

Molecular Solutions for Clinical Laboratories

Bringing Efficiency to Your Day

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An Expert Partner

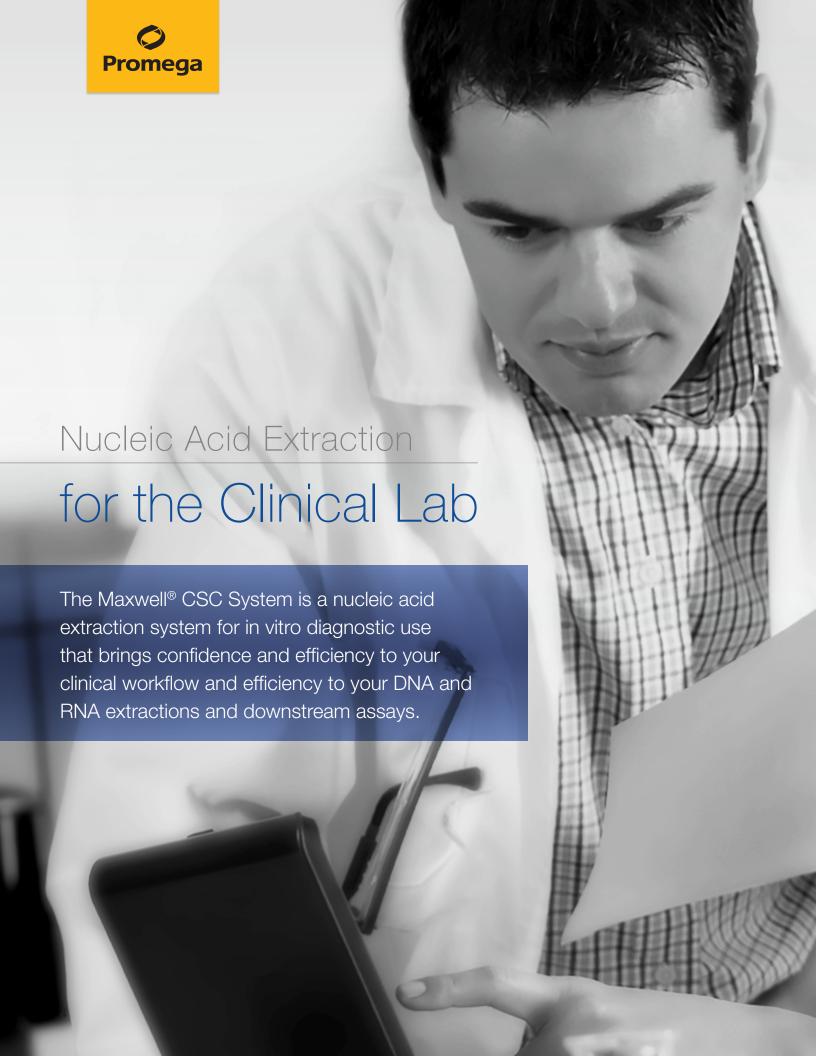
You Can Rely On

More than a supplier—a partner

Our quality solutions for clinical labs include:

- Automated nucleic acid extraction for molecular diagnostic (IVD) applications and clinical research.
- Manual nucleic acid extraction for clinical research.
- In-depth expertise in basic research, molecular biology applications and forensic DNA analysis.
- A commitment to the highest quality standards:
 - ISO 13485 and ISO 9001 certified.
 - cGMP manufacturing capabilities.
- Field Support Scientists available to help implement and optimize Promega Technologies for improved laboratory efficiency.
- Flexible, custom, made-to-order solutions available.

Promega Corporation has strong core capabilities and strengths in molecular biology applications. We offer more than 2,000 products that enable scientists worldwide to advance their knowledge in life science research, human identification and molecular diagnostics.



Consistent Performance For Every Run

The Maxwell® Clinical Sample Concentrator (CSC) automated nucleic acid extraction system is an in vitro diagnostic medical device specifically designed for clinical laboratories processing multiple samples for critical downstream assays.

Increase Confidence in Results

Manufactured to a quality standard that assures consistent performance for every run.

Rely on Quality

Each system is backed by the Promega tradition of quality, service and support.

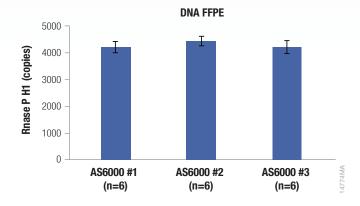
Maintain Electronic Records Easily

Complete tracking of each run in the system.

Provides many of the required technical elements of a 21 CFR Part 11 compliant system.

Reports are portable and LIMS-compatible.

Save reports with a simple click.



Adapt to Your Workflow Needs

Maxwell® CSC provides flexible, higher throughput automation that saves time and money, while the agile platform allows you to respond to changing laboratory demands on a daily or hourly basis.

Set up a Run Quickly

The intuitive touch-screen interface and preprogrammed protocols make it easy to set up a run, minimize variability and save time.

Reduce Processing Time

Extract nucleic acids from 1-16 samples in approximately one hour, with minimal pre-processing.

Maximize Bench Space

The compact footprint (13W \times 13.6D \times 11.8H inches; 33W \times 34.5D \times 30H cm) allows you to increase throughput while conserving critical laboratory bench space.

Increase Efficiency

Automating nucleic acid extraction allows higher throughput sample processing with minimal handson time, saving labor and decreasing costs.



Increase Confidence in Your Results

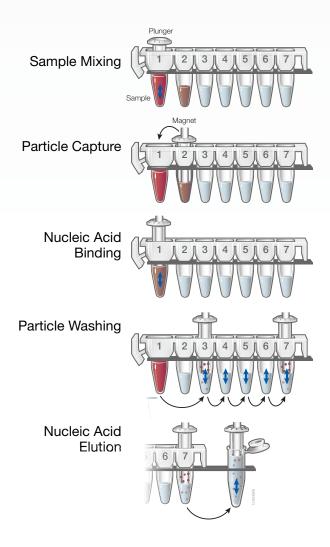
Because the Maxwell® CSC Instrument is manufactured to strict specifications, you can count on consistent, contamination-free sample preparation.

Magnetic Particle Mover, Not Liquid Handler

No liquid handling or splashing during processing minimizes the risk of cross-contamination.

Performance-Tested

Performance-tested reagents deliver high-quality nucleic acid samples with minimal variability between runs.



The Particle Mover Approach: Magnetic particles are moved through the Maxwell® CSC cartridge wells step by step.

7

Plan with Assurance

The Maxwell® CSC Instrument includes the premier service package during the warranty period, routine preventive maintenance, field service and access to a loaner instrument, if required.

Have Confidence from the Start

Installation Qualification and Operational Qualification Services give you confidence that your instrument is installed and operating correctly.

Improve Your Budget Planning

Service packages provide predictable support costs.

Enjoy Consistent and Reliable Performance

Preventive maintenance, replacement parts, and trained service personnel ensure your instrument is functioning properly.

Service Agreement Benefit	Standard	Premier
Period	Renewable Annually	Renewable Annually
Parts and Labor	Yes	Yes
Shipping	Yes	Yes
Loaner Instrument	Yes, Delivered within 5–7 business days	Yes, Delivered within 24 hours
Field Support	No	Yes, 48 hours
Annual Preventive Maintenance	No	Yes, 1 per 12 months

Our standard and premier service packages allow you to choose your level of support after the warranty expires.

