma.

Applications

- Quantitative, real-time RT-PCR for both large mRNA and small RNA including miRNA
- RT-PCR for both large mRNA and small RNA including miRNA
- Expression profiling
- Next Generation Sequencing for RNA and miRNA
- miRNA from plasma for discovery
- microRNA cloning and amplification
- PCR-based virus detection
- PCR-based viable bacteria detection
- Northern blotting
- RNase protection
- Primer extension

Single Preparation - RNA Isolation Kits

Total RNA Purification Kit

Cat. # 17200 & 37500

Total RNA Purification Kit Dx



Cat. # Dx17200

CE-certified kit for in-vitro diagnostic purposes - not available in all regions

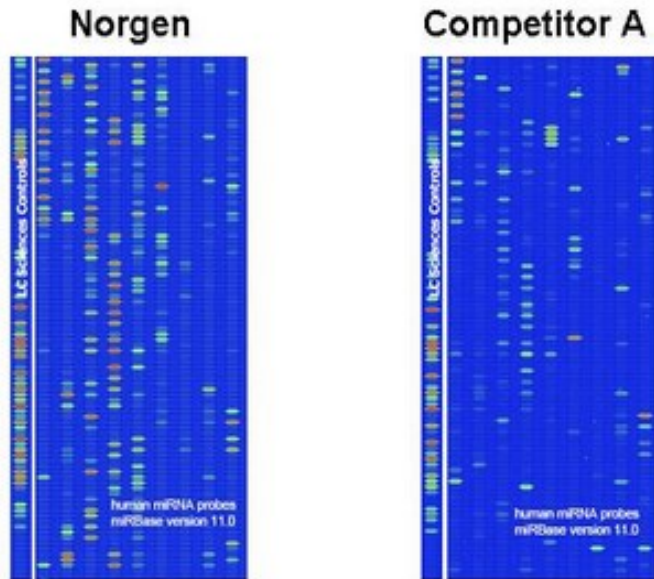


Figure 3: Better Diversity of miRNA Detected from Plasma. Norgen's Total RNA Purification Kit isolates miRNA from plasma with better diversity than a leading competitor. Total RNA including miRNA was isolated from 100 μ L of plasma using Norgen's Total RNA Purification Kit or 625 μ L of plasma using Competitor A's leading miRNA Kit, and was applied to an NCode expression profiling kit. Microarray images suggested that Norgen's Total RNA Purification Kit (left) isolates a better diversity of miRNA from a smaller input amount of plasma than the competitor's miRNA kit (right). Image courtesy of LC Sciences, Houston. (www.lcsciences.com).

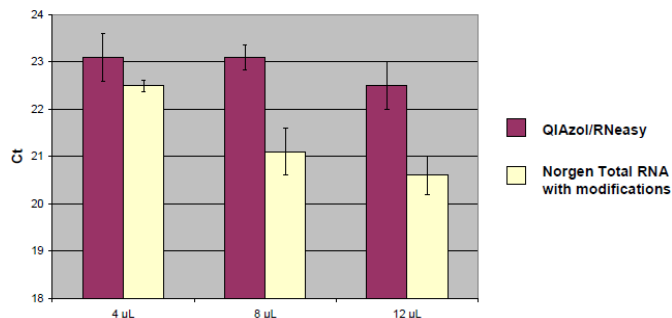


Figure 4. Comparison of Relative PCR Inhibition Observed Between Norgen's Total RNA Kit (With Modifications) and the QIAzol/RNeasy Phenol-Based Method for Plasma microRNA Isolation. Total RNA including microRNA was isolated from 200 μ L of sheep plasma collected in EDTA tubes and spiked with human microRNAs. Equal portions (4, 8 or 12 μ L) of isolated RNA were then used for detection of miR-16 using RT-qPCR.

Features and Benefits

- **No phenol:chloroform extractions** - Total RNA is isolated without the use of harmful chemicals such as phenol or chloroform
- **Isolate total RNA from very small samples** - Total RNA has been isolated and detected from as little as 10 μ L of plasma or serum
- **Extremely efficient isolation of low abundance microRNA** - Norgen's Total RNA Purification Kit has been shown to be extremely efficient at recovering low abundance microRNA from plasma samples
- **Isolate a diversity of RNA species** - All RNA species can be isolated, from large mRNA and ribosomal RNA down to microRNA (miRNA) and small interfering RNA (siRNA)
- **Fast and easy processing** - Rapid spin-column format allows for the processing of 10 samples in 20 minutes
- **Isolate total RNA from a broad input source** - Total RNA has been isolated from cultured animal cells, small tissue samples, LCM samples, bacteria, yeast, fungi, plants, viruses and various bodily fluids including blood, plasma, serum, saliva, nasal or throat swabs
- **No need for carrier RNA** - Isolate all sizes of RNA without the use of carrier RNA
- **Multiple kit sizes available** - This kit is available in both 50 prep and 100 prep sizes

Feature	Specifications
Column binding capacity	Up to 50 μ g RNA
Maximum Loading Volume Per Spin Column	650 μ L
Size of RNA Purified	All sizes, including < 200 nt
Time to Complete 10 Purifications	20 minutes
RNA Yield 100 μ L plasma or serum	1-100 ng
Format	Spin columns

Ordering information

Cat #	Quantity
17200	50 preps
Dx17200	50 preps
37500	100 preps



Single Preparation - RNA Isolation Kits

Plasma/Serum Circulating and Exosomal RNA Purification Kit (Slurry Format)

Cat. # 42800

Plasma/Serum Circulating and Exosomal RNA Purification Kit



Cat. # Dx42800

CE-certified kit for in-vitro diagnostic purposes - not available in all regions

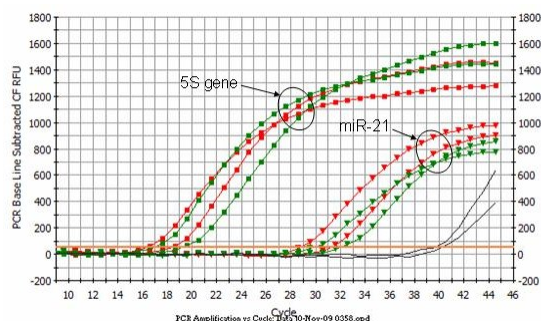


Figure 1. Isolation and Detection of Circulating RNA from 1 mL Samples of Serum and Plasma Norgen's Plasma/Serum Circulating RNA Purification Kit (Slurry Format) was used to isolate circulating RNA from 1 mL samples of serum and plasma. Five microlitres of the purified RNA was then used as the template in RT-qPCR reactions to detect the human 5S gene and the miR-21 gene. Both the 5S housekeeping gene and the miR-21 gene could be detected from plasma (red) and serum (green), indicating the high quality of the purified RNA. The black line corresponds to the no template control.

