

I. Nucleic Acid Sample Preparation

A. Column Preparation

Advantages:

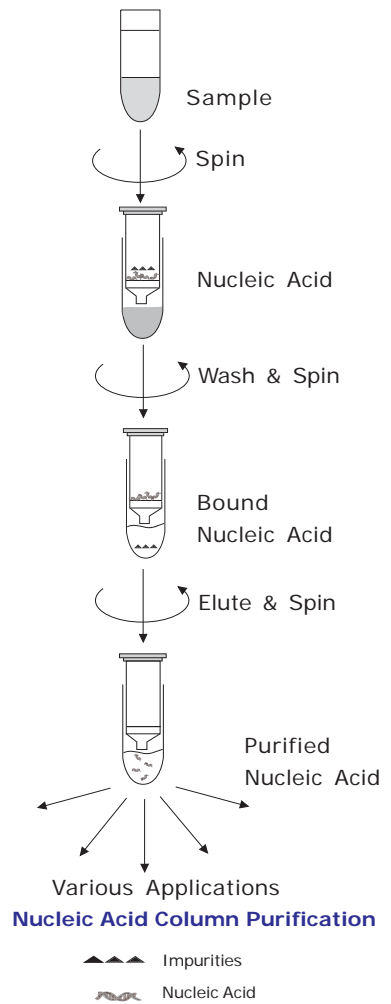
- √ Rapid isolation of high quality DNA and RNA
- √ Extracted DNA is ready for PCR amplification
- √ Extracted RNA is ready for RT-PCR
- √ Consistent, high yields

Maxim's nucleic acid isolation kits use column purification methods and provide all the necessary reagents and protocols to extract high quality DNA and RNA from a diversity of sample material. Use of these kits precludes the need for phenol, chloroform or other organic extraction. The DNA/RNA isolated is free of proteins and degrading enzymes and may be used directly for RFLP, restriction digests, cloning, Southern blotting, PCR amplification, among other DNA analysis techniques.

1. Blood DNA Sample Isolation Column Kit

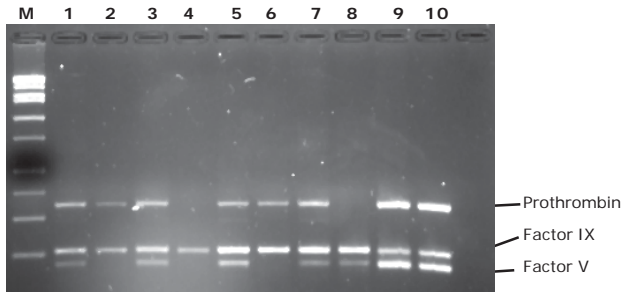
Product	Blood DNA Sample Isolation Column Kit
Kit Components	Spin Columns BD-1 Solution Protease Lysis Solution Wash Buffer Elution Solution
Storage	Store at 22-25 °C
Sample Source	Fresh or frozen whole blood
Sample size	500 µL
Elution Volume	2x100 µL

The Blood DNA Sample Preparation Column Kit offers a quick and easy way to isolate DNA from whole blood samples using isolation methods based on binding nucleic acid to column membrane. The purified DNA can be used directly for PCR amplification. The following example is demonstrated by PCR amplification with allelic specific primers and column isolated blood DNA samples.



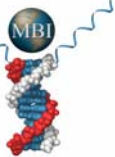
Genomic DNA is isolated with Maxim's blood DAN sample isolation column kit (Cat. No. SA-40007) and is further quality validation of human thrombosis MPCR Kit

- Lane M: DNA M.W. Marker
- Lane 1: PCR using wild type MPCR primers with patient #1 DNA
- Lane 2: PCR using mutant type MPCR primers with patient #1 DNA
- Lane 3: PCR using wild type MPCR primers with patient #2 DNA
- Lane 4: PCR using mutant type MPCR primers with patient #2 DNA
- Lane 5: PCR using wild type MPCR primers with patient #3 DNA
- Lane 6: PCR using mutant type MPCR primers with patient #3 DNA
- Lane 7: PCR using wild type MPCR primers with patient #4 DNA
- Lane 8: PCR using mutant type MPCR primers with patient #4 DNA
- Lane 9: PCR using wild type MPCR primers with wild type positive control
- Lane 10: PCR using mutant type MPCR primers with mutant type positive control



Order Information

Cat. No.	Product Description	Rxns.
SA-40008	Blood DNA Sample Isolation Column Kit	50
SA-40007	Blood DNA Sample Isolation Column Kit	100

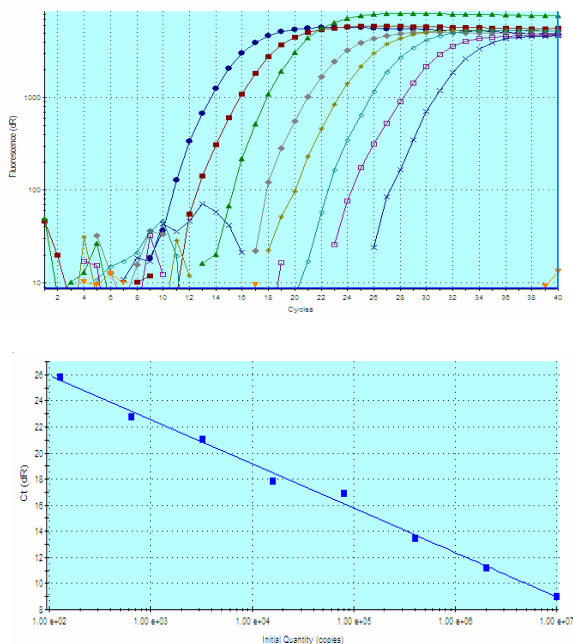


2. Viral DNA/RNA Isolation Column Kit

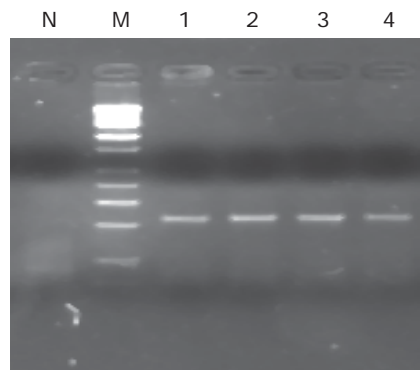
Product	Viral DNA/RNA Isolation Column Kit
Kit Components	Spin Columns Carrier Solution Lysis Solution Wash Buffer Elution Solution
Storage	Store at 22 – 25 °C
Sample Source	Plasma, serum, urine, cell-culture, supernatant, or cell-free body fluid
Sample Size	140 µL or 1 x 10 ⁵ cells
Elution Volume	2X 40 µL

The Viral DNA/RNA Isolation Column Kit provides a fast, easy method to isolate high quality DNA and RNA from a variety of fluids using isolation methods based on binding nucleic acid to column membrane. Extracted DNA can be used directly for PCR amplification, RNA for RT-PCR amplification.