Maintain Lab Efficiency

Field support and an instrument loan program ensure minimal instrument downtime for your laboratory.

All of this support means that your laboratory will maintain its sample throughput and productivity with minimal instrument downtime.

Ordering Information

Maxwell® CSC

Product	Size	Cat.#
Maxwell® CSC Instrument	1 each	AS4000 ^{1,3}

Related Products

Product	Size	Cat.#
Maxwell® CSC Blood DNA Kit	48 preps	AS1321 ^{1,2,3}
Maxwell® CSC DNA FFPE Kit	48 preps	AS1350 ^{1,2,3}
Maxwell® CSC RNA FFPE Kit	48 preps	AS1360 ^{1,2,3}
Maxwell® CSC RNA Blood Kit	48 preps	AS1410 ^{1,2,3}
Standard Service Agreement		SA1110 ⁴
Premier Service Agreement		SA1120 ⁴
Preventive Maintenance		SA1130 ⁴
Maxwell® CSC Installation Qualification		SA1140
Maxwell® CSC Operational Qualification		SA1150
Maxwell® CSC Installation and Operational Qualification		SA1160

¹ For In Vitro Diagnostic Use. Professional use only.

² Sufficient for 48 automated isolations. The Maxwell® CSC Cartridges are single use only.

³ Products are only available in the US, Canada and Korea.

⁴ Service offerings may differ by geography. Contact your local Promega representative for details on product availability.



Flexible Options for

Nucleic Acid Extraction and Quantitation for Research

Clinical research covers many sample types and throughput needs. We offer a range of easy-to-use, automated or manual DNA and RNA purification systems with centrifugation or vacuum-based protocol options. We also provide sensitive fluorescent systems for easy and accurate nucleic acid quantitation.

Automated

Nucleic Acid Extraction

Automated Nucleic Acid Extraction with the Maxwell® RSC Systems

Save Time and Reduce Costs with Automated Benchtop Nucleic Acid Purification

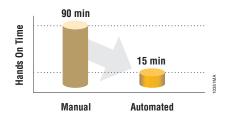
Reliable

Prefilled cartridges and preprogrammed methods help reduce the potential for user error. The purified samples are compatible with a wide range of downstream applications such as Sanger and next generation sequencing, arrays and digital PCR.

Flexible

The Maxwell® RSC and RSC 48 work with a variety of sample types, including human blood, cells and tissues. The protocols are fast and easy. You can process up to 16 samples with the Maxwell® RSC and up to 48 samples with the Maxwell® RSC 48 Instrument.

6X Less Hands-On Time



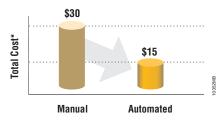
Intuitive

Maxwell® RSC software is so easy to use and intuitive that you'll be able to set up and perform your first run in a matter of minutes after setting up your instrument.

Efficient

Automating nucleic acid extraction frees up your time. The Quantus™ Fluorometer¹, which comes with the Maxwell® RSC, lets you integrate your quantitation results with no need to re-enter sample IDs. The simple, streamlined sample tracking report easily exports to your laboratory notebook.

Reduce Extraction Process Cost by 50%



*Total cost = reagent price + technician time





Create an Automated Purification Assembly Line

Prepare your samples and Maxwell® cartridges on the Maxprep™ Liquid Handler, purify them using your Maxwell® RSC Instruments and transfer back to the Maxprep™ Liquid Handler for further processing,



Maxprep[™] Liquid Handler

The Maxprep™ Liquid Handler comes with all the methods preloaded. The easy-to-use software interface means anyone in your lab will be able to quickly run samples using the preprogrammed protocols. The Maxprep™ Liquid Handler works with both the Maxwell® RSC or higher throughput Maxwell® RSC 48 Instruments.

Maxwell® RSC Systems

Trusted Maxwell® purification reagents with higher throughput. The Maxwell® RSC 48 Instrument processes up to 48 samples and the Maxwell® RSC processes up to 16 samples at once while the compact instrument sizes minimize the impact on precious laboratory space. The instruments easily integrates into your laboratory workflow, increasing productivity and decreasing the risk of human error.

Portal Software

Portal software works for you behind the scenes. Sample bar code information is scanned and passed from the Maxprep™ Liquid Handler during preprocessing to the Maxwell® instruments for extraction. The sample information associated with the Maxwell® Tray then can be passed back to any Maxprep™ Liquid Handler connected to the workflow for post-extraction sample preparation.

Sample Tracking

Place your instruments anywhere in the laboratory and sample tracking information will be communicated from one device to the next through the Promega Portal Software.

Simply transfer the Maxwell® RSC deck tray from one instrument to the next and all the sample information will be there ready for you to process.

Expandability

The modular Maxwell® workflow allows your laboratory to expand capabilities based on your sample throughput and automation needs. Start with the Maxwell® RSC and increase capacity by adding a Maxwell® RSC 48 or Maxprep™ Liquid handler whenever your laboratory needs change.



Confident Operation

Comprehensive support and service

Promega provides flexible service and support options so that you can always experience the benefits of Personal Automation™. Technical support is provided by a global team of technical services scientists, field support scientists and service engineers. Warranties and service plans give you peace of mind, ensure minimal instrument downtime and provide predictable service costs.

Accurate and thorough documentation of instrument performance

Promega offers Installation Qualification, Operational Qualification and Preventive Maintenance services to ensure smooth operation. These services help assure adequate training and documentation of performance characteristics.

Service Agreement Benefit	Standard	Premier
Period	Renewable Annually	Renewable Annually
Parts and Labor	Yes	Yes
Shipping	Yes	Yes
Loaner Instrument ⁴	Yes, Delivered within 5–7 business days	Yes, Delivered within 24 hours ³
Field Support ⁵	No ¹	Yes, 48 hours ³
Annual Preventive Maintenance	No ²	Yes, 1 per 12 months

¹⁾Field support and Preventive Maintenance can be purchased separately on any instrument, regardless of warranty or agreement status.

Instrument Specifications

	Maxwell® RSC Instrument	MaxPrep™ Liquid Handler	Maxwell® RSC 48
Processing Time:	28–80 minutes (depending on sample type and method)	30–90 minutes depending number of samples and method	30-70 minutes (depending on sample type and method)
Number of Samples:	Up to 16	Up to 48	Up to 48
Elution Volume:	50–100μl	50–100μl	50–100μl
Weight:	24.2lb (11kg)	~ 220lb (98.6kg)	<60lbs (<27kg)
Dimensions:	13W × 13.6D × 11.8H inches (33W × 34.5D × 30H cm)	42.1W × 27.8D × 33H inches (106.9W × 70.6D × 83.3H cm). Height with door open: 48.4 inches (123cm)	21W × 21D × 14H inches (533.4W × 533.4D × 355.6H mm)
Power Requirements:	100-240VAC, 50/60Hz, 2.5A	100-240VAC, 50/60Hz, 5A	100-240VAC, 50/60Hz, 4A

²⁾PM service includes instrument cleaning and adjusted; parts and labor required for repairs are not included.

³⁾Where available; please contact your local Promega representative.

⁴⁾Maxwell[®] Instruments only.

⁵⁾Field support is included with the Maxprep[™] Liquid Handler.