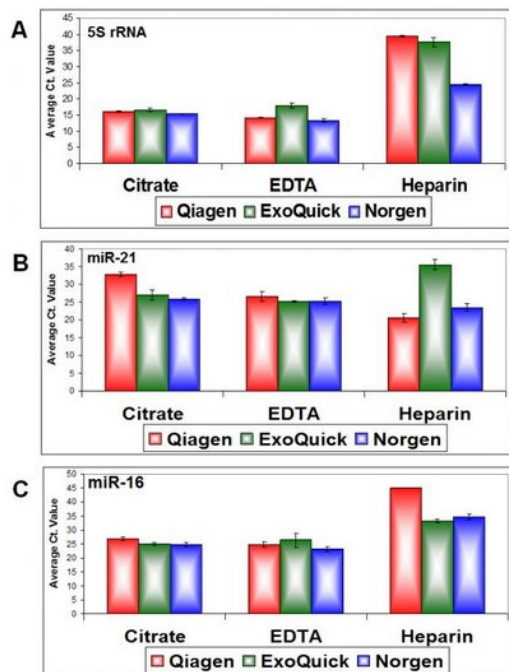


Figure 2. Effective and Consistent Detection of Plasma Exosome RNA. Norgen's Plasma/Serum Circulating and Exosomal RNA Isolation Kits can effectively isolate RNA from plasma. Plasma Exosome RNA was isolated from 500 µL of human plasma prepared from blood collected on citrate, EDTA or Heparin in triplicates using Norgen's Plasma/Serum RNA Isolation Kit (blue), a ExoQuick Exosome Precipitation Reagent (green) and Qiagen's QIAzol extraction followed by a modified Qiagen's RNeasy Mini Kit cleanup (red). Stem loop RT-qPCR using primers specific to miR-21 and miR-16 as well as the housekeeping 5S rRNA was performed. In brief, three microliters of the 100 µL isolated RNA was then subjected to a 20 µL reverse transcription using 5S rRNA, miR-21 and miR-16 stem-loop reverse primer or reverse primer. Three microliters of the reverse transcription was used in a 20 µL real-time PCR reaction with primers to detect the human miR-21, human miR-16 and the 5S rRNA. Norgen's Plasma/Serum Exosome RNA Isolation Kit is the only product that showed consistent detection of all tested transcripts with the highest quality regardless of the type of anti-coagulant used for blood collection.

Rapid and simple isolation of circulating RNA including exosomal RNA from plasma/serum samples

Norgen's Plasma/Serum Circulating and Exosomal RNA Purification Kit (Slurry Format) provides a fast, reliable and simple procedure for isolating circulating RNA and exosomal RNA from plasma and serum samples ranging from 0.25 mL to 5 mL. Purification is based on spin column technology without the use of organic solvents. The kit is able to isolate all sizes of circulating and exosomal RNA, including microRNA, without the use of phenol or chloroform. The slurry format provides an advantage over other available kits in that it does not require extension tubes for the purification of free-circulating and exosomal RNA from large sample volumes. RNA can be isolated from either fresh or frozen samples using this kit. This kit is suitable for the isolation of RNA from serum or plasma prepared from blood collected only on either EDTA or citrate. Plasma samples prepared from blood collected on heparin should not be used as heparin can significantly interfere with many downstream applications including RT-PCR. The purified RNA is compatible with downstream applications.

Features and Benefits

- **Isolate all sizes of circulating RNA** - The kit allows for the isolation of all sizes of fragmented circulating RNA and exosomal RNA, including microRNA.
- **Fast and easy processing** - Rapid spin column format allows for the processing of multiple samples in under 40 minutes.
- **Versatile input volume** - Isolate circulating RNA from 0.25 - 5 mL of plasma/serum. No requirement for extension tubes when processing larger sample volumes.
- **Concentrate circulating RNA** - Circulating and exosomal RNA present in input volumes of 0.25 - 5 mL are concentrated into final elution volume of 100 µL.
- **Isolate inhibitor-free RNA** - Purified RNA can be used in a number of sensitive downstream applications.

Applications

- Quantitative, real-time RT-PCR for both large mRNA and small RNA including miRNA
- RT-PCR for both large mRNA and small RNA including miRNA
- Expression profiling
- Next Generation Sequencing for RNA and miRNA
- PCR-based pathogen detection

Feature	Specifications
Minimum Plasma/Serum Input	0.25 mL
Maximum Plasma/Serum Input	5 mL
Size of RNA Purified	All sizes, including microRNA
Time to Complete Purifications	< 40 minutes

Ordering information

Cat #	Quantity
42800	50 preps
Dx42800	50 preps

Single Preparation - RNA Isolation Kits

Plasma/Serum Circulating and Exosomal RNA Purification Mini Kit (Slurry Format)