Panel A:



Panel B:



Different HCV patient's Sera RNA were isolated using the Viral DNA/RNA Isolation Column Kit.

Lane N: Negative Control
Lane M: DNA M.W. marker
Lane 1: HCV RT-PCR amplicon from patient #1
Lane 2: HCV RT-PCR amplicon from patient #2
Lane 3: HCV RT-PCR amplicon from patient #3
Lane 4: HCV RT-PCR amplicon from patient #4

Single-Step RT-QPCR for HCV.

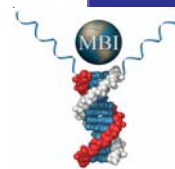
HCV RNA was isolated from HCV-positive patients' serum using **SA-40009**.

Panels A (left) was the amplification profiles of serial 5-fold dilutions of a cDNA synthesis reaction amplified with Maxim's **RT-40003** and **TM-60047/TP-10047** TaqMan assay.

Panels B (right) was the regular Single-Step RT-PCR amplification with different HCV-positive patients' serum. RT-PCR results were analyzed by EtBr agarose gel.

Order Information

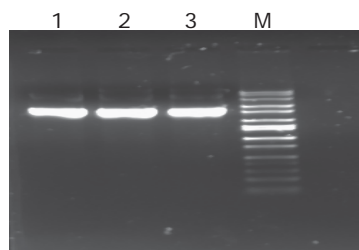
<u>Cat. No.</u>	<u>Product Description</u>	<u>Rxns.</u>
SA-40010	Viral DNA/RNA Isolation Column Kit	50
SA-40009	Viral DNA/RNA Isolation Column Kit	100



3. Plasmid DNA Isolation Column Kit

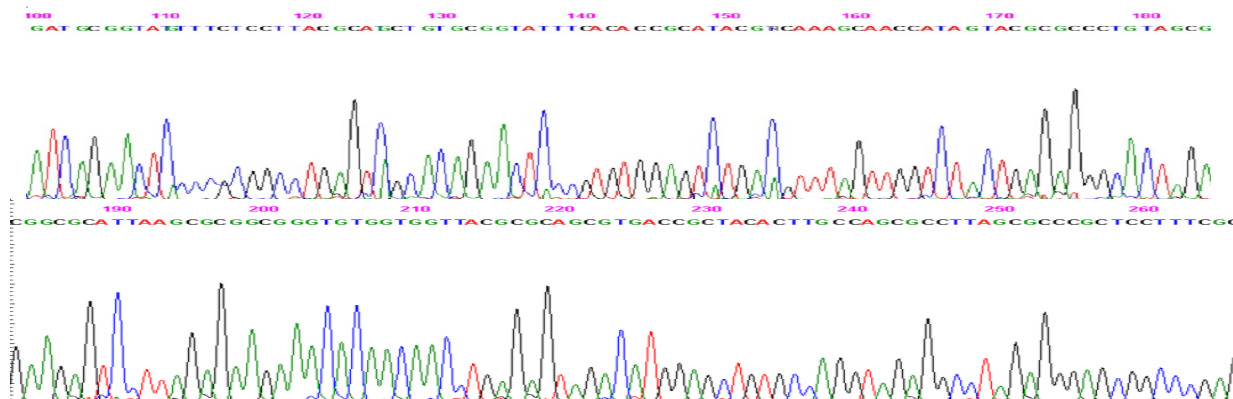
Product	Plasmid DNA Isolation Column Kit
Kit Components	Spin Columns Resuspension Solution Lysis Solution Neutralization Solution Wash Solution Elution Solution
Storage	Store at 22-25 °C
Sample Source	Bacterial cell culture
Sample Volume	1.5 – 5 mL
Elution Volume	60-100 µL

The Plasmid DNA Isolation Column Kit offers a quick, efficient, and convenient means to extract high quality DNA from bacterial cell culture through purification methods based on binding nucleic acid to column membrane. Extracted DNA can be used directly for a variety of genetic applications without further manipulation.



Three genotypes of pASA plasmid DNA were isolated using Maxim Plasmid DNA Isolation Kit.

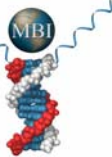
Lane 1: Wild-Type factor V gene (Genotype G/G)
Lane 2: Hetero-Type factor V gene (Genotype G/A)
Lane 3: Homo-Type factor V gene (Genotype A/A)
Lane M: DNA M.W. marker



A typical example of plasmid sequencing result.
Plasmids are purified by Maxim's plasmid DNA isolation column kit.

Order Information

<u>Cat. No.</u>	<u>Product Description</u>	<u>Rxns.</u>
SA-40012	Plasmid DNA Isolation Column Kit	50
SA-40011	Plasmid DNA Isolation Column Kit	100



B. Chemical Preparation

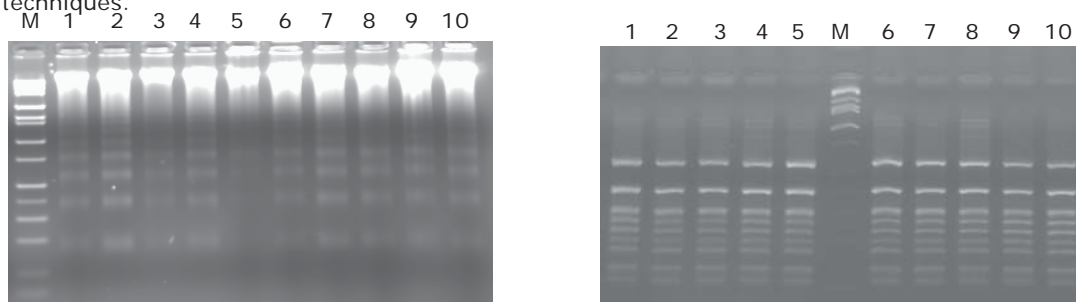
1. BDtract Genomic DNA Isolation Kit

Features:

- ✓ **Economical, Fast, and Simple**
- ✓ **High DNA Yield:** 30-40 µg/mL blood
- ✓ **Ultra Purity:** A_{260}/A_{280} ratio of 1.8 – 1.9
- ✓ **Low contamination:** No RNA, Protein, or degrading enzyme contamination
- ✓ **Non-toxic:** No phenol, chloroform, or other toxic extractions
- ✓ **Stable:** Reagents stored at room temperature

Product	BDtract Genomic DNA Isolation Kit
Preparation Time	Approximately one hour
Kit Components	Cell lysis buffer RBC wash buffer Nuclei lysis buffer RNase solution Protein precipitate solution Optimized protocol
Storage	22-25 °C
Sample Source	Whole blood Cultured cells Tissue Bacteria
Sample Size	<i>Cells grown in suspension:</i> 5-10 X 10 ⁶ cells <i>Cells grown in monolayer:</i> 100mm culture dish <i>Tissue:</i> 50-100 mg <i>Bacteria:</i> 1-5 mL Blood: 2.5 ml

Maxim's Genomic DNA Isolation Kit provides all the necessary reagents and protocols for quickly extracting high-molecular-weight DNA from whole blood, cultured cells, tissue, and bacteria. This kit precludes the need for phenol, chloroform or other organic extraction. RNA is removed by treatment with DNase-free RNases. Proteins are further removed by salt precipitation. Genomic DNA isolation is achieved through alcohol precipitation and then dissolved in TE buffer. The purified DNA is free of RNA, proteins, and degrading enzymes, and may be used directly for RFLP, restriction digests, cloning, Southern blotting, PCR amplification, and other DNA analysis techniques.



Blood Samples were stored at 4°C for 2 months.

Genomic DNA was purified using Maxim BDtract Genomic DNA Isolation Kit (Left Figure).

100 ng of each purified DNA was further validated with Maxim's DMD-M150 MPCR Kit (Right Figure).

Lane M: DNA M.W. Marker

Lane 1-10: individual patient #1-10.

Order Information

<u>Cat. No.</u>	<u>Product Description</u>	<u>Rxns.</u>
SA-40002	BDtract Genomic DNA Isolation Kit	50
SA-40001	BDtract Genomic DNA Isolation Kit	100

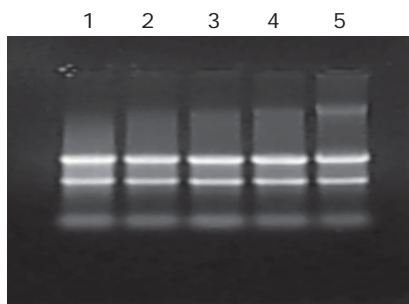
2. RDtract DNA/RNA Isolation Kit

Features:

- √ Economical, fast, and simple
- √ High RNA & DNA yields
- √ No protein, or degrading enzyme contamination
- √ No phenol or β -mercaptoethanol extraction
- √ Reagents stable at room temperature

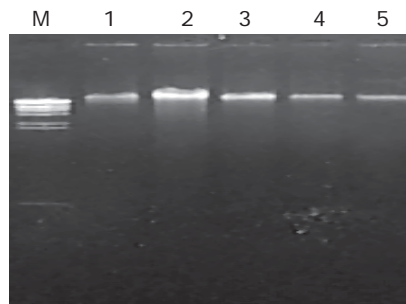
Product	RDtract DNA/RNA Isolation Kit
Preparation Time	1 hour RNA; 3 hours DNA
Kit Components	Lysis Buffer RNA Precipitate Reagent Reverse Extraction Reagent for DNA DNA Precipitate Reagent Optimized Protocol
Storage	22-25 °C
Reagents Needed	Chloroform (ACS grade) Isopropanol (ACS grade) 75% Ethanol (ACS grade)
Sample Source	Cultured cells grown in suspension Cultured cells grown in monolayer Blood Bacteria
Sample Size	<i>Cells grown in suspension:</i> 1-2x10 ⁶ cells <i>Cultured cells grown in monolayer:</i> 1-6 wells of a 6 well culture dish <i>Blood:</i> 1.0 mL whole blood <i>Bacteria:</i> 0.5mL bacterial culture

The RNA/DNA Isolation Kit is a simple and easy method to simultaneously isolate RNA and DNA from tissue cultured cells, blood, and bacteria. The extracted RNA is free of DNA, protein, and degrading enzyme contamination and can be used for Northern blot analysis, in vitro translation, microinjection, RNase protection assays, RT-PCR, and poly (A)⁺ selection. Extracted DNA is free from RNA and protein contamination, and greater than 40kb in length. DNA can be used for Southern hybridization and PCR amplification.



Total RNA isolated from culture cells using RDtract RNA/DNA Isolation Kit.

Lane 1: 5 μ g total RNA from HeLa cells
Lane 2: 5 μ g total RNA from P388D-1 cells
Lane 3: 5 μ g total RNA from Jurket cells
Lane 4: 5 μ g total RNA from Caski cells
Lane 5: 5 μ g total RNA from SiHa cells

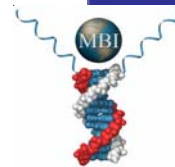


DNA isolated from culture cells using RDtract RNA/DNA Isolation Kit.