Ordering Information

Maxwell® RSC Instrument and Extraction Kits

Product	Size	Cat.#
Maxwell® RSC Instrument	1 each	AS4500
Maxwell® Viral Total Nucleic Acid Purification Kit*	48 preps	AS1330
Maxwell® RSC Blood DNA Kit*	48 preps	AS1400
Maxwell® RSC Cell DNA Kit	48 preps	AS1370
Maxwell® RSC DNA FFPE Kit*	48 preps	AS1450
Maxwell® RSC ccfDNA Plasma Kit*	48 preps	AS1480
Maxwell® Whole Blood DNA Kit*	48 preps	AS1520
Maxwell® RSC simplyRNA Tissue Kit*	48 preps	AS1340
Maxwell® RSC simplyRNA Cells Kit*	48 preps	AS1390
Maxwell® RSC simplyRNA Blood Kit*	48 preps	AS1380
Maxwell® RSC RNA FFPE Kit*	48 preps	AS1440
Maxwell® RSC Buffy Coat DNA Kit	48 preps	AS1540
Maxwell® RSC Stabilized Saliva DNA Kit	48 preps	AS1630
Maxwell® RSC Buccal Swab DNA Kit	48 preps	AS1640
Maxwell® RSC Tissue DNA Kit	48 preps	AS1610
Maxwell® RSC Cultured Cells Kit	48 preps	AS1620
Maxwell® miRNA Tissue Kit*	48 preps	AS1460
Maxwell® Systems Bar Code Reader	1 each	AS3200
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For Research Use Only. Not for Use in Diagnostic Procedures. *Method available for Maxwell® RSC 48 Instrument.

Maxwell® RSC 48 Instrument

Product	Size	Cat.#
Maxwell® RSC 48 Instrument	1 each	AS8500
Maxwell® Instrument Bar Code Reader	1 each	AS3200
Maxwell® RSC 48 Front Deck Tray	1 each	AS8401
Maxwell® RSC 48 Back Deck Tray	1 each	AS8402

Maxwell® RSC 48 Warranty and Service Options

Product	Size	Cat.#
Maxwell® RSC 48 Premier Warranty Upgrade	1 each	SA1351
Maxwell® RSC 48 Standard Service Agreement	1 each	SA1352
Maxwell® RSC 48 Premier Service Agreement	1 each	SA1353
Maxwell® RSC 48 Preventive Maintenance	1 each	SA1356
Maxwell® RSC 48 Installation Qualification and Operational Qualification	1 each	SA1357 SA1358 SA1359

Related Products

Product	Size	Cat.#
QuantiFluor® dsDNA System	1ml	E2670
QuantiFluor® ssDNA System	1ml	E3190
QuantiFluor® RNA System	1ml	E3310
QuantiFluor® ONE dsDNA System	100 reactions	E4871
	500 reactions	E4870

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Maxwell® RSC Warranty and **Service Options**

Product	Size	Cat.#
Maxwell® RSC Premier Warranty Upgrade	1 each	SA1341
Maxwell® RSC Standard Service Agreement	1 each	SA1342
Maxwell® RSC Premier Service Agreement	1 each	SA1343
Maxwell® RSC Preventive Maintenance	1 each	SA1346
Maxwell® RSC Installation Qualification	1 each	SA1347
Maxwell® RSC Operational Qualification	1 each	SA1348
Maxwell® RSC IQ/OQ Combination Package	1 each	SA1349

Maxprep[™] Liquid Handler

Product	Size	Cat.#
Maxprep™ Liquid Handler, RSC Carriers	1 each	AS9100
Maxprep™ Liquid Handler, RSC Carriers w/ UV Light	1 each	AS9101
Maxprep [™] Liquid Handler, RSC 48 Carriers	1 each	AS9200
Maxprep™ Liquid Handler, RSC 48 Carriers w/UV Light	1 each	AS9201

Maxprep[™] Liquid Handler Warranty and Service Options

Product	Size	Cat.#
Maxprep™ Liquid Handler Premier Warranty Upgrade	1 each	SA1391
Maxprep™ Liquid Handler Standard Service Agreement	1 each	SA1392
Maxprep [™] Liquid Handler Premier Service Agreement	1 each	SA1393
Maxprep™ Liquid Handler Preventive Maintenance	1 each	SA1396
Maxprep™ Liquid Handler Installation Qualification and Operational Qualification	1 each	SA1397 SA1398 SA1399

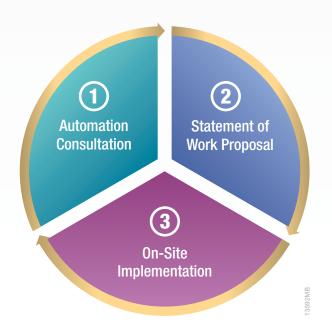
Maxwell® Chemistries for High-Throughput Nucleic Acid Extraction

Adaptable Capabilities to Respond to Your Evolving Needs

Take your laboratory's automated purification to new levels with trusted Maxwell® chemistries scaled up for high-throughput nucleic acid extraction on automated, large liquid handlers. Let us help you develop and implement a high-throughput purification solution that meets your laboratory's workflow needs.

Maxwell® HT applies the same chemistry used in the Maxwell® reagent cartridges to common laboratory robotic liquid handlers in either 24- or 96-well SLAS format.

How do I implement Maxwell® HT in my laboratory?



Step 1:

Promega provides a consultation to understand your unique needs.

Step 2:

Our Field Support Scientists team will draft a Statement of Work (SOW) to ensure we are aligned with your needs.

Step 3:

We schedule our onsite work so that it best fits your organizations' schedule.

Promega will provide:

- Implementation, optimization and/or automation of Promega technologies on your instruments.
- Customized training associated with new protocols to ensure your staff is confident and ready.
- Consultation and assistance in improving laboratory efficiency, troubleshooting and solving current issues.

Contact us for more information regarding additional sample types and opportunities for customization of this chemistry to meet your laboratory's needs:

To learn more and request a consult: www.promega.com/maxwellHT

Manual

Nucleic Acid Extraction



Maximum Yield with ReliaPrep[™] Blood and Tissue gDNA Systems

Easy to Use: Reagents are supplied ready to go; no additions required.

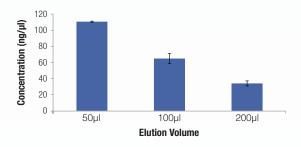
Save Time: Eluted DNA obtained in 30 minutes or less.

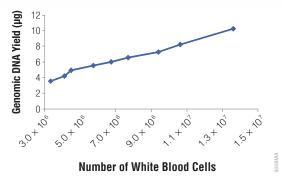
No Ethanol: Eliminates alcohol carryover and enzyme inhibition.

Pure gDNA: Improved A_{260}/A_{230} ratios vs. the leading competitor.

Peace of Mind: Consistent results from extraction to extraction and between users, even with hemolyzed samples.

Concentrated DNA: Excellent recovery and purity in as little as 50µl elution volume.





Linear relationship between white blood cell count and gDNA yield. Whole blood was obtained from several individuals, and white cell counts determined using a hemocytometer. Two hundred microliters of blood was used for genomic DNA purification (n = 3 or 4), and the amount of isolated gDNA was quantitated by absorbance spectroscopy.