Cat. # 51000

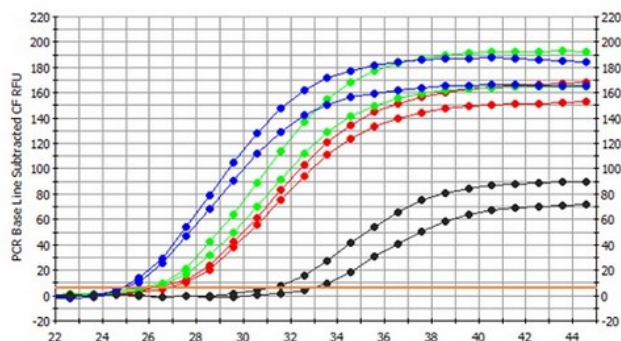


Figure 1. Isolation and Detection of Circulating RNA from Different Plasma Volumes. Norgen's Plasma/Serum Circulating RNA Purification Mini Kit (Slurry Format) was used to isolate circulating RNA from 0.5mL, 1mL and 2mL plasma. Three microlitres of the purified RNA was then used as the template in RT-qPCR reactions to detect the human 5S gene. The 5S housekeeping gene was detected from all plasma sample volumes used. The amplification of the 5S rRNA showed an increasing amount of RNA with increasing the sample input volume. This is represented by the decrease of the Ct value with increasing the sample input volume. RNA isolated from 0.5mL plasma is represented by the Red line, RNA isolated from 1mL plasma is represented by the Green line whereas RNA isolated from 2mL plasma is represented by the Blue line. The black line corresponds to the no template control.

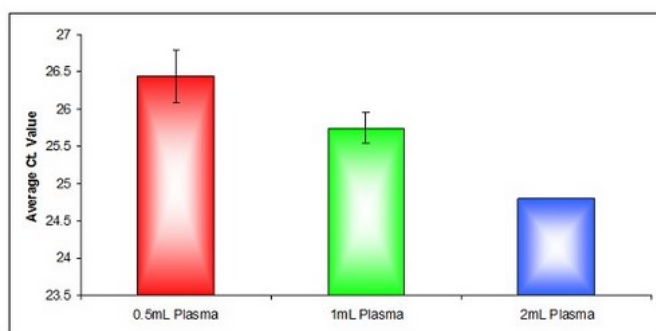


Figure 2. Effective Isolation of Plasma Circulating RNA from Different Volumes. Norgen's Plasma/Serum Circulating RNA Purification Mini Kit (Slurry Format) was used to isolate circulating RNA from 0.5mL, 1mL and 2mL plasma. Three microliters of the purified RNA was then used as the template in RT-qPCR reactions to detect the human 5S gene. The 5S housekeeping gene was detected from all plasma sample volumes used. The amplification of the 5S rRNA showed an increasing amount of RNA with increasing sample input volume. This is represented by the decrease of the Ct value with increasing the sample input volume. The average Ct value for the amplification of the 5S rRNA isolated from 0.5mL plasma is represented by the Red bar, Average Ct values for the amplification of the 5S rRNA isolated from 1mL plasma is represented by the Green bar, whereas the average Ct values for the amplification of the 5S rRNA isolated from 2mL plasma is represented by the Blue bar.

Rapid and simple isolation of circulating RNA including exosomal RNA from plasma/serum samples

Norgen's Plasma/Serum Circulating and Exosomal RNA Purification Mini Kit (Slurry Format) provides a fast, reliable and simple procedure for isolating circulating and exosomal RNA from plasma and serum samples ranging from 0.25 mL to 2 mL. Purification is based on spin column technology without the use of organic solvents. The kit is able to isolate all sizes of circulating RNA and exosomal RNA, including microRNA, without the use of phenol or chloroform. The slurry format provides an advantage over other available kits in that it does not require extension tubes for the purification of free-circulating and exosomal RNA from large sample volumes. RNA can be isolated from either fresh or frozen samples using this kit. This kit is suitable for the isolation of RNA from serum or plasma prepared from blood collected only on either EDTA or citrate. Plasma samples prepared from blood collected on heparin should not be used as it can interfere with many downstream applications including RT-PCR. The purified RNA is compatible with downstream applications.

Features and Benefits

- **Isolate all sizes of circulating and exosomal RNA** - The kit allows for the isolation of all sizes of fragmented circulating and exosomal RNA, including microRNA.
- **Fast and easy processing** - Rapid spin column format allows for the processing of multiple samples in under 40 minutes.
- **Versatile input volume** - Isolate circulating and exosomal RNA from 0.25 - 2 mL of plasma/serum. No requirement for extension tubes when processing larger sample volumes.
- **Concentrate circulating and exosomal RNA** - Circulating and exosomal RNA present in input volumes of 0.25 - 2 mL are concentrated into final elution volume of 100 μ L.
- **Isolate inhibitor-free RNA** - Purified RNA can be used in a number of sensitive downstream applications.

Applications

- Quantitative, real-time RT-PCR for both large mRNA and small RNA including miRNA
- RT-PCR for both large mRNA and small RNA including miRNA
- Expression profiling
- Next Generation Sequencing for RNA and miRNA
- PCR-based pathogen detection

Feature	Specifications
Minimum Plasma/Serum Input	0.25 mL
Maximum Plasma/Serum Input	2 mL
Size of RNA Purified	All sizes, including microRNA
Time to Complete Purifications	< 40 minutes

Ordering information

Cat #	Quantity
51000	50 preps

Single Preparation - RNA Isolation Kits

Plasma/Serum Circulating and Exosomal RNA Purification Maxi Kit (Slurry Format)

Cat. # 50900

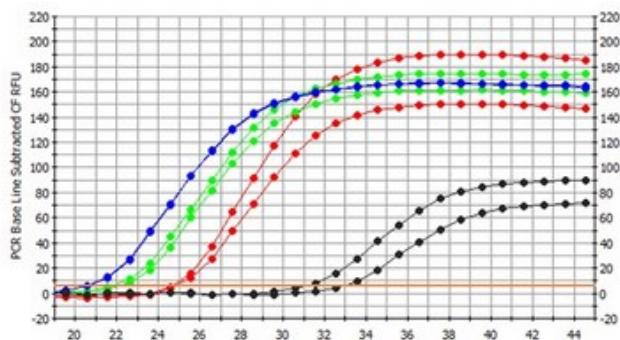


Figure 1. Isolation and Detection of Circulating RNA from Different Plasma Volumes. Norgen's Plasma/Serum Circulating RNA Purification Maxi Kit (Slurry Format) was used to isolate circulating RNA from 2mL, 3mL and 5mL plasma. Three microlitres of the purified RNA was then used as the template in RT-qPCR reactions to detect the human 5S gene. The 5S housekeeping gene was detected from all plasma sample volumes used. The amplification of the 5S rRNA showed an increasing amount of RNA with increasing the sample input volume. This is represented by the decrease of the Ct value with increasing sample input volume. RNA isolated from 2mL plasma is represented by the Red line, RNA isolated from 3mL plasma is represented by the Green line whereas RNA isolated from 5mL plasma is represented by the Blue line. The black line corresponds to the no template control.

