



Xtra Pure RNA

Agencourt RNAClean XP System Enzymatic Purification System

Genomics

Proteomics

Cell Analysis

Particle Characterization

Centrifugation

Lab Automation

Bioseparation

Lab Tools

The Agencourt RNAClean XP kit provides a simple, flexible and highly reproducible method for purifying nucleic acid products generated in common enzymatic reactions such as cDNA synthesis and in vitro transcription (IVT) reactions. This method utilizes Solid Phase Reversible Immobilization (SPRI) magnetic bead-based technology. It is uniquely formatted for purification of both the cDNA and cRNA steps in Eberwine¹ based procedures. This technique is easily performed manually in far less time than competitive methods. With the use of SPRI technology, the Agencourt RNAClean XP system doesn't use organic solvents, vacuum filtration, or centrifugation. The kit delivers superior nucleic acid recovery and purity for use in downstream microarray gene expression experiments.

Key Features:

- Purification of small and large nucleic acid products
- Complete removal of salts, unincorporated primers and dNTPs
- Simple automation-friendly protocol
- No centrifugation, filtration or precipitation steps required
- Elution in aqueous solution
- Purifies both cDNA and cRNA
- Scalable throughput

High Yield

The Agencourt RNAClean system consistently recovers more cRNA than standard column-based cleanup methods. The kit is effective in two methods for producing cRNA for microarray analysis, IVT and NuGEN* Amplification Technology. As shown in Figure 1, the Agencourt RNAClean XP kit produced a higher yield of RNA over the RNeasy* kit across both amplification methods.

Superior Quality

For microarray experiments, it is important that the cRNA cleanup method be free of contaminating nucleases and that it isolates the full range of in vitro transcribed products with no bias toward recovery of smaller or larger products. The Agencourt RNAClean XP kit is manufactured and tested to eliminate the introduction of RNase contaminants. Agilent* Bioanalyzer traces of cRNA purified

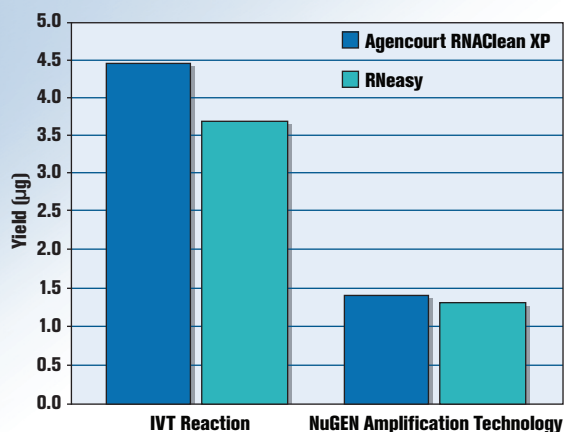


Figure 1. In vitro transcribed cRNA products produced from the same biological sample were purified using the Agencourt RNAClean XP kit or the RNeasy column-based system. IVT target was PCR¹ products that contained a T7 sequence on the forward primer. IVT was performed using an Ambion[®] MEGAscript[™] T7 Kit. NuGEN Target was total RNA from mouse liver extracted using the Agencourt RNAdvance Tissue kit. Amplification was performed using the NuGEN RNA amplification system V2. Samples were pooled and diluted prior to extractions. All samples eluted in 20 µL H₂O. Chip analysis was performed using RNA Nano Chip on the Agilent Bioanalyzer.

using the Agencourt RNAClean XP process demonstrate that the full range of transcribed products is recovered. When comparing RNA purified using the Agencourt RNAClean XP chemistry versus the RNeasy chemistry, it can be seen that both methods produce a typical profile (Figure 2 and Figure 3), but the Agencourt RNAdvance XP process produces a higher concentration of RNA (Table 1).

Table 1 - Average RNA Concentrations

| | Average RNA Concentration |
|--------------------------------------|---------------------------|
| Agencourt RNAClean XP - IVT | 575 ng/ L |
| RNeasy - IVT | 528 ng/ L |
| Agencourt RNAClean XP - NuGEN | 288 ng/ L |
| RNeasy - NuGEN | 267 ng/ L |

Versatile and Economical

The Agencourt RNAClean XP kit is a fast and flexible solution for cleaning up enzymatic reactions. To accommodate various existing laboratory processes, the RNA purified using this chemistry can be run using a variety of IVT labeling kits (Table 2). Even without the use of organic solvents, centrifugation, or vacuum filtration, RNA is purified in around 20 minutes.