ReliaPrep™ RNA Cell and Tissue Miniprep Systems

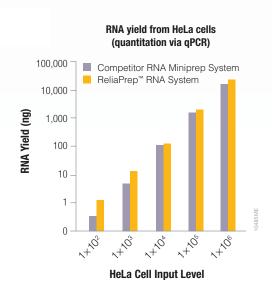
A 30-minute protocol for extracting high-quality, concentrated RNA from 100–1,000,000 cultured cells or 0.25–20mg tissues.

Fast: Obtain purified RNA in only 30 minutes.

Flexible: Extract RNA from limited or abundant samples.

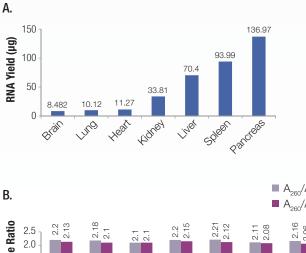
Concentrated: Elute small amounts of RNA in as little as 7µl.

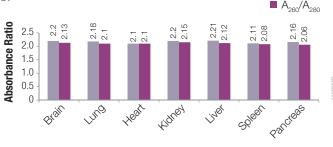
Pure: Extract high-quality RNA free of downstream assay inhibitors such as salts and alcohol.



The ReliaPrep™ RNA System isolates a dynamic range of amplifiable RNAs from varying cell culture input.

Total RNA was purified from as few as 100 cells to as many as 1×10⁶ HEK293 cells using the ReliaPrep™ RNA Cell and Tissue Miniprep System as quantified by qPCR.





Typical RNA yields from fibrous and nonfibrous mouse tissues. RNA was isolated from 10mg samples of various mouse tissues using the ReliaPrep™ RNA Tissue Miniprep System. Absorbance was measured by spectrophotometer. Panel A. RNA yield. Panel B. RNA purity.

ReliaPrep™ FFPE gDNA and RNA Miniprep Systems

Purify high-quality, intact nucleic acids from FFPE tissue without harsh solvents or overnight digestions.

Isolate Quality, Intact gDNA or RNA:

Optimized lysis and binding conditions reverse modifications introduced by the fixation process, resulting in more intact, more amplifiable gDNA or RNA.

Safely Deparaffinize Your Samples:

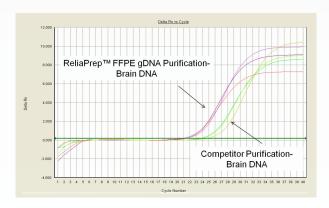
Deparaffinization step occurs without harsh organic solvents.

Liver RNA
ReliaPrep™ FFPE Competitor
Total RNA
Purification Kit

More large fragment, intact RNA purified with ReliaPrep™ FFPE Total RNA Miniprep System. Comparison of purified Liver RNA integrity from ReliaPrep™ FFPE RNA Miniprep System.

Save Time: Purify gDNA from FFPE tissue in 2.5 hours or RNA in <1.5 hours with minimal hands-on time. No overnight steps.

Easy to Use: Minimal preparation time; simply add ethanol and go!



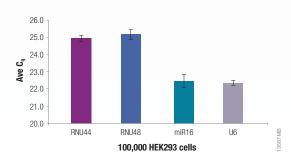
Comparison of qPCR performance of DNA isolated using the ReliaPrep™ FFPE Kit and a Competitor Kit. Genomic DNA purified was from a single 10µm mouse brain section using either the ReliaPrep™ FFPE gDNA Miniprep System or competitor kit. Samples were analyzed using GoTaq® qPCR System. Earlier C_q values were obtained with the ReliaPrep™ FFPE Miniprep System.

ReliaPrep™ miRNA Cell and Tissue Miniprep System

Isolate pure total RNA including microRNA and other small non-coding RNA subspecies from a wide variety of cell and tissue types.

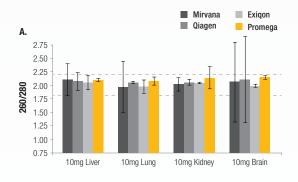
Easily isolate Total RNA: The system offers superior ease of use over competitive purification chemistries, whether you're a novice or expert.

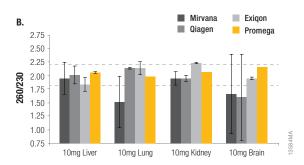
Eliminate harsh organic reagents: Take your miRNA extraction out of the hood and onto your bench. Save money by eliminating the costly disposal of hazardous waste.



The ReliaPrep™ miRNA System isolates a variety of small non-coding RNA species from cell culture samples. Specific expression of miRNA (miR16), snoRNA (U6), and sncRNA (RNU44 and RNU48) products were detected via qPCR from total RNA isolated from 100,000 HEK293 cells using the ReliaPrep™ miRNA Cell and Tissue Miniprep System.

Work with low elution volumes: Extract high concentrations of amplifiable mRNA, miRNA and other small non-coding RNA in elution volumes that support your downstream assays.





Purity of RNA isolated using the ReliaPrep[™] miRNA compared to that isolated using a competitor systems. Purity ratios for total RNA isolated from 10mg of mouse liver, lung, kidney and brain tissue using the ReliaPrep[™] miRNA Cell and Tissue Miniprep System were compared to RNA purified using competitors' miRNA purification kits. Purity was determined using a NanoDrop[™] System. All kits tested demonstrated their ability to provide A_{260}/A_{280} purity ratios in the accepted 1.8-2.2 range (Panel A). The comparison of A_{280}/A_{230} rations show that the competitor kits that rely on the use of phenol chloroform reagents resulted in ratios below the accepted 1.8-2.2 range (Panel B).

Ordering Information

Manual Nucleic Acid Purification

Product	Size	Cat.#
ReliaPrep™ FFPE gDNA Miniprep System	10 reactions	A2351
	100 reactions	A2352
ReliaPrep™ FFPE Total RNA Miniprep System	10 reactions	Z1001
	100 reactions	Z1002
ReliaPrep™ Blood gDNA Miniprep System	100 preps	A5081
	250 preps	A5082
ReliaPrep™ gDNA Tissue Miniprep System	100 preps	A2051
	250 preps	A2052
ReliaPrep™ RNA Cell Miniprep System	50 preps	Z6011
	250 preps	Z6012
ReliaPrep™ RNA Tissue Miniprep System	50 preps	Z6111
	250 preps	Z6112
ReliaPrep™ miRNA Cell and Tissue Miniprep System	50 preps	Z6211
	250 preps	Z6212

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Nucleic Acid

Quantitation



Sensitive DNA and RNA Fluorescent Quantitation Dyes

QuantiFluor® ONE dsDNA System

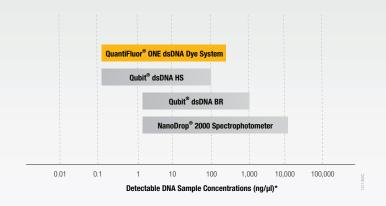
- Easy to Use: One-step fluorescent quantitation, no reagent preparation.
- Great Specificity: Highly specific to dsDNA. Minimal binding to ssDNA, RNA, protein and interfering compounds.
- High Sensitivity: Significantly increased sensitivity over absorbance at 260nm (e.g., NanoDrop® Spectrophotometer).
 Better sensitivity and equivalent linearity compared to Quant-IT™ and Qubit dsDNA dyes.