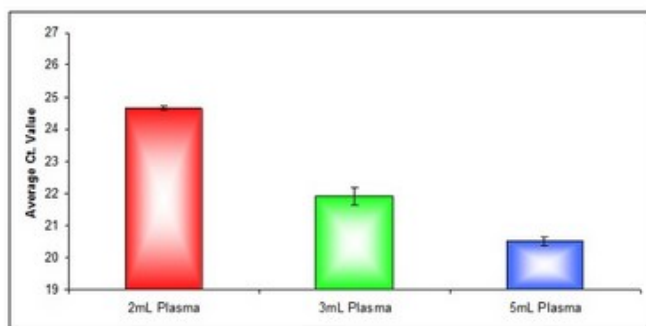


Figure 2. Effective Isolation of Plasma Circulating RNA from Different Volumes. Norgen's Plasma/Serum Circulating RNA Purification Maxi Kit (Slurry Format) was used to isolate circulating RNA from 2mL, 3mL and 5mL plasma. Three microlitres of the purified RNA was then used as the template in RT-qPCR reactions to detect the human 5S gene. The 5S housekeeping gene was detected from all plasma sample volumes used. The amplification of the 5S rRNA showed an increasing amount of RNA with increasing the sample input volume. This is represented by the decrease of the Ct value with increasing sample input volume. The average Ct value for the amplification of the 5S rRNA isolated from 2mL plasma is represented by the Red bar, the average Ct value for the amplification of the 5S rRNA isolated from 3mL plasma is represented by the Green bar, whereas the average Ct. values for the amplification of the 5S rRNA isolated from 5mL plasma is represented by the blue bar.

Rapid and simple isolation of circulating RNA including exosomal RNA from plasma/serum samples

Norgen's Plasma/Serum Circulating and Exosomal RNA Purification Kit (Slurry Format) provides a fast, reliable and simple procedure for isolating circulating and exosomal RNA from plasma and serum samples ranging from 2 mL to 5 mL. Purification is based on spin column technology without the use of organic solvents. The kit is able to isolate all sizes of circulating and exosomal RNA, including microRNA, without the use of phenol or chloroform. The slurry format provides an advantage over other available kits in that it does not require extension tubes for the purification of free-circulating and exosomal RNA from large sample volumes. RNA can be isolated from either fresh or frozen samples using this kit. This kit is suitable for the isolation of RNA from serum or plasma prepared from blood collected only on either EDTA or citrate. Plasma samples prepared from blood collected on heparin should not be used as heparin can significantly interfere with many downstream applications including RT-PCR. The purified RNA is compatible with downstream applications.

Features and Benefits

- **Isolate all sizes of circulating and exosomal RNA** - The kit allows for the isolation of all sizes of fragmented circulating and exosomal RNA, including microRNA.
- **Fast and easy processing** - Rapid spin column format allows for the processing of multiple samples in under 40 minutes.
- **Versatile input volume** - Isolate circulating and exosomal RNA from 2 - 5 mL of plasma/serum. No requirement for extension tubes when processing larger sample volumes.
- **Concentrate circulating and exosomal RNA** - Circulating and exosomal RNA present in input volumes of 2 - 5 mL are concentrated into final elution volume of 100 μ L.
- **Isolate inhibitor-free RNA** - Purified RNA can be used in a number of sensitive downstream applications.

Applications

- Quantitative, real-time RT-PCR for both large mRNA and small RNA including miRNA
- RT-PCR for both large mRNA and small RNA including miRNA
- Expression profiling
- Next Generation Sequencing for RNA and miRNA
- PCR-based pathogen detection

Feature	Specifications
Minimum Plasma/Serum Input	2 mL
Maximum Plasma/Serum Input	5 mL
Size of RNA Purified	All sizes, including microRNA
Time to Complete Purifications	< 40 minutes

Ordering information

Cat #	Quantity
50900	25 preps

Single Preparation - Nucleic Acid Isolation Kits

Plasma/Serum Circulating Nucleic Acid Purification Mini Kit (Slurry Format)

Cat. # 53300

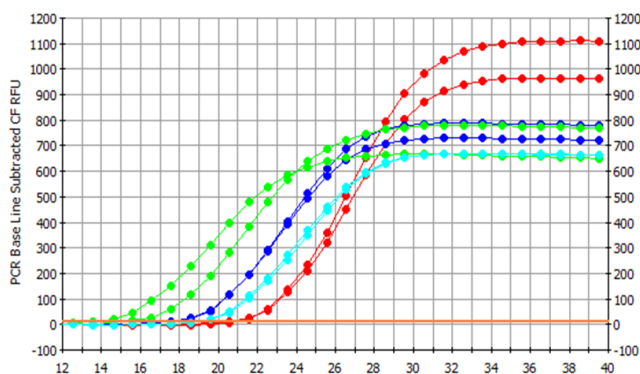


Figure 1. Isolation and Detection of Circulating RNA from Different Plasma Volumes. Norgen's Plasma/Serum Circulating Nucleic Acid Purification Mini Kit (Slurry Format) was used to isolate circulating RNA from 0.25mL, 0.5mL, 1mL and 2mL plasma. Three microlitres of the purified RNA was then used as the template in RT-qPCR reactions to detect the human 5S gene. The 5S housekeeping gene was detected from all plasma sample volumes used. The amplification of the 5S rRNA showed an increasing amount of RNA with increasing the sample input volume. This is represented by the decrease of the Ct value with increasing the sample input volume.