Lane M: DNA M.W. marker
Lane 1: DNA isolated from HeLa cells
Lane 2: DNA isolated from P388D-1 cells
Lane 3: DNA isolated from Jurket cells
Lane 4: DNA isolated from Caski cells
Lane 5: DNA isolated from SiHa cells

Order Information

<u>Cat. No.</u>	<u>Product Description</u>	<u>Rxns.</u>
SA-40004	RDtract RNA/DNA Isolation Kit	50
SA-40003	RDtract RNA/DNA Isolation Kit	100



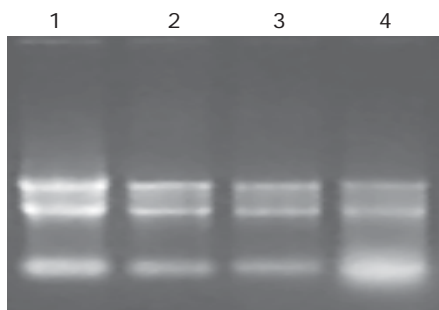
3. GStract Total RNA Isolation Kit

Features:

- √ Economical, fast, and simple
- √ High RNA yield
- √ Extract RNA from any cell or tissue source
- √ Ultra purity: A_{260} / A_{280} ratio of 1.8 - 1.9
- √ No DNA or protein contamination

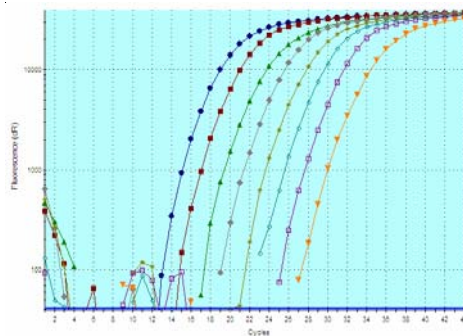
Product	GStract Total RNA Isolation Kit
Preparation Time	Approximately 30 minutes
Kit Components	Cell lysis buffer Total RNA purification buffer Optimized protocol
Storage	4 ° C
Reagents Needed	H ₂ O-Saturated phenol Chloroform (ACS grade) Isopropanol (ACS grade) 75% Ethanol (ACS grade)
Sample Source	Tissue Cells grown in suspension Cells grown in monolayer Bacteria
Sample Size	<i>Tissue:</i> 50-100mg <i>Cells grown in suspension:</i> 5-10x10 ⁶ cells <i>Cells grown in monolayer:</i> 100mm culture dish <i>Bacteria:</i> 1-5mL bacterial culture

Maxim's total RNA Isolation Kit allows the isolation of intact high quality, full-length RNA from virtually any tissue or cell. The method is based on a guanidinium isothiocyanate extraction. The kit procedure includes a further extraction step to eliminate DNA, polysaccharides, and other contaminants. Extracted RNA can be used directly for Northern blot analysis, RNase protection assays, RT-PCR, Poly (A)+ selection, and in vitro translation.



Total RNA isolated from Mouse tissues using GStract RNA Isolation Kit.

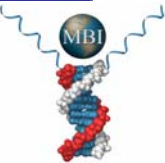
Lane 1: Mouse brain total RNA
Lane 2: Mouse heart total RNA
Lane 3: Mouse lung total RNA
Lane 4: Mouse spleen total RNA



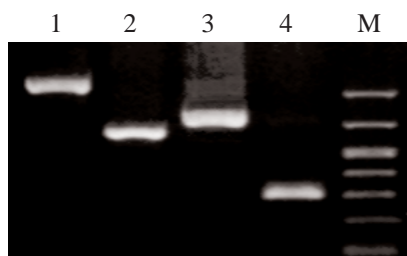
One-step RT-PCR of Interleukin-6 fragment from 100 ng-1 pg (5-fold series dilution) of total HeLa RNA (using GStract RNA Isolation Kit.). Reactions were carried out on the Stratagene Mx3000P Detection System.

Order Information

<u>Cat. No.</u>	<u>Product Description</u>	<u>Rxns.</u>
SA-40006	GStract Total RNA Isolation Kit	50
SA-40005	GStract Total RNA Isolation Kit	100



II. PCR-Ready cDNA



RT-PCR performed using PCR-ready cDNA and following primer pairs

Lane 1: BAC-1001/1007
Lane 2: BAC-1001/1004
Lane 3: BAC-1008/1007
Lane 4: BAC-1008/1004
Lane M: DNA M.W. marker

The PCR-Ready cDNA is synthesized with an oligo(dT) anchor primer and subsequently converted into ds cDNA. All cDNAs have been tested using one of house-keeping genes and one of the low copy genes.

Sufficient cDNAs & reagents are provided for 30X 50 μ l PCR reactions. PCR protocol is provided in the manual.

Reference

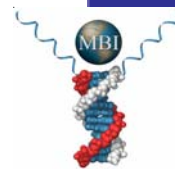
Belyavski, A., et al. (1989) NAR. 17:2919.

Kit Components

- PCR-Ready cDNA
- Control PCR primers
- Manual

Order Information

	<u>mRNA Source</u>	<u>Cat. No.</u>
Human	Human Adipose	PC-40001
	Human Brain (whole)	PC-40002
	Human Breast	PC-40003
	Human Heart	PC-40004
	Human Small Intestine	PC-40005
	Human Kidney	PC-40006
	Human Liver	PC-40007
	Human Lung	PC-40008
	Human Lymph Node	PC-40009
	Human Monocyte	PC-40010
	Human Ovary	PC-40011
	Human Pancreas	PC-40012
	Human Placenta	PC-40013
	Human Prostate	PC-40014
	Human Skeletal Muscle	PC-40015
	Human Spleen	PC-40016
	Human Stomach	PC-40017
	Human T-cells (JURKAT)	PC-40018
	Human Testis	PC-40019
	Human Uterus	PC-40020
Mouse	Human Leukemia Chronic Myelogenous K562	PC-40021
	Human Leukemia Promyelocytic, HL-60	PC-40022
	Mouse Brain	PC-40023
	Mouse Heart	PC-40024
	Mouse Kidney	PC-40025
	Mouse Liver	PC-40026
	Mouse Lung	PC-40027
	Mouse Spleen	PC-40028
	Mouse Small Intestine	PC-40029
	Mouse Thymus	PC-40030

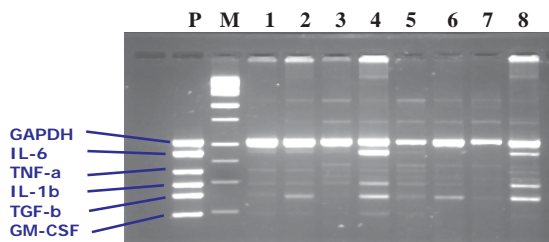
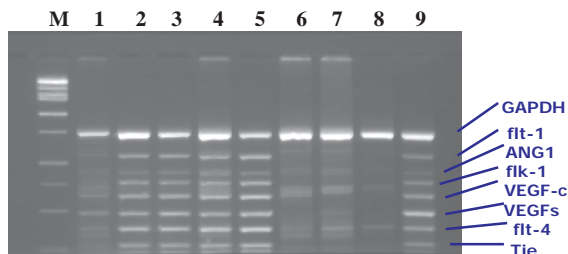