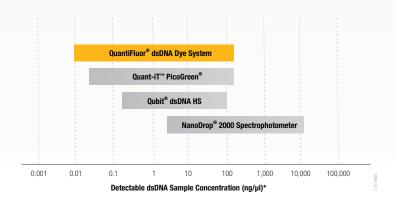
QuantiFluor® dsDNA System

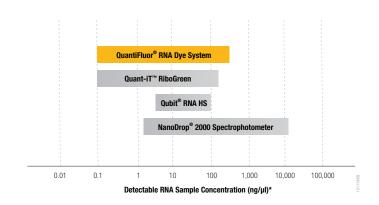
- Great Specificity: Highly specific binding to dsDNA; minimal binding to ssDNA, RNA, protein and interfering compounds.
- Highest Sensitivity: Significantly more sensitive than absorbance at 260nm (NanoDrop® Spectrophotometer) for low-concentration samples. Performs better or equal to PicoGreen® dye.

QuantiFluor® RNA System

- Increased Sensitivity: Significantly increased sensitivity over absorbance at 260nm (NanoDrop® Spectrophotometer) for lowconcentration samples.
- Uses Less Sample: Less template RNA required than spectrophotometry.
- Cost-Effective: Value priced for those customers who are cost-conscious and budget-constrained.







^{*}Based on quantitating 1µl of sample.

Sensitive Instruments for Quantitation of DNA and RNA

Instrument Compatibility

All QuantiFluor® Dyes are easily set up on both the Quantus™ Fluorometer, the GloMax® Explorer and GloMax® Discover Instruments. The QuantiFluor® Dyes are also compatible with any fluorometer with appropriate optical filters.







Quantus™ Fluorometer

Ordering Information

Nucleic Acid Quantitation

Product	Size	Cat.#
QuantiFluor® ONE dsDNA System	ONE dsDNA System 100 reactions	E4871
	500 reactions	E4870
QuantiFluor® dsDNA System	1ml	E2670
QuantiFluor® RNA System	1ml	E3310
Each QuantiFluor® System contains dye, TE Buffer and standard.		
Instruments and Related Products	Size	Cat.#
Quantus™ NGS Starter Pack		E5150
Quantus™ Fluorometer	1 each	E6150
GloMax® Discover System	1 each	GM3000
GloMax® Explorer with Luminescence and Fluorescence	1 each	GM3510
GloMax® Explorer Fully Loaded Model	1 each	GM3500
0.5ml PCR Tubes	50 pack	E4941
	200 pack	E4942



Amplification Reagents

for Clinical Labs

Promega has more than 30 years of expertise delivering reagents to life science and clinical laboratories.

All amplification reagents are designed to meet the needs of complex PCR methods and are thoroughly tested to ensure optimal performance.

PCR Assay

Development

Simplify your MDx Amplification Assay Development

PCR Optimization Kit

Use the pre-formulated PCR master mix components to survey PCR amplification conditions specific to your application. Simply perform a short series of amplification experiments with your existing primers/probes to quickly identify the optimal PCR amplification conditions.

Optimal Buffer

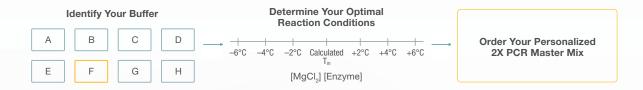
Determine which buffer formulation(s) works optimally for your application.

Perform end-point, multiplex, real-time,

GC-rich and inhibitor-resistant amplifications using high-quality buffers.

Efficient Guard Banding

Using the candidate buffer, optimize your PCR assay annealing temperature and titrate ${\rm MgCl}_2$ and enzyme concentration.



Made-to-Order 2X PCR Master Mixes



PCR

Component Reagents

MDx Amplification Reagents

Reduce risk and improve assay consistency with a portfolio of amplification products manufactured under stringent conditions and specifications ensuring product consistency and quality.

Work with High-Quality Reagents.

Additional QC testing of reagents including tests for DNA contamination (bacterial, fungal, and mammalian). Products are supplied with a Certificate of Analysis containing lot specific QC data.

Use consistently performing product.

Manufactured under cGMP using validated equipment, processes, and methods.

Use in Molecular Diagnostic Amplification Assays.

These products are General Purpose Reagents intended for general laboratory use and are suitable for use as components of molecular diagnostic assays, where applicable country laws allow.

Separate license or royalty payments are not required.

Take Advantage of Custom Solutions.

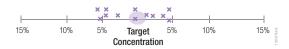
Flexible product formats and fomulations available.

GoTaq® MDx DNA Polymerases

High-quality, robustly performing, *rTaq* polymerase enzyme formulations.

Lot-to-lot Consistency

GoTaq® MDx DNA Polymerase products are cGMP-manufactured under a certified Quality System to ensure consistent performance.



Variance of 12 separately manufacturing lots of product from manufacture target concentration.

MULTIPLE FORMATS	
GoTaq® MDx Polymerase	Ideal for routine PCR and PCR assays that require 5'→3' exonuclease activity.
GoTaq® MDx Hot Start Polymerase	Ideal for hot-start PCR. A proprietary antibody blocks polymerase activity until the initial denaturation step.
GoTaq® MDx Polymerases, Glycerol-free	Lyophilization-ready format amenable to further manufacturing processes due to a significantly lower glycerol content

GoScript™ Reverse Transcriptase*

Specifically optimized for RT-qPCR ensuring reliable cDNA synthesis even with challenging templates

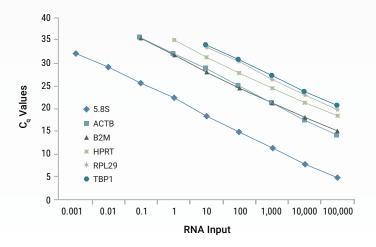
GoScript™ Reverse Transcriptase utilizes M-MLV reverse transcriptase enzyme and state-of-theart buffer designed to deliver robust, reliable cDNA synthesis of a full range of rare and abundant transcripts from 5ug down to 1pg of RNA input.

Resilient: Synthesizes cDNA in the presence of strong PCR inhibitors

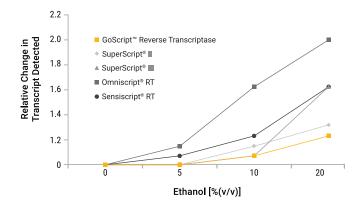
Reliable: Processes through secondary structure

Sensitive: Transcribes both high copy and low copy messages

Processive: Transcribes short and long transcripts



Direct quantification of six different targets in human total RNA using GoTaq® 2-Step RT-qPCR System. Nine parallel large-scale GoScript™ RT reactions were performed, containing log-fold variations of input human reference total RNA (10ng/µl to 0.1fg/µl). Fractions (10µl) of each reverse transcription reaction product were sampled directly in triplicate GoTaq® qPCR reactions. Each assay was designed to be specific for a different RNA target with an anticipated, proportionally different expression level: extremely high (5.8S rRNA), high (ACTB and B2M), moderate (HPRT) or low (RPL29 and TBP1).



Comparison of reverse transcriptase systems. An in vitro-transcribed RNA was reverse transcribed using oligo(dT) primer according to the manufacturer's instructions. Reverse transcription was carried out in the absence and presence of ethanol (5%, 10% and 20%). cDNA was analyzed by qPCR using GoTaq® qPCR Master Mix. Changes in cycle threshold values in the absence and presence of ethanol were determined and converted to relative change in transcript level = (2C_inhibitor – C_none).

^{*}GoScript™ Reverse Transcriptase manufactured under cGMP estimated availability end of 2017.