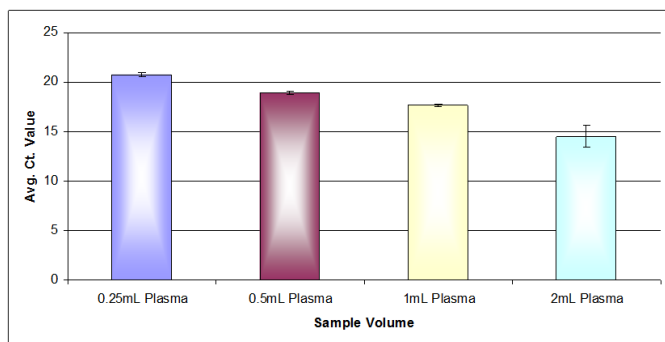


Figure 2. Effective Isolation of Plasma Circulating RNA from Different Volumes. Norgen's Plasma/Serum Circulating Nucleic Acid Purification Mini Kit (Slurry Format) was used to isolate circulating RNA from 0.25mL, 0.5mL, 1mL and 2mL plasma. Three microlitres of the purified RNA was then used as the template in RT-qPCR reactions to detect the human 5S gene. The 5S housekeeping gene was detected from all plasma sample volumes used. The amplification of the 5S rRNA showed an increasing amount of RNA with increasing the sample input volume. This is represented by the decrease of the Ct value with increasing the sample input volume.

Rapid and simple isolation of circulating nucleic acid from plasma/serum samples

Principle

Purification is based on the use of Norgen's proprietary resin as the separation matrix. The kit is able to isolate all sizes of circulating RNA, including microRNA, as well as all sizes of exosomal RNA and circulating DNA. Norgen's Plasma/Serum Circulating Nucleic Acid Purification Mini Kit provides an advantage over other available kits in that it does not require extension tubes for the purification of free-circulating NA from large sample volumes. Free-Circulating NA can be isolated from either fresh or frozen samples using this kit, and the kit allows for the concentration of NA that is present in low concentrations (1-100ng/mL in human plasma). Typical yields of free-circulating NA will vary depending on the input sample, as the amount of NA present in plasma and serum will depend upon the health status of the individual and the level of nucleases present in the blood.

Performance

Norgen's Plasma/Serum Circulating Nucleic Acid Purification Mini Kit provides a fast, reliable and simple procedure for isolating circulating Nucleic Acid (mRNA, miRNA, exosomal RNA, Viral RNA, DNA and Viral DNA) from various amounts of plasma/serum ranging from 0.25 mL to 2 mL. Free-circulating nucleic acids in plasma and serum have the potential to provide biomarkers for certain cancers and disease states, and include tumor-specific extracellular nucleic acid fragments and fetal DNA in maternal blood. Free-circulating DNA is usually present as short fragments of less than 1000 bp, whereas free-circulating RNA and exosomal RNA in plasma and serum are usually present as short fragments of less than 1000 nt. In addition, plasma or serum also contains free-circulating miRNA that are as small as 21 nt. Furthermore, circulating viral DNA or viral RNA may be present in the plasma or the serum of viral-infected patients. The Kit provides an efficient method for the purification of all sizes of these fragmented free-circulating Nucleic Acid from human plasma or serum. It is suitable for the purification of Nucleic Acid from serum or plasma prepared from blood collected on either EDTA or citrate. Plasma samples prepared from blood collected on heparin should not be used as heparin can significantly interfere with many downstream applications such as RT-PCR.

Preparation time for 10 samples is less than 40 minutes. The purified plasma/serum free-circulating Nucleic Acid are eluted in an elution solution that is compatible with PCR, qPCR, reverse transcription qPCR, reverse transcription PCR, Northern blotting, RNase protection and primer extension, expression array assays, methylation-sensitive PCR and Southern Blot analysis

Single Preparation - Nucleic Acid Isolation Kits

 Plasma/Serum Circulating Nucleic Acid Purification Mini Kit
 (Slurry Format)

Cat. # 53300

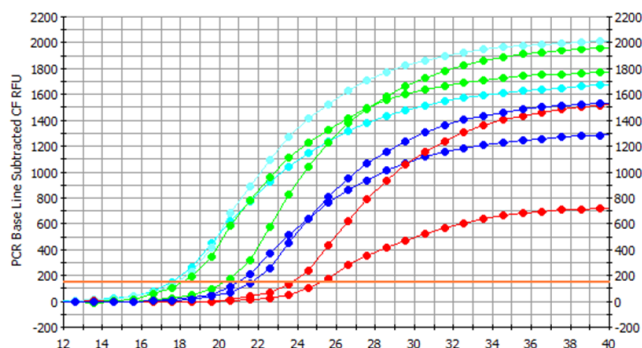


Figure 3. Isolation and Detection of Circulating DNA from Different Plasma Volumes. Norgen's Plasma/Serum Circulating Nucleic Acid Purification Mini Kit (Slurry Format) was used to isolate circulating DNA from 0.25mL, 0.5mL, 1mL and 2mL plasma. Three microlitres of the purified DNA was then used as the template in qPCR reactions to detect the human 5S rRNA gene. The 5S housekeeping gene was detected from all plasma sample volumes used. The amplification of the 5S rRNA gene showed an increasing amount of DNA with increasing the sample input volume. This is represented by the decrease of the Ct value with increasing the sample input volume.