	<u>mRNA Source</u>	<u>Cat. No.</u>
Rat	Rat Bladder	PC-40031
	Rat Heart	PC-40032
	Rat Lung	PC-40033
	Rat Liver	PC-40034
	Rat Kidney	PC-40035
	Rat Brain	PC-40036
	Rat Splen	PC-40037
	Rat Intestine	PC-40038

Multiple Genes Expression Screening

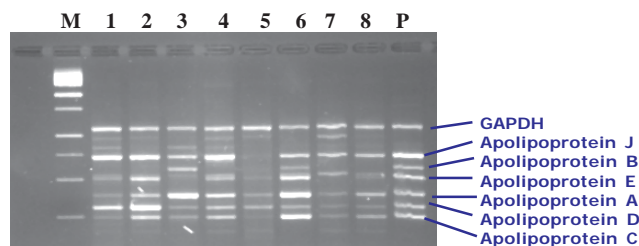
Gene Expression of Different Sources of Human cDNA with Maxim MPCR kit MP-70173

- Lane 1: Human Bladder cDNA
- Lane 2: Human Heart cDNA
- Lane 3: Human Lung cDNA
- Lane 4: Human Liver cDNA
- Lane 5: Human Placenta cDNA
- Lane 6: Human Ovary cDNA
- Lane 7: Human Small Intestine cDNA
- Lane 8: Human Testis cDNA
- Lane 9: Human Breast cDNA
- Lane M: DNA M.W. Marker



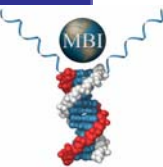
Gene Expression of Different Sources of Mouse cDNA with Maxim MPCR kit MP-70103

- Lane 1: Mouse Brain cDNA
- Lane 2: Mouse Heart cDNA
- Lane 3: Mouse Lung cDNA
- Lane 4: Mouse Placenta cDNA
- Lane 5: Mouse Lung cDNA
- Lane 6: Mouse Thymus cDNA
- Lane 7: Mouse Small Intestine cDNA
- Lane 8: Mouse Spleen cDNA
- Lane P: Positive Control form the kit
- Lane M: DNA M.W. Marker



Gene Expression of Different Sources Rat cDNA with Maxim MPCR Kit MP-70002

- Lane 1: Rat Bladder cDNA
- Lane 2: Rat Brain cDNA
- Lane 3: Rat Heart cDNA
- Lane 4: Rat Small Intestine cDNA
- Lane 5: Rat Kidney cDNA
- Lane 6: Rat Kiver cDNA
- Lane 7: Rat Lung cDNA
- Lane 8: Rat Spleen cDNA
- Lane P: Positive Control from the kit
- Lane M: DNA M.W. Marker



III. In Stock DNA and Total RNA

In stock DNA/ total RNA from cultured cells:

In stock DNA and total RNA are available from the following cell lines. The genomic DNA and total RNA are prepared by Maxim's superior extraction kits. The genomic DNA has an average >40 Kb in molecular weight. The total RNA has distinguished 18S and 28S bands indicating a high quality of RNA. Custom services for other cell lines are also available. Each package contains 100 µg of genomic DNA or 100 µg total RNA.

Order Information

Virus infected cells

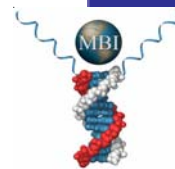
<u>Cat. No. (DNA)</u>	<u>Cat. No. (RNA)</u>	<u>Cell line</u>	<u>Characters</u>
ID-40001	IR-40001	B-958	Human, EBV infected
ID-40002	IR-40002	Raji	Human, EBV infected
ID-40003	IR-40003	C-33A	Human, HPV free
ID-40004	IR-40004	Caski	Human, HPV 16 infected, ~600 copies
ID-40005	IR-40005	Hela	Human, HPV 18 infected, ~25 copies
ID-40006	IR-40006	Hela S3	Human, HPV 18 infected, ~25 copies
ID-40007	IR-40007	Siha	Human, HPV 16 infected, ~1-2 copies
ID-40008	IR-40008	HUT 102	Human, HTLV I infected

Leukemia

<u>Cat. No. (DNA)</u>	<u>Cat. No. (RNA)</u>	<u>Cell line</u>	<u>Characters</u>
ID-40009	IR-40009	CCRF-CEM	Human, acute lymphoblastic leukemia
ID-40010	IR-40010	HL-60	Human, promyelocytic leukemia
ID-40011	IR-40011	Jurkat, clone E6	Human, T-cell leukemia
ID-40012	IR-40012	K562	Human, chronic myelogenous leukemia
ID-40013	IR-40013	KG-1	Human, bone marrow, acute myelogenous leukemia

Others:

<u>Cat. No. (DNA)</u>	<u>Cat. No. (RNA)</u>	<u>Cell line</u>	<u>Characters</u>
ID-40014	IR-40014	BeWo	Human, choriocarcinoma
ID-40015	IR-40015	BT-474	Human, Breast ductal cancer
ID-40016	IR-40016	MCF 7	Human, Breast adenocarcinoma
ID-40017	IR-40017	HT 1080	Human, Fibrosarcoma
ID-40019	IR-40019	P388D1	Mouse, Lymphoid Neoplasma



IV. Single Step RT-PCR

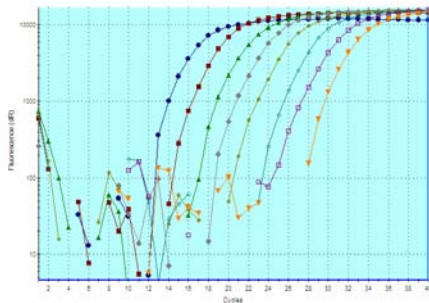
Maxim's Single Step RT-PCR kit provides a simple method to perform both RT and PCR concurrently in a single tube. Traditional methods have required that these two reactions proceed separately, allowing for potential sample cross contamination. As no reagents are added in Maxim's single step reaction, this kit effectively eliminates the problem of cross-contamination. Another advantage this kit offers is its exquisite sensitivity and efficiency, both key elements in PCR.