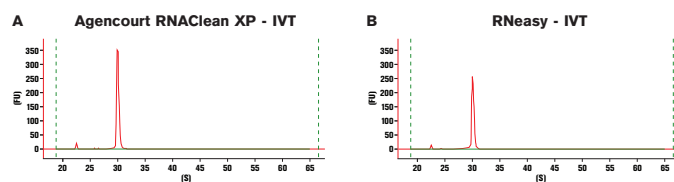


Figure 2. *In vitro* transcribed cRNA products produced from the same biological sample were purified using the Agencourt RNAClean XP kit or the RNeasy column-based system. IVT target was PCR products that contained a T7 sequence on the forward primer. IVT was performed using an Ambion MEGAscript T7 Kit. Samples were pooled and diluted prior to extractions. All samples eluted in 20 μ L H₂O. Chip analysis was performed using RNA Nano Chip on the Agilent Bioanalyzer. A) cRNA purified using the Agencourt RNAClean XP system. B) cRNA purified using RNeasy columns.

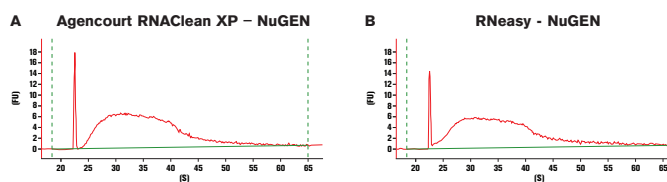


Figure 3. *In vitro* transcribed cRNA products produced from the same biological sample were purified using the Agencourt RNAClean XP kit or the RNeasy column-based system. NuGEN Target was total RNA from mouse liver extracted using the Agencourt RNAdvance Tissue kit. Amplification was performed using the NuGEN RNA amplification system V2. Samples were pooled and diluted prior to extractions. All samples eluted in 20 μ L H₂O. Chip analysis was performed using RNA Nano Chip on the Bioanalyzer. A) cRNA purified using the Agencourt RNAClean XP system. B) cRNA purified using RNeasy columns.

Table 2 - Number of reactions obtained using the Agencourt RNAClean XP reagent in a variety of IVT labeling kits

| IVT Labeling Kit | Agencourt RNAClean XP Volume (μ L) | Number of Reactions per 40 mL kit |
|----------------------------------------------------------------------|-----------------------------------------|-----------------------------------|
| NanoAmp* RT-IVT Labeling Kit | 252 | 159 |
| T7 labeling | 342 | 117 |
| Ovation* RNA Amplification System V2 | 288 | 139 |
| TargetAmp* Nano-g* Biotin-aRNA Labeling Kit for the Illumina* System | 72 | 556 |
| TargetAmp 2-Round Biotin-aRNA Amplification Kit 3.0 | 216 | 185 |
| Low RNA Input Linear Amplification Kit | 180 | 222 |
| Amino Alkyl MessageAmp* II aRNA Amplification Kit | 360 | 111 |
| TotalPrep* RNA Amplification Kit | 360 | 111 |
| MessageAmp II | 360 | 111 |
| SuperScript* Indirect RNA Amplification System | 342 | 117 |
| BioArray* Single Round RNA Amplification and Biotin Labeling System | 342 | 117 |

Kit Components

- Agencourt RNAClean Reagent



Ordering Information

For more information, please visit our website at www.beckmancoulter.com or contact your local sales representative.

| Product | Size | Product # |
|--------------------------------|------|-----------|
| Agencourt RNAClean XP - 40 mL | 116 | A63987 |
| Agencourt RNAClean XP - 450 mL | 1463 | A66513 |

Related Products

| Product | Product # |
|--------------------------------------|-----------|
| Agencourt SPRIPlate 96R Magnet Plate | A29164 |
| Agencourt SPRIPlate 384 Magnet Plate | A29165 |

1 Phillips J., and Eberwine J.H. 1996. Antisense RNA Amplification: A Linear Amplification Method for Analyzing the mRNA Population from Single Living Cells. *Methods* 10: 283–288.

For Research Use Only. Not for use in diagnostic procedures.

† The PCR process is covered by patents owned by Roche Molecular Systems, Inc., and F. Hoffman-La Roche, Ltd.

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