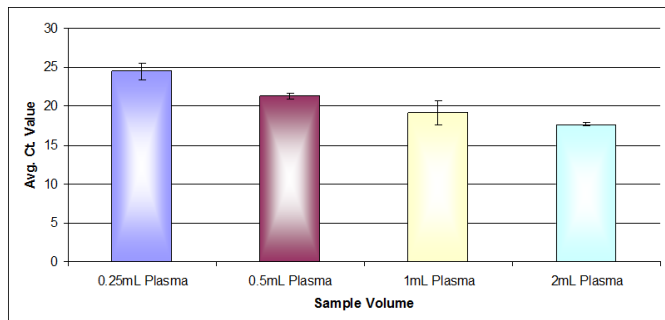


Figure 4. Effective Isolation of Plasma Circulating DNA from Different Volumes. Norgen's Plasma/Serum Circulating Nucleic Acid Purification Mini Kit (Slurry Format) was used to isolate circulating DNA from 0.25mL, 0.5mL, 1mL and 2mL plasma. Three microlitres of the purified DNA was then used as the template in qPCR reactions to detect the human 5S rRNA gene. The 5S housekeeping gene was detected from all plasma sample volumes used. The amplification of the 5S rRNA gene showed an increasing amount of DNA with increasing the sample input volume. This is represented by the decrease of the Ct value with increasing the sample input volume.

Features and Benefits

- **Isolate all sizes of circulating RNA and DNA in one elution** - The kit allows for the isolation of all sizes of fragmented circulating RNA and exosomal RNA, including microRNA as well as all sizes of circulating DNA
- **Fast and easy processing** - Rapid slurry format allows for the processing of multiple samples in under 40 minutes.
- **Versatile input volume** - Isolate circulating RNA from 0.25 - 2 mL of plasma/serum. No requirement for extension tubes when processing larger sample volumes.
- **Concentrate circulating Nucleic Acid** - Circulating and exosomal Nucleic Acid present in input volumes of 0.25 - 2 mL are concentrated into final elution volume of 100 μ L.
- **Isolate inhibitor-free Nucleic Acid** - Purified Nucleic Acid can be used in a number of sensitive downstream applications including PCR, qPCR, reverse transcription qPCR, reverse transcription PCR, Northern blotting, RNase protection and primer extension, expression array assays, methylation-sensitive PCR and Southern Blot analysis applications

Feature	Specifications
Minimum Plasma/Serum Input	0.25 mL
Maximum Plasma/Serum Input	2 mL
Size of RNA Purified	All sizes, including microRNA
Time to Complete Purifications	< 40 minutes
Elution Volume	50-100 μ L

Ordering information

Cat #	Quantity
53300	50 preps



Single Preparation - Nucleic Acid Isolation Kits

Plasma/Serum Circulating Nucleic Acid Purification Maxi Kit (Slurry Format)

Cat. # 53400

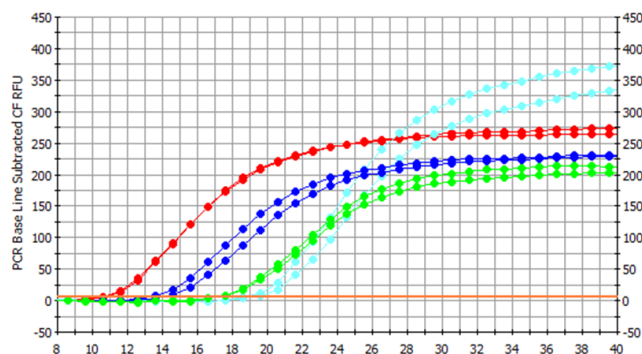


Figure 1. Isolation and Detection of Circulating RNA from Different Plasma Volumes. Norgen's Plasma/Serum Circulating Nucleic Acid Purification Maxi Kit (Slurry Format) was used to isolate circulating RNA from 2mL, 3mL, 4mL and 5mL plasma. Three microlitres of the purified RNA was then used as the template in RT-qPCR reactions to detect the human 5S gene. The 5S housekeeping gene was detected from all plasma sample volumes used. The amplification of the 5S rRNA showed an increasing amount of RNA with increasing the sample input volume. This is represented by the decrease of the Ct value with increasing the sample input volume.

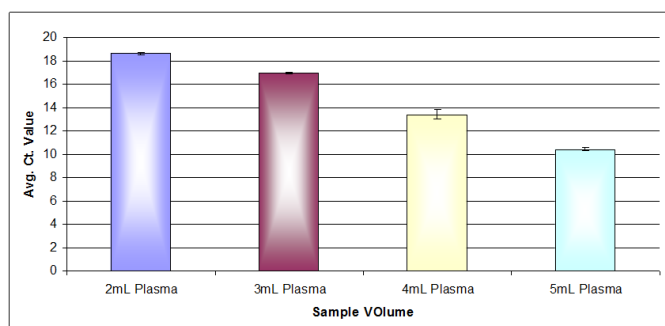


Figure 2. Effective Isolation of Plasma Circulating RNA from Different Volumes. Norgen's Plasma/Serum Circulating Nucleic Acid Purification Maxi Kit (Slurry Format) was used to isolate circulating RNA from 2mL, 3mL, 4mL and 5mL plasma. Three microlitres of the purified RNA was then used as the template in RT-qPCR reactions to detect the human 5S gene. The 5S housekeeping gene was detected from all plasma sample volumes used. The amplification of the 5S rRNA showed an increasing amount of RNA with increasing the sample input volume. This is represented by the decrease of the Ct value with increasing the sample input volume.

Rapid and simple isolation of circulating nucleic acid from plasma/serum samples

Principle

Purification is based on the use of Norgen's proprietary resin as the separation matrix. The kit is able to isolate all sizes of circulating RNA, including microRNA, as well as all sizes of exosomal RNA and circulating DNA. Norgen's Plasma/Serum Circulating Nucleic Acid Purification Maxi Kit provides an advantage over other available kits in that it does not require extension tubes for the purification of free-circulating NA from large sample volumes. Free-Circulating NA can be isolated from either fresh or frozen samples using this kit, and the kit allows for the concentration of NA that is present in low concentrations (1-100ng/mL in human plasma). Typical yields of free-circulating NA will vary depending on the input sample, as the amount of NA present in plasma and serum will depend upon the health status of the individual and the level of nucleases present in the blood.