As illustrated in the following figure, traditional methods require separate steps for reverse transcription and PCR, thus requiring more hands-on time and allowing potential sample cross-contamination. In contrast, no additional reagents are added between steps in the single step method, thus eliminating possible contamination.

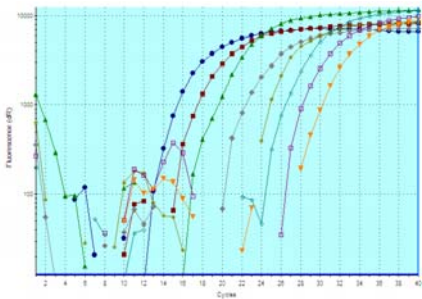
Advantages:

- ✓ Superior yields
- ✓ High Sensitivity
- ✓ No cross contamination
- ✓ Multiple gene amplifications
- ✓ Fast and convenient

<u>Kit Components</u>	<u>Quantity</u>	<u>Storage</u>
2.5X Universal SSRT-PCR Buffers	1000 µL	-20°C
100X RNase Inhibitors	25 µL	-20°C
50X SSRT Polymerases	50 µL	-20°C
10X Oligo-dT Primer	250 µL	-20°C
2.5 mM dNTPs	200 µL	-20°C
RNase free DEPC H ₂ O	1.2 mL	-20°C



One-Step reverse transcription real-time QPCR of human SARS RNA.



Two-Steps reverse transcription real-time QPCR of human SARS RNA.

Single step RT-PCR

Primers + RNA
+ all reagents for RT-PCR



RT (55-60°C, 1hr)
PCR or MPCR

Two step RT-PCR

Primers + RNA
+ all reagents for RT



RT (37-42°C, 1hr)

Clean RT reaction
Add aliquote into each PCR

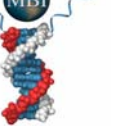


Perform RT-PCR or RT-MPCR

Principle of Single step RT-PCR vs. Two step RT-PCR

Order Information

<u>Cat. No.</u>	<u>Product Description</u>	<u>Rxns.</u>
RT-40003	Single Step RT-PCR Kit	50



V. First Strand cDNA Synthesis Kit

RT PCR results are crucially dependent on high quality RNA and cDNA. If these messages are not copied, subsequent PCR will be difficult or impossible. Due to the robust nature of PCR, sometimes false amplification bands may appear. The RT kit from Maxim represents a revolution in the ability to copy RNA. Specially selected reverse transcriptase with little RNase H activity provides the ability to synthesize high yield and full length cDNA. The optimized RT protocol is easy to follow and is suited for GC-rich RNA targets. The control cRNA and its primers provide a positive control for each individual RT performance and reagent stability. When used in combination with Maxim's other PCR products, outstanding RT-PCR results are guaranteed.

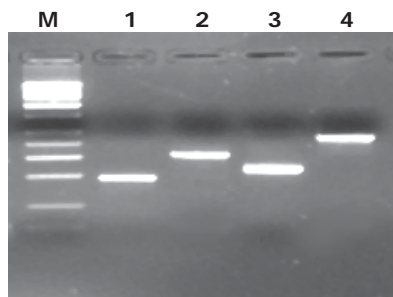


Fig.1 The viral RNA was isolated and RT-PCRs were performed using cDNA generated by Maxim's first strand cDNA synthesis kit.

Lane M: DNA M.W. Marker
 Lane 1: Influenza virus type A
 Lane 2: Influenza virus type B
 Lane 3: Respiratory Syncytial Virus
 Lane 4: Adenovirus type 3

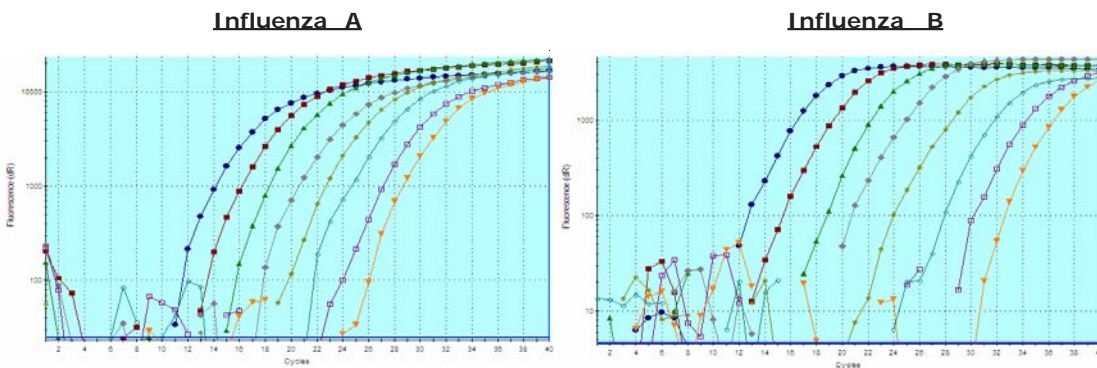


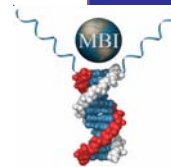
Fig 2. Real-Time Quantitative PCR of Human Influenza A & B cDNA. Viral Total RNA were isolated from patient's throat-wash using Maxim's isolation kit (Cat. No. SA-40009). A 5-fold serial dilution of viral cDNA (as shown on Fig 1.) was tested. Starting viral cDNA quantities range from 1 ng-6 fg per 25 µl reaction.

Each Kit contains the following reagents, sufficient for 50 RT reactions of 50 µl each.