25mM MgCl₉ Solution

Manufactured under cGMP suitable for use as a component of MDx assays where applicable country laws allow.

- 25mM (+/- 5%) MgCl₂ Solution
- Undetectable nuclease contamination

PCR Buffers

Each of the eight 5x PCR Buffers supplied in the PCR Optimization kit are available as an individual stand-alone product supplied with 25mM MgCl₂ Solution and GoTaq® MDx Hot Start Polymerase.

High Quality

Intended for general laboratory use and may be used as a component of PCR-based molecular diagnostic assays, where applicable country laws allow.

- Manufactured under cGMP
- General Purpose Reagent (GPR)
- QC tested to ensure minimal potential PCR interfering contaminants such as nucleases or DNA.

Application Specific Performance

Use the PCR Optimization Kit (contains all 8 Buffers) to identify that ideal PCR buffer that contributes to a PCR assay that achieves:

- Specificity
- Reproducibility
- Linearity
- Sensitivity
- Efficiency

Nucleotides (dNTPs)

High-quality deoxyribonucleotide triphosphates (dNTPs) manufactured to the highest purity standards suitable for the most sensitive molecular biology applications

High Purity: Extensively purified to yield ≥99% triphosphate and ≤0.9% Di-Monophosphate to enhance incorporation and yield optimal experimental results (HPLC).

Undetectable Nuclease Contamination:

No detectable RNase, DNase and nicknase activity to reduce false negative results.

Extended Shelf-Life: Stable for 36 months at -20°C.

Consistent Performance: Manufactured under cGMP using validated equipment, processes, and methods.

Functionally Tested: Quality control tested, including performance in molecular biology applications.

Flexible: Available as individual, pre-mixed and packs.

*GoScript™ Reverse Transcriptase manufactured under cGMP estimated availability end of 2017.

Ordering Information

PCR Optimization Kit

A kit of pre-formulated PCR master mix components used to perform a short series of amplification experiments with user provided primers/probes to survey and quickly identify the optimal PCR amplification reaction conditions specific to the user's application. The PCR Optimization kit includes: 5X PCR Buffers (A–H), 500u GoTaq® MDx Hot Start Polymerase, and 1.2ml MgCl₂ Solution. Product is manufactured under cGMP.

Product	Size	Cat.#
PCR Optimization Kit	1 kit	D2381

Made-to-Order Master Mixes

Please visit www.promega.com/made-to-order to learn more.

GoTaq® MDx DNA Polymerases

GoTaq® MDX DNA polymerases are full-length form of Taq DNA Polymerase that exhibits $5'\!\to\! 3'$ exonuclease activity. GoTaq® MDx Hot Start Polymerase contain the GoTaq® MDx DNA polymerase bound to a proprietary antibody that blocks polymerase activity that is restored during an initial denaturation step when amplification reactions are heated at $94^\circ\!-\!95^\circ C$ for two minutes. Glycerol-free product formulations are further purified to remove glycerol, making them suitable for further manufacture processing and lyophiliziation. Products are manufactured under cGMP.

<i>3</i> .		
Product	Size	Cat.#
GoTaq® MDx Hot Start Polymerase (≥ 5u/µl)	100u	D6001
	500u	D6005
	2,500u	D6006
	10,000u	D6008
GoTaq® MDx Hot Start Polymerase, High Concentration (≥ 50u/µI)	1,000u	D6101
GoTaq® MDx Hot Start Polymerase, Glycerol-Free (≥ 5u/µl)	500u	D6201
GoTaq® MDx DNA Polymerase (≥ 5u/µl)	100u	D4001
	500u	D4005
	2,500u	D4006
GoTaq® MDx DNA Polymerase, Glycerol-Free		
(≥ 5u/µl)	500u	D4101

Reverse Transcriptase

Product	Size	Cat.#
GoScript [™] Reverse Transcription System	50 reactions	A5000
	100 reactions	A5001
GoScript [™] Reverse Transcription Mix, Oligo(dT)	50 reactions	A2790
	100 reactions	A2791
GoScript™ Reverse Transcription Mix, Random Primers	50 reactions	A2800
	100 reactions	A2801

dNTPs

Dependable, PCR-tested deoxynucleotides supplied pre-mixed* in water for easy PCR or other reaction set-up. Products are manufactured under cGMP.

Product	Size	Cat.#
PCR Nucleotide Mix	200µl 10mM	C1141
	1ml 10mM	C1145
	200µl 25mM	U1431
	1ml 25mM	U1432

^{*}Individual nucleotides (dA,dG,dC,dT,dUTP) manufactured under cGMP are available in bulk product formats. Please inquire.

5X PCR Buffers

A proprietary PCR buffer formulation that include dNTPs (A,G,C,T) supplied in 5X concentration. Product includes 500u GoTaq® MDx Hot Start Polymerase and 1.2ml MgCl₂ Solution. Products are manufactured under cGMP.

Product	Size	Cat.#
5X PCR Buffer A	1ml	D2301
5X PCR Buffer B	1ml	D2311
5X PCR Buffer C	1ml	D2321
5X PCR Buffer D	1ml	D2331
5X PCR Buffer E	1ml	D2341
5X PCR Buffer F	1ml	D2351
5X PCR Buffer G	1ml	D2361
5X PCR Buffer H	1ml	D2371

Related Products

Product	Size	Cat.#
Recombinant RNasin® Ribonuclease Inhibitor	2,500u	N2511
	10,000u	N2515
RNasin® Plus RNase Inhibitor	2,500u	N2611
	10,000u	N2615





GoTaq® Probe-based Real-Time PCR Systems

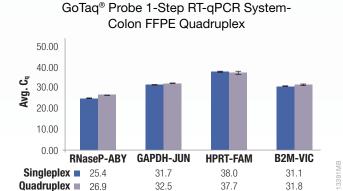
Sensitive, Resistant-to-PCR-Inhibitors, Ready-To-Use Master Mixes

The GoTaq® Probe qPCR and RT-qPCR Systems are ready-to-use 2X master mixes that simplify reaction assembly for qPCR using hydrolysis probe detection. These systems are designed for sensitive detection and quantification of a broad range of DNA or RNA targets, in the presence of a wide range of PCR inhibitors.

Superior Performance: Sensitive detection for earlier quantitation of low- and high-copy number targets over a broad dynamic range.

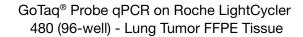
Versatile: Amenable to both fast and standard cycling methods on most real-time PCR instrument using TaqMan® and other probe assays such as molecular beacons.

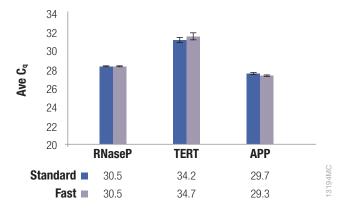
Enhanced Stability: Exceptional room-temperature setup is easy for automated and high-throughput detection.



Optimized formulation compatible with multiplexing qPCR assays:

Gene expression of RNaseP (ABY), GAPDH (JUN), HPRT (FAM), and B2M (VIC) was analyzed from 20ng of RNA purified from human colon FFPE blocks in singleplex and quadruplex using the GoTaq® Probe 1-Step RT-qPCR System (Cat.# A6120) on an ABI 7500 FAST instrument.