Performance

Norgen's Plasma/Serum Circulating Nucleic Acid Purification Maxi Kit provides a fast, reliable and simple procedure for isolating circulating Nucleic Acid (mRNA, miRNA, exosomal RNA, Viral RNA, DNA and Viral DNA) from various amounts of plasma/serum ranging from 2 mL to 5 mL. Free-circulating nucleic acids in plasma and serum have the potential to provide biomarkers for certain cancers and disease states, and include tumor-specific extracellular nucleic acid fragments and fetal DNA in maternal blood. Free-circulating DNA is usually present as short fragments of less than 1000 bp, whereas free-circulating RNA and exosomal RNA in plasma and serum are usually present as short fragments of less than 1000 nt. In addition, plasma or serum also contains free-circulating miRNA that are as small as 21 nt. Furthermore, circulating viral DNA or viral RNA may be present in the plasma or the serum of viral-infected patients. Norgen's Plasma/Serum Circulating Nucleic Acid Purification Maxi Kit provides an efficient method for the purification of all sizes of these fragmented free-circulating Nucleic Acid from human plasma or serum. This kit is suitable for the purification of Nucleic Acid from serum or plasma prepared from blood collected on either EDTA or citrate. Plasma samples prepared from blood collected on heparin should not be used as heparin can significantly interfere with many downstream applications such as RT-PCR.

Preparation time for 10 samples is less than 40 minutes. The purified plasma/serum free-circulating Nucleic Acid are eluted in an elution solution that is compatible with PCR, qPCR, reverse transcription qPCR, reverse transcription PCR, Northern blotting, RNase protection and primer extension, expression array assays, methylation-sensitive PCR and Southern Blot analysis.

Single Preparation - Nucleic Acid Isolation Kits

 Plasma/Serum Circulating Nucleic Acid Purification Maxi Kit
 (Slurry Format)

Cat. # 53400

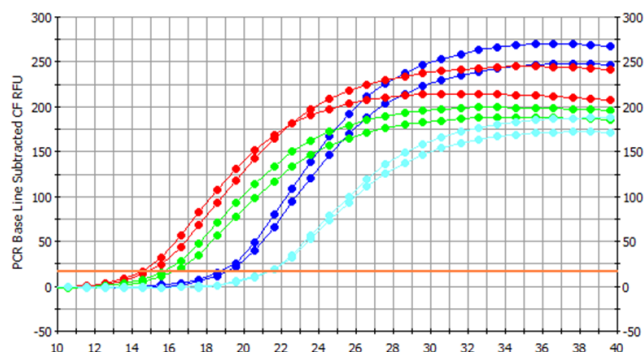


Figure 3. Isolation and Detection of Circulating DNA from Different Plasma Volumes. Norgen's Plasma/Serum Circulating Nucleic Acid Purification Maxi Kit (Slurry Format) was used to isolate circulating DNA from 2mL, 3mL, 4mL and 5mL plasma. Three microlitres of the purified DNA was then used as the template in qPCR reactions to detect the human 5S rRNA gene. The 5S housekeeping gene was detected from all plasma sample volumes used. The amplification of the 5S rRNA gene showed an increasing amount of DNA with increasing the sample input volume. This is represented by the decrease of the Ct value with increasing the sample input volume.

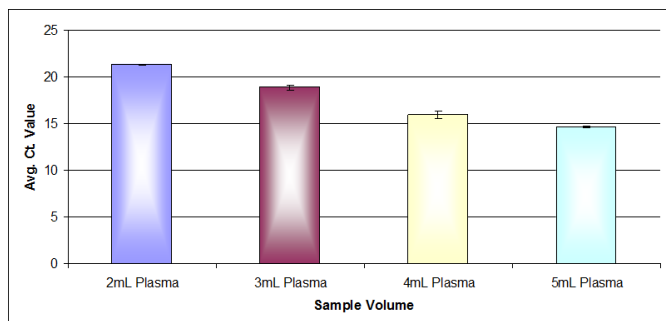


Figure 4. Effective Isolation of Plasma Circulating DNA from Different Volumes. Norgen's Plasma/Serum Circulating Nucleic Acid Purification Maxi Kit (Slurry Format) was used to isolate circulating DNA from 2mL, 3mL, 4mL and 5mL plasma. Three microlitres of the purified DNA was then used as the template in qPCR reactions to detect the human 5S rRNA gene. The 5S housekeeping gene was detected from all plasma sample volumes used. The amplification of the 5S rRNA gene showed an increasing amount of DNA with increasing the sample input volume. This is represented by the decrease of the Ct value with increasing the sample input volume.

Features and Benefits

- **Isolate all sizes of circulating RNA and DNA in one elution** - The kit allows for the isolation of all sizes of fragmented circulating RNA and exosomal RNA, including microRNA as well as all sizes of circulating DNA
- **Fast and easy processing** - Rapid slurry format allows for the processing of multiple samples in under 40 minutes.
- **Versatile input volume** - Isolate circulating RNA from 2 - 5 mL of plasma/serum. No requirement for extension tubes when processing larger sample volumes.
- **Concentrate circulating Nucleic Acid** - Circulating and exosomal Nucleic Acid present in input volumes of 2 - 2 mL are concentrated into final elution volume of 100 μ L.
- **Isolate inhibitor-free Nucleic Acid** - Purified Nucleic Acid can be used in a number of sensitive downstream applications including PCR, qPCR, reverse transcription qPCR, reverse transcription PCR, Northern blotting, RNase protection and primer extension, expression array assays, methylation-sensitive PCR and Southern Blot analysis

Feature	Specifications
Minimum Plasma/Serum Input	2 mL
Maximum Plasma/Serum Input	5 mL
Size of RNA Purified	All sizes, including microRNA
Time to Complete Purifications	< 40 minutes
Elution Volume	50-100 μ L

Ordering information

Cat #	Quantity
53400	25 preps



High Throughput RNA Preparation

Plasma/Serum Circulating RNA Purification 96-Well Kit (Slurry Format)

