

SV and SV 96 Total RNA Isolation Systems Total RNA without the gDNA

Introduction

Promega's SV and SV 96 Total RNA Isolation Systems provide a fast, simple, versatile technique for preparing total RNA free of genomic DNA from a variety of sample types. The SV System^(a,b) uses a rapid method to isolate total RNA from mammalian tissue, plant tissue, cultured cells, blood, yeast and bacteria. The SV 96 System^(a) extends this optimized total RNA purification chemistry to a 96-well manual or automated high-throughput format on liquid handlers such as the Beckman Coulter Biomek[®] 2000, Biomek[®] FX or PerkinElmer MultiPROBE[®]-II HT/EX.

For both systems, the protocol involves a series of simple steps: sample lysis, washes to remove tissue impurities, DNase treatment to remove contaminating genomic DNA, additional washes to remove the DNase, followed by elution of RNA in water ready for analysis. The SV Total RNA Systems were the first to incorporate an on-membrane DNase treatment to remove contaminating genomic DNA and we continue to offer this critical feature for no extra charge. Total RNA purified with either system is ready for use in many molecular biology applications including RT-PCR and quantitative, real-time RT-PCR.

Removes genomic DNA for better results

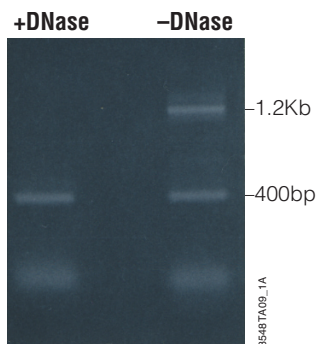


Figure 1. RT-PCR amplification from purified total RNA with or without DNase treatment from mouse liver lysate. Amplification primers used for the RT-PCR were designed to amplify both mRNA and DNA in the same amplification reaction. Amplification products specific for the mRNA are 400bp, and amplification products for the gene are 1.2kb. Both the SV and SV 96 Total RNA Isolation Systems include DNase for on-membrane DNase treatment to remove genomic DNA below detectable levels.

SV Total RNA Isolation System

- **Highly pure RNA with no detectable genomic DNA contamination:** First system to incorporate an on-membrane RNase-free DNase treatment. DNase is supplied with the system.
- **Safe, time-saving isolation:** Phenol-free total RNA purification in about an hour. Ready for molecular biology applications including real-time, quantitative RT-PCR.
- **Flexible system for many sample types:** Protocols provided for total RNA isolation from animal tissue, cultured mammalian cells, blood, plant tissues, yeast and bacteria.

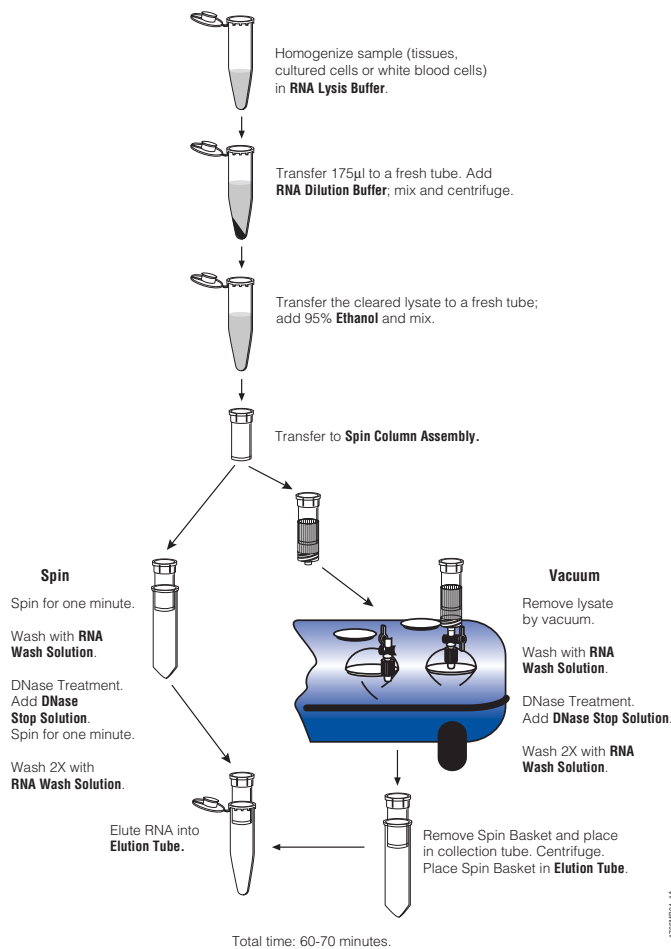


Figure 2. The SV Total RNA Isolation System spin and vacuum protocols.

Table 1. Recoveries from various sample types with the SV Total RNA Isolation System. Data taken from the SV Total RNA Isolation System Technical Manual #TM048.