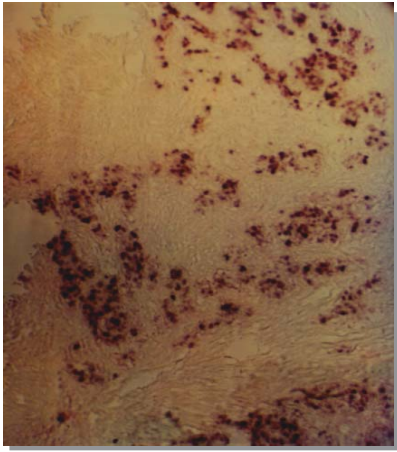
Kit component	10 Rxns	50 Rxns
MMLV-RT (250 u/µl)	50 µl	50 µl
RNase inhibitor (50 u/µl)	30 µl	30 µl
dNTPs (1 mM each)	200 µl	1.0 ml
RT buffer (5X)	100 µl	0.5 ml
Oligo(dT) _{20 mers} (50 µM)	40 µl	200 µl
Random hexamers (50 µM)	40 µl	200 µl
Control RNA (0.1 µg/µl)	5 µl	10 µl
Control primers (5 µM)	10 µl	50 µl
Optimized RT protocol	1 copy	1 copy

Order Information

Cat. No.	Product Description	Rxns.
RT-40001	RTeasy Reverse Transcriptase Kit	10
RT-40002	RTeasy Reverse Transcriptase Kit	50



VI. In Situ Hybridization and Detection Kits

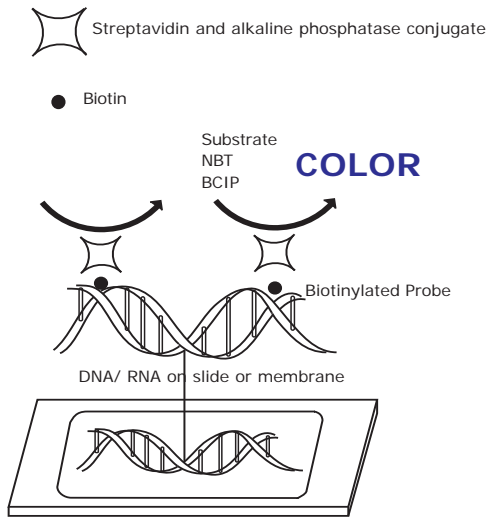


Representative example of results obtained from Human Nasopharyngeal Carcinoma stained with EBV probe using Maxim's Sensitive In Situ Hybridization/Detection Kit (BCIP/NBT). Dark stained cells indicate the positive results.

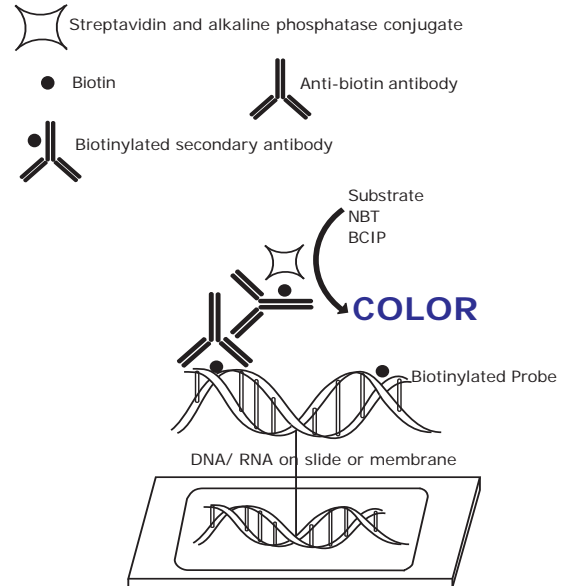
MBI's in situ kits are a modification and improvement on previous methods. Our kits offer the most sensitive non-isotopic method for detection of specific nucleic acid sequences within cell and tissue sections. Our unique hybridization and wash buffers provide you with rapid hybridization and the greatest optimal stringency to produce the most intense staining with minimal background.

We offer two levels of sensitivity: Sensitive (IH-60001) and Ultra-sensitive (IH-60002). Both kits achieve maximum sensitivity through the use of the biotin-streptavidin amplification system. The ultra-sensitive kit also includes an anti-biotin antibody and a biotinylated secondary antibody to achieve an even higher level of sensitivity. All kits include ready-to-use reagents, including BCIP/NBT, that provide a simple, rapid, and sensitive means to detect target DNAs in cell and tissue sections.

Sensitive in situ Kit

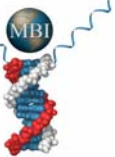


Ultra-Sensitive in situ Kit

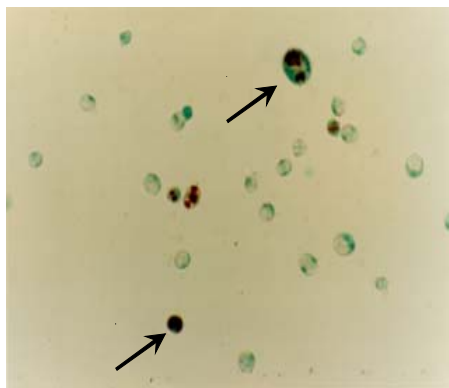


Order Information

Cat. No.	Product Description	Rxns.
IH-60001	Sensitive In situ Hybridization/Detection Kit	100
IH-60002	Ultra-sensitive In situ Hybridization/Detection Kit	100



VI. In Situ Hybridization and Detection Kits



Human lymphocytes stained with EBV biotin-probe using BCIP/NBT chromogen. Arrows indicate the positive results.

Maxim's In Situ Application kits offer a complete set of reagents that have been designed to detect specific nucleic acid sequences within cell and tissue sections. All kits use our unique in situ hybridization/detection system and are supplemented with specific biotin-probes. We also offer a Tutor kit for first-time users and new labs. The in situ tutor kit provides a complete easy-to-use system that includes the human Alu probe and quality positive controls. This will ease you into the in situ hybridization procedure.

Order Information

<u>Cat. No.</u>	<u>Product Description</u>	<u>Rxns.</u>
IH-60003	In situ hybridization/detection tutor kit	100
IH-60004	EBV in situ hybridization/detection	100
IH-60005	HPV in situ hybridization/detection kit, (types 6/11/16/18/31/33)	100
IH-60006	HPV in situ hybridization/detection kit, (types 6/11)	100
IH-60007	IHD-PV16 HPV in situ hybridization/detection kit, (types 16/18)	100
IH-60008	HPV in situ hybridization/detection kit, (types 31/33)	100

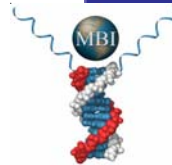
Tutor Kit contains the following reagents, sufficient for 100 in situ hybridization/detection.