Compatible with both standard and fast thermal cycling conditions on a variety of instruments:

DNA (10ng) from whole blood was amplified using the GoTaq® Probe qPCR Master Mix (Cat.# A6102) under both standard and fast thermalcycling conditions using a Roche LightCycler® 480 instrument with a 96 well block. Equivalent C_q values were observed for RNase P and APP.

GoTaq® Dye-based Real-Time PCR Systems

The BRYT Choice for Precision Detection over a Broad Range with Specificity & Sensitivity

The GoTaq® qPCR and RT-qPCR Systems are ready-to-use, 2X master mixes containing BRYT Green® Dye, a novel fluorescent DNA binding dye with minimal PCR inhibition for maximum amplification efficiency over a broad range of detection with reproducibility and sensitivity.

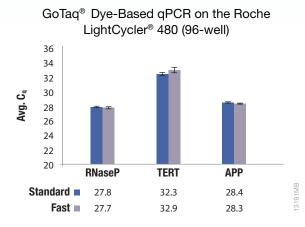
Brighter Signal: Bright in the presence of dsDNA, minimal fluorescence with no dsDNA and higher fluorescence when compared to SYBR® Green I.

Extraordinary DNA melt curve performance:

Minimal PCR inhibition permitting use of saturation dye concentration for maximal signal.

Enhanced Stability: High stability during storage or under extreme PCR conditions. Room-temperature stability makes it suitable for automation and high-throughput detection.

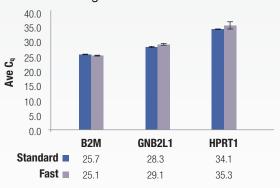
Compatibility: Compatible with any instrument capable of reading SYBR® Green I or FAM™ Dyes.



$\ensuremath{\mathsf{qPCR}}$ amplification of DNA from Lung tumor FFPE samples.

DNA (10ng) from a lung tumor FFPE sample was amplified using the GoTaq® qPCR Master Mix (Cat.# A6002) under both standard and Fast thermalcycling conditions on a Roche Lightcycler 480 instrument using a 96 well plate. Equivalent $C_{\rm q}$ values were observed for the three genes evaluated regardless of cycling conditions used for the experiment.

GoTaq® 1-Step RT-qPCR on ABI 7500 -Lung Tumor FFPE Tissue



RT-qPCR amplification of RNA from lung tumor FFPE samples. Gene expression levels for B2M, GNB2L1, and HPRT1 genes were determined via 1-Step RT-qPCR using 10ng of lung tumor FFPE RNA with the GoTaq $^{\otimes}$ 1-Step RT-qPCR System (Cat.# A6020) on an ABI 7500 using both standard and Fast thermalcycling conditions. Equivalent $\mathrm{C_q}$ values were observed for the three genes evaluated regardless of cycling conditions used for the experiment.

Ordering Information

Probe-Based Detection

Product	Size	Cat.#
GoTaq® Probe qPCR Master Mix	2ml	A6101
	10ml	A6102
GoTaq® Probe 2-Step RT-qPCR System	2ml	A6110
GoTaq® Probe 1-Step RT-qPCR System	2ml	A6120

Dye-Based Detection

Product	Size	Cat.#
GoTaq® qPCR Master Mix	Mix	A6001
		A6002
GoTaq® 2-Step RT-qPCR System	5ml	A6010
GoTaq® 1-Step RT-qPCR System	5ml	A6020

Genetic Analysis Systems

Microsatellite Instability Analysis System (MSI) For Colorectal Cancer, Lynch Syndrome and Immuno-Oncology Research

The MSI Analysis System, Version 1.2, is a fluorescent multiplex PCR-based method for detecting microsatellite instability (MSI). MSI is a form of genomic instability caused by the insertion or deletion of repeating bases called microsatellites during DNA replication and the failure of the mismatch repair system (MMR) to correct these errors.

Adaptable Workflow:

Easy fluorescent multiplex PCRbased method that identifies genomic instability. Can utilize the same DNA extracted from precious research samples.

Simple, Quick Turnaround:

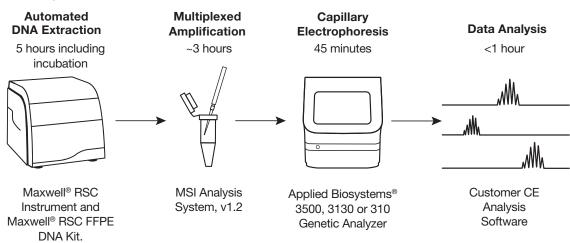
Compared with NGS-based tumor mutation burden (TMB), the Promega MSI System has quicker turnaround, is less costly and is easier to interpret.

Established Technology:

MSI is a functional test to identify MMR dysfunction. Since 2004, the CAP Molecular Oncology Committee has been offering MSI proficiency testing, and MSI is implicated as an important predictive biomarker.

• Referenced in 120+ peer reviewed publications

MSI Analysis Workflow



In a routine research laboratory, the time from sample input to MSI status determination can range from overnight to two days. With the MSI Analysis System, you can have data ready for analysis overnight.

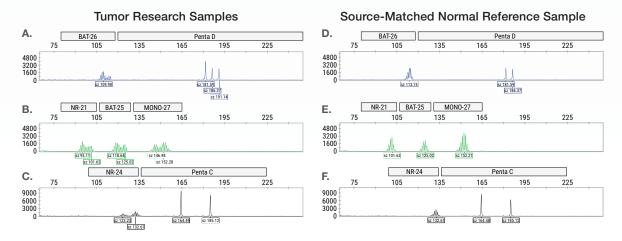
Co-amplification of Seven Markers Offers Sensitivity

The MSI Analysis System, Version 1.2, includes fluorescently labeled primers for co-amplification of seven markers, including five nearly monomorphic mononucleotide repeat markers (BAT-25, BAT-26, MONO-27, NR-21 and NR-24) and two highly polymorphic pentanucleotide repeat markers (Penta C and Penta D). Amplified fragments are detected using an ABI PRISM® 310, 3100, 3100-Avant, 3130 or 3130xl, and 3500 or 3500xl Genetic Analyzer after spectral calibration.

Panels and bins text files simplify and standardize data analysis by providing automated assignment of fragment lengths using GeneMapper® 4.0, 4.1, or 5.0 software.

Characterizing MSI Status

MSI analysis typically involves comparing allelic profiles of microsatellite markers generated by amplification from matching pairs of test samples. The presence of alleles in the abnormal sample that are not found in the corresponding normal sample are indicative of MSI.



Panels A, B, and **C** were generated with research consented colorectal cancer using an Applied Biosystems® 3500 xL Genetic Analyzer. After comparison to its source-matched normal reference sample (Panels D, E and F, right), microsatellite instability is noted at markers BAT-26, NR-21, BAT-25, MONO-27, and NR-24 and is considered MSI high (MSI-H). **Panels D, E,** and **F** were generated with normal reference tissue from the same source individual as the research consented colorectal cancer using an Applied Biosystems® 3500 xL Genetic Analyzer.

Ordering Information

Product	Size	Cat.#	
MSI Analysis System, v1.2	100 reactions	MD1641	
Related Products	Size	Cat.#	
PowerPlex® 4C Matrix Standard	5 preps	DG4800	
Maxwell® RSC DNA FFPE Kit	48 preps	AS1450	

Mixed Sample Analysis and Monitoring

Short tandem repeat (STR) analysis is an informative approach to genetic identification and commonly associated with DNA testing. STR loci consist of repetitive sequence elements 3–7 base pairs in length. These highly discriminative markers can be detected using rapid and inexpensive multiplex-PCR based methods. Promega has deep expertise in providing forensic-quality and highly robust STR systems.