Sample Type	Maximum Amount Processed	Average Yield
Mouse Liver	30mg	131µg
Mouse Kidney	20mg	44µg
Mouse Spleen	15mg	79µg
Mouse Brain	60mg	39µg
Mouse Muscle	30mg	22µg
Rat Pancreas	30mg	100µg
Rat Heart	60mg	16µg
Rat Lung	60mg	36µg
Tomato Leaf	30mg	5µg
<i>E. coli</i>	10 ⁹ cells	36µg
<i>S. cerevisiae</i>	4 × 10 ⁷ cells	19µg

SV 96 Total RNA Isolation System

- **Ready to meet your throughput needs:** The SV 96 Total RNA Isolation System can be used in a manual format for up to 96 samples at once or automated for maximum convenience. Sufficient volumes of reagents are supplied for automated purification on platforms like the Beckman Coulter Biomek® 2000, Biomek® FX and PerkinElmer MultiPROBE®-II HT/EX.
- **Safe, time-saving isolation:** Phenol-free total RNA purification in about an hour. Ready for molecular biology applications including real-time, quantitative RT-PCR.
- **Highly pure RNA with no detectable genomic DNA contamination:** Incorporates the same on-membrane DNase treatment utilized in the SV Total RNA Isolation System. DNase is supplied with the system.

High-yield, high-purity total RNA

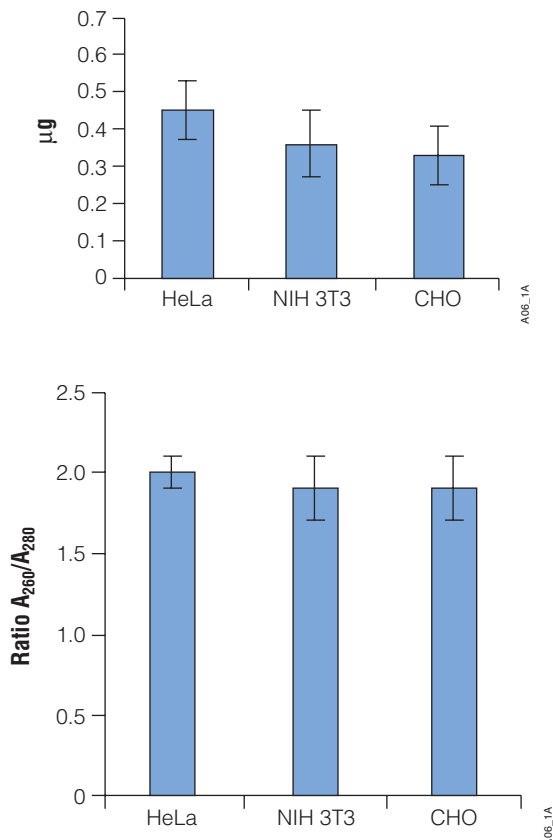


Figure 3. Yield and purity from several cell lines using 1 × 10⁵ cells. The SV 96 Total RNA Isolation System consistently purified more than 0.3µg of total RNA with A₂₆₀/A₂₈₀ ratios of 1.9 or higher from the indicated cell lines. Data adapted from Grunst, T. (2001) High-throughput purification using the SV 96 Total RNA isolation System. *Promega Notes* 79, 29–32.

Go directly into quantitative, real-time RT-PCR

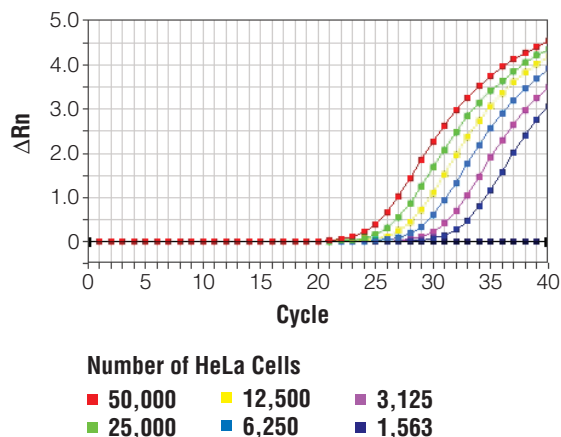


Figure 4. Quantitative real-time RT-PCR analysis of lamin A/C message. Total RNA isolated from indicated number of HeLa cells and eluted in 100µl of nuclease-free water. Twenty microliters were used in a 100µl RT reaction and 5µl transferred to a 50µl quantitative, real-time PCR reaction. Further details in Brisco, P. and Hooper, K. (2003) Quantitative, real-time RT-PCR expression using the SV 96 Total RNA Isolation System. *Promega Notes* 84, 23–26.

Ordering Information

Product	Size	Cat.#
SV 96 Total RNA Isolation System*	1 × 96 each	Z3500
	5 × 96 each	Z3505
SV Total RNA Isolation System*	10 preps	Z3101
	50 preps	Z3100

Available Separately

SV RNA Lysis Buffer*	50ml	Z3051
SV RNA Wash Solution*	58.8ml	Z3091
SV RNA Red Blood Cell Lysis Solution*	200ml	Z3141
Nuclease-Free Water*	150ml	P1195
Vac-Man® 96 Vacuum Manifold	1 each	A2291
Vac-Man® Laboratory Vacuum Manifold, 20-sample capacity	1 each	A7231
Vacuum Adapters	20 each	A1331

*For Laboratory Use.

Additional Information

Additional Information	Literature Part#
SV Total RNA Isolation System Technical Manual www.promega.com/tbs/tm048/tm048.htm	TM048
SV 96 Total RNA Isolation System Technical Bulletin www.promega.com/tbs/tb294/tb294.html	TB294
Automated SV 96 Total RNA Isolation System Protocol www.promega.com/tbs/ep003/ep003.html	EP003
Automated Methods for SV 96 Total RNA www.promega.com/automethods/	
Promega Notes www.promega.com/pnotes	PN079, PN082, PN084

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®Australian Pat. No. 730718 and other patents and patents pending.

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