Cat. # 29500

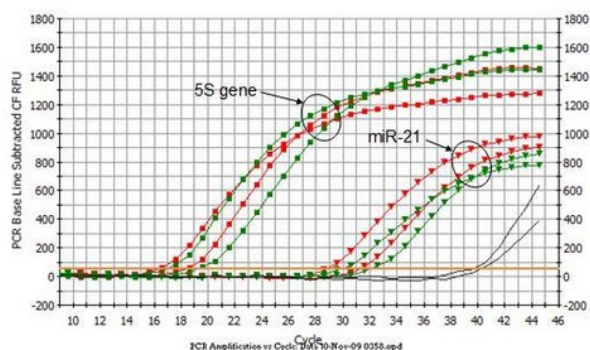


Figure 1. Isolation and Detection of Circulating RNA from 1 mL Samples of Serum and Plasma Norgen's Plasma/Serum Circulating RNA Purification 96-Well Kit was used to isolate circulating RNA from 1 mL samples of serum and plasma. Five microlitres of the purified RNA was then used as the template in RT-qPCR reactions to detect the human 5S gene and the miR-21 gene. Both the 5S housekeeping gene and the miR-21 gene could be detected from plasma (red) and serum (green), indicating the high quality of the purified RNA. The black line corresponds to the no template control.

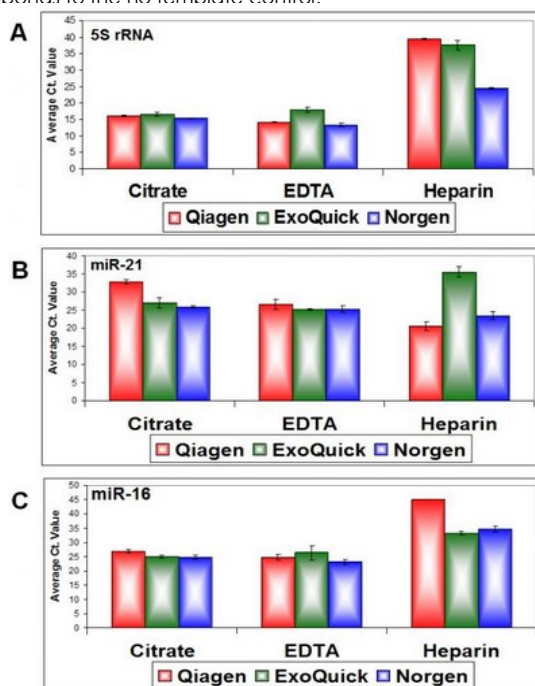


Figure 2. Effective and Consistent Detection of Plasma Exosome RNA. Norgen's Plasma/Serum Circulating and Exosomal RNA Isolation Kits can effectively isolate RNA from plasma. Plasma Exosome RNA was isolated from 500 μ L of human plasma prepared from blood collected on citrate, EDTA or heparin in triplicates using Norgen's Plasma/Serum RNA Isolation Kit (blue), a ExoQuick Exosome Precipitation Reagent (green) and Qiagen's QIAzol extraction followed by a modified Qiagen's RNeasy Mini Kit cleanup (red). Stem loop RT-qPCR using primers specific to miR-21 and miR-16 as well as the housekeeping 5S rRNA was performed. In brief, 3 μ L of the 100 μ L isolated RNA was then subjected to a 20 μ L reverse transcription using 5S rRNA, miR-21 and miR-16 stem-loop reverse primer or reverse primer. Three microliters of the reverse transcription was used in a 20 μ L real-time PCR reaction with primers to detect the human miR-21, human miR-16 and the 5S rRNA. Norgen's Plasma/Serum Exosome RNA Isolation Kit is the only product that showed consistent detection of all tested transcripts with the highest quality regardless of the type of anti-coagulant used for blood collection.

High-throughput isolation of circulating RNA including exosomal RNA from plasma/serum samples

Norgen's Plasma/Serum Circulating RNA Purification 96-Well Kit (Slurry Format) provides a fast, reliable and simple procedure for isolating circulating and exosomal RNA from plasma and serum samples ranging from 0.25 mL to 2 mL. Purification is based on 96-well spin column technology without the use of organic solvents. The kit is able to isolate all sizes of circulating and exosomal RNA, including microRNA, without the use of phenol or chloroform. The slurry format provides an advantage over other available kits in that it does not require extension tubes for the purification of free-circulating and exosomal RNA from large sample volumes. RNA can be isolated from either fresh or frozen samples using this kit. The kit allows for the concentration of RNA that is present in low concentrations (1-100ng/mL circulating RNA in human plasma). The purified RNA is compatible with downstream applications.

Features and Benefits

- **Isolate all sizes of circulating RNA** - The kit allows for the isolation of all sizes of fragmented circulating and exosomal RNA, including microRNA.
- **Fast and easy processing** - Rapid format allows for the processing of 96 samples in 1 hour.
- **Versatile input volume** - Isolate circulating and exosomal RNA from 0.25 - 2 mL of plasma/serum. No requirement for extension tubes when processing larger sample volumes.
- **Concentrate circulating and exosomal RNA** - Circulating and exosomal RNA present in input volumes of 0.25 - 2 mL are concentrated into final elution volumes of 100 μ L.
- **Isolate inhibitor-free RNA** - Purified RNA can be used in a number of sensitive downstream applications.

Applications

- Quantitative, real-time RT-PCR for both large mRNA and small RNA including miRNA
- RT-PCR for both large mRNA and small RNA including miRNA
- Expression profiling
- Next Generation Sequencing for RNA and miRNA
- PCR-based pathogen detection

Feature	Specifications
Minimum Plasma/Serum Input	0.25 mL
Maximum Plasma/Serum Input	2 mL
Size of RNA Purified	All sizes, including microRNA
Time to Complete Purifications	< 60 minutes

Ordering information

Cat #	Quantity
29500	1 x 96-well plate

Commitment to Quality



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