There are many uses for STR analysis such as verifying tissue sample origins, authenticating cell lines, detecting tissue or cell mixtures, determining twin zygosity and tracking genetic mutations in oncology-related research studies.

The GenePrint® 24 System is a 24-locus multiplex system designed to generate a multi-locus human DNA profile from a variety of human-derived biological sources.

The GenePrint® 24 System is compatible with 2.5–5ng of extracted DNA samples with fewer PCR cycles in lower reaction volumes than previous STR systems. The small kit size (100 reactions) and low reaction volume (12.5µl) provides an economical benefit as well.

With the The GenePrint® 24 System you can:

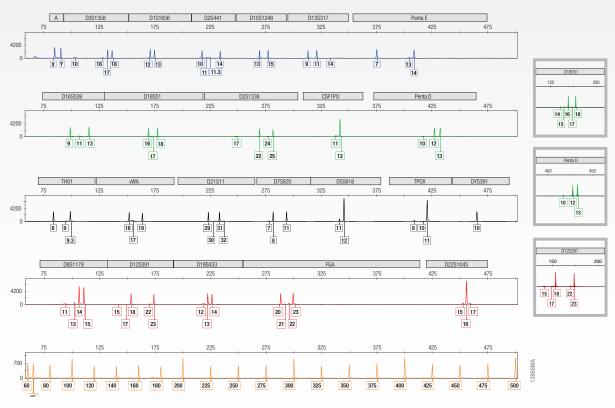
- Implement a simple workflow matching your laboratory structure with protocols compatible for POP-4 and POP-7 in multiple CE instruments and capillary arrays.
- Obtain optimal heterozygote balance using up to 5ng of DNA template.
- Achieve better consistency in detecting low level mixtures.
- Identify unique alleles to resolve complex mixtures from related individuals or multiple sources.
- Simplify implementation and continuity using loci in concordance with previously generated data.

- Improve productivity with rapid-cycling and more loci.
- Employ analysis methods for GeneMapper® and GeneMarker® software.

Configuration of the GenePrint® 24 System



Co-amplification and five-color detection of 24 loci, D3S1358, D1S1656, D2S441, D10S1248, D13S317, D16S539, D18S51, D2S1338, CSF1PO, TH01, vWA, D21S11, D7S820, D5S818, TPOX, D8S1179, D12S391, D19S433, D22S1045, and FGA plus Penta E, Penta D, DYS391 and Amelogenin.



Mixed Sample Analysis using the GenePrint® 24 System

Five nanograms (5ng) of a known mixture sample at a ratio of 1:19, or 5% minor contributor, was amplified using the GenePrint® 24 System. The top 4 panels show the sample electropherogram separated into separate dye-channels. The expanded side images highlight 3 loci where unique alleles from the minor contributor to the mix are detected.

Ordering Information

GenePrint® and PowerPlex® STR Systems

Product	Size	Cat.#
GenePrint® 24 System	100 reactions	B1870
PowerPlex® Fusion System	200 reactions	DC2402
	800 reactions	DC2408
PowerPlex® Fusion 6C System	50 reactions	DC2705
	200 reactions	DC2720
PowerPlex® Y23 System	50 reactions	DC2305
	200 reactions	DC2320

Related Products

Product	Size	Cat.#
PowerPlex® 4C Matrix Standard	5 preps	DG4800
PowerPlex® 5C Matrix Standard	5 preps	DG4850
GenePrint® 5C Matrix Standard	5 preps	B1930
PowerPlex® 6C Matrix Standard	5 preps	DG4900
Maxwell® RSC Whole Blood DNA Kit	48 preps	AS1520

Spectrum Compact CE System

The Spectrum Compact CE System is an integrated and efficient instrument that brings you the independence to perform Sanger sequencing and fragment analysis in your laboratory, under your control, and at your convenience.

Personal, Benchtop System

Compatible with commercially available sequencing kits

Optimized for a broad range of applications including:

- De novo sequencing
- Mutation detection
- NGS confirmation
- Mitochondrial sequencing
- Re-sequencing

Designed to work with common 4-, 5- and 6-dye commercial STR kits

- Mixed sample analysis
- Microsatellite instability
- Cell line authentication and tissue provenance



More Efficient Operation

4-capillary, 36cm length

Four 8-well strip tubes for up to 32 samples

Integrated touch screen operation

- Easy to use wizard operational workflow.
- Ability to monitor run progress and view analyzes results while a run is in progress.
- Ability to re-inject a sample during current run.
- Consumables and array usage information, as well as system maintenance reminders.
- Export files are compatible with commercially available data analysis software data (.fsa and .ab1 file types supported).





Rely on an Expert Partner

Choose a trusted, flexible partner with the robust and reliable reagents you need for your molecular assay and the experience to support you throughout your assay development process.

- More than 30 years of manufacturing experience.
- Commitment to high-quality standards.
 - ISO 13485 & ISO 9001 certified.
 - cGMP-manufacturing capabilities.

- Consistent and reliable amplification products.
- Flexible, custom, made-to-order solutions available.

Customize Components for Your Diagnostic Application

Unless otherwise stated on the product label, custom components are intended for further manufacturing processing.

Custom Formulation

- GoTag® MDx Hot Start Enzyme
- GoTaq® Master Mixes
- Glycerol-Free Enzymes

Custom Production

- Custom Volume
- Custom Dispense
- Custom Packaging
- Manufactured under a certified Quality Management System

Scientists at Your Service

In Your Laboratory

Our Field Support Scientists (FSS) help you increase laboratory efficiency by providing direct handson support. Your FSS can help get your automated systems up and running faster, as well as troubleshooting Promega assays and manual workflows, helping to streamline your daily activities.

- Implement and optimize Promega technologies on automated systems including:
 - Nucleic acid extraction chemistries.
 - Dye-based nucleic acid quantitation.
 - PCR set-up.
- Help customize protocols for new sample types.
- Improve laboratory efficiency by increasing sample throughput and/or assisting with assay miniaturization.

In Our Laboratory

Working from Promega headquarters, our Scientific Application Scientists (SAS) will customize current products and protocols to create new methods that match your specific requirements.

- Modify Promega protocols for specific sample types and applications.
- Generate data for you demonstrating product performance.

Scientists at Your Service

Experienced Scientists

Promega Field Support and Application Scientists bring years of training and experience.

- >10 years providing technical support for Promega products.
- >15 years developing and adapting Promega technologies to customer requirements.
- >20 years providing advanced support and training to laboratories.
- Experience with over 30 different automation platforms and stand-alone automation systems.

For more information about these teams and how they can support you, please contact your local Promega representative





A Telix

Smart, On-Site Reagent Stocking for the Clinical Lab

The Helix® Programs

- Eliminate extra paperwork and precious time spent ordering your extraction and amplification reagents.
- Prevent on-hand expiry of reagent material.
- Accommodate busy clinical laboratory workflows with access to your reagents 24/7.
- Reduce quality-control laboratory measures with automated shipping schedules and lot control capabilities designed specifically for your laboratory processes.
- Simplify laboratory supply purchasing with eProcurement integration.





To learn more, please visit: www.promega.com/Helix

