

# High Recovery of Nucleic Acids with Superior Yield and Purity

## Agencourt FormaPure System

Total Nucleic Acid Extraction from FFPE Tissue Samples

The Agencourt FormaPure system provides a simple, automation-friendly process for extracting total RNO or total nucleic acid from Formalin-Fixed, Paraffin-Embedded (FFPE) tissue samples. By utilizing the patented Agencourt Solid Phase Reversible Immobilization (SPRI) paramagnetic bead-based technology, the Agencourt FormaPure system does not require vacuum filtration, centrifugation, or organic solvents such as phenol or xylene. Researchers can go from paraffin digestion to total nucleic acid extraction in about 4 hours (without setup) for 96 samples in a multi-well format utilizing the Beckman Coulter Biomek NX<sup>P</sup> Span-8 Laboratory Automation Workstation. Recoveries are consistently higher than competitive techniques.

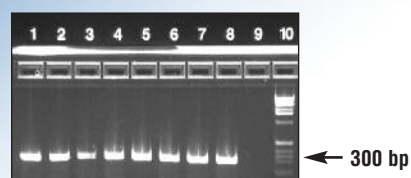
### Key Features:

- Consistent, superior yield and purity of RNA or total nucleic acid
- Same reagents used for recovery of RNA or total nucleic acid
- No centrifugation, vacuum filtration, or solvents required
- Supports automated or manual processing
- One 96-well plate processed in about 4 hours (includes paraffin digestion step)

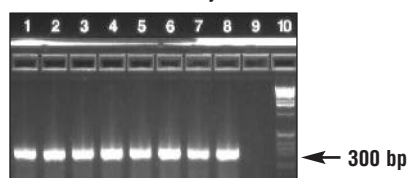
### Recovery of Fragmented Nucleic Acid

The fixation of tissue samples in formaldehyde can cause extensive crosslinking of tissue components. Quality of nucleic acid will vary depending on a variety of factors, including how the formalin-fixation process was carried out, age of sample, storage conditions, etc. As seen in Figure 1, nucleic acid from a variety of FFPE sample types and ages was isolated using the Agencourt FormaPure process and successfully amplified by PCR<sup>†</sup>.

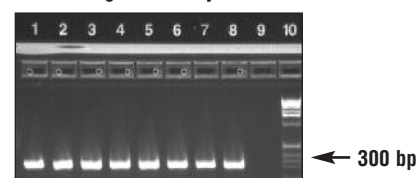
Human liver tumor – 6 months old



Human colon tumor – 1 year old



Human lung tissue – 2 years old



**Figure 1.** Total nucleic acid was isolated from 5 micron sections for each tissue. Elution volume was 40  $\mu$ L. Two (2)  $\mu$ L of eluted product was used in a 20  $\mu$ L PCR reaction (45 cycles) to amplify a 300 bp region of the GAPDH Gene. A 10  $\mu$ L sample was electrophoresed on a 2% agarose gel. Lane 9 contains the negative control. Lane 10 contains a 1 kb ladder.

Genomics  
Proteomics  
Cell Analysis  
Particle Characterization  
Centrifugation  
Lab Automation  
Bioseparation  
Lab Tools

## Consistent RNA Purity

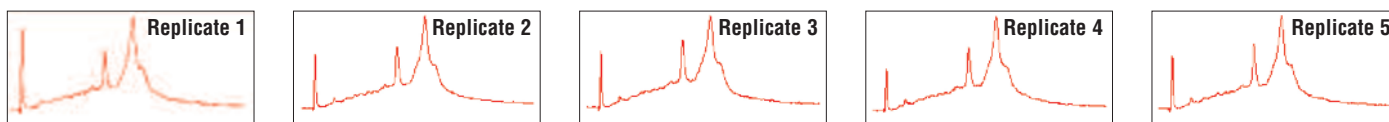
The Agencourt FormaPure system provides consistent RNA yield and purity. Table 1 shows data for RNA recovered from five FFPE rat lung biological replicates which were purified using Agencourt FormaPure. Consistent ratios ranging from 1.79 to

1.83 for 260/280 and 1.06 to 1.21 for 260/230 are observed. Agilent\* bioanalyzer traces from the same samples show consistent RNA purity and fragment recovery (Figure 2), with 18s and 28s bands clearly observed.

**Table 1**

Rat Lung Replicates	OD 260/280	OD 260/230	RNA		
			Concentration (ng/μL)	Volume (μL)	Amount (μg)
1	1.79	1.21	288.99	35.00	10.11
2	1.83	1.14	439.80	35.00	15.39
3	1.79	1.07	538.57	35.00	18.85
4	1.80	1.10	629.80	35.00	22.04
5	1.80	1.06	513.13	35.00	17.96

Beta site data for RNA purified from FFPE rat lung tissues using Agencourt FormaPure. One 10 micron section was used for each replicate.



**Figure 2.** Agilent bioanalyzer traces of RNA prepared from several FFPE rat lung tissues using the Agencourt FormaPure system. All samples were treated with DNase I.

## Summary

The Agencourt FormaPure system can extract both RNA and total nucleic acid and offers superior yield and purity in an automation-friendly process. This technology can purify nucleic acids from a wide variety of tissue types for utilization in techniques such as SNP genotyping, gene expression, and sequencing. With the utilization of paramagnetic beads, no centrifugation, vacuum filtration or chemical solvents are required. The Agencourt FormaPure system, along with the Beckman Coulter Biomek NX<sup>P</sup> Span-8 Laboratory Automation Workstation, helps to answer today's most comprehensive biological questions.

## Kit Components

- Lysis Buffer
- Bind I Buffer
- Bind II Buffer
- Wash Buffer
- Proteinase K
- Proteinase K Buffer



## Ordering Information

For more information, please visit our website at [www.agencourt.com](http://www.agencourt.com) or contact your local sales representative.

Product	Size	Product #
Agencourt FormaPure Kit - Small	50 preps	A33341
Agencourt FormaPure Kit - Medium	96 preps	A33342
Agencourt FormaPure Kit - Large	384 preps	A33343

Related Products	Size	Product #
Agencourt RNAAdvance Tissue Kit - Medium	96 preps	A32649
Agencourt SPRIPlate Ring Super Magnet Plate		A32782
Agencourt SPRIStand - Magnetic 6-tube Stand		A29182
Agencourt FormaPure Span-8 Method		A35556

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

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