<u>Kit component</u>	<u>Size</u>
Human HKG Biotinylated Probe	0.5 ml
Tutor Positive Control Slide	10 slides
Proteinase K/Dilution Buffer	4 mg/2ml
Hybridization Solution	6 ml
Blocking Solution, 20X	50 ml
Mouse anti-biotin Ab solution	6 ml
Biotinylated anti-mouse Ab solution	6 ml
Label (AP-Streptavidin Conjugate)	6 ml
Substrate (BCIP/NBT)	6 ml
Detergent Wash Solution (20X)	100 ml
RNase (15 µg/ml)	6 ml

Application Kit contains the following reagents, sufficient for 100 *in situ* hybridization/detection.

<u>Kit component</u>	<u>Size</u>
Specific Biotinylated Probe	0.5ml
Proteinase K/Dilution Buffer	4 mg/2ml
Hybridization Solution	6 ml
Blocking Solution, 20X	50 ml
Mouse anti-biotin Ab solution	6 ml
Biotinylated anti-mouse Ab solution	6 ml
Label (AP-Streptavidin Conjugate)	6 ml
Substrate (BCIP/NBT)	6 ml
Detergent Wash Solution (20X)	100 ml
RNase (15 µg/ml)	6 ml

We also offer many high quality biotin labeled DNA/cDNA fragment probes that are suitable for in situ hybridization assay on the following page. All probes can be used in combination with our unique *in situ* hybridization/detection kit (Cat. No. IH-60001 and IH-60002) listed on the previous page. Each probe is provided in an amount (8 µg) sufficient for 50 *in-situ* hybridization/detection reactions.

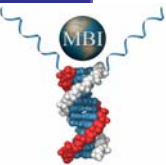


VII. In Situ Hybridization Biotin-Probes

Maxim is pleased to offer high quality biotin-probes. These biotin-probes have been generated using Maxim's proprietary technology to ensure multiple biotin molecules per probe. The probe's length is > 90bp, which is perfectly suited for applications such as *in-situ* hybridization, Southern blot, RNase protection assays, etc. All probes can be used in combination with our unique *in situ* hybridization/detection system. Each probe is provided in an amount (8 µg) sufficient for 50 *in-situ* hybridization/detection reactions. For other applications, please consult Maxim's custom service first.

Order Information

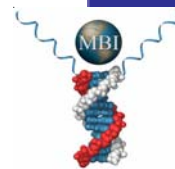
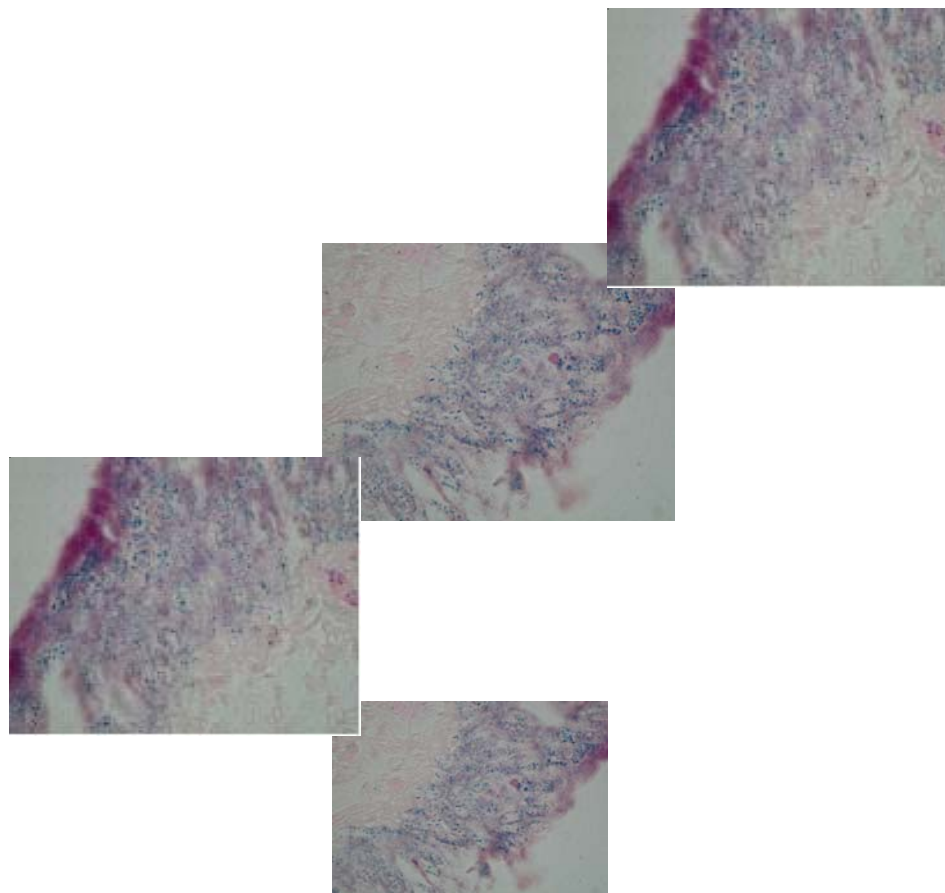
<u>Cat. No.</u>	<u>Probe Size (bp)</u>	<u>Encoding Gene</u>
Cytokines & Growth Factors		
IH-60015	810	Human IL1-a
IH-60016	556	Human IL1-b
IH-60017	425	Human IL2
IH-60018	225	Human IL4
IH-60019	360	Human IL6
IH-60020	300	Human IL8
IH-60012	223	Human IL10
IH-60013	323	Human IL12 (P35)
IH-60014	381	Human IL12 (P40)
IH-60040	140	Human Bax Gene
IH-60041	235	Human bcl-2 Gene
IH-60042	371	Human bcl-xL
IH-60044	318	Human CPP-32
IH-60047	427	Human Fas Gene
IH-60048	250	Human FasL Gene
IH-60049	122	Human Fos Gene
IH-60050	440	Human GM-CSF
IH-60064	656	Human ICE Gene
IH-60065	294	Human IFN-γ
IH-60011	158	Human IκB Factor
IH-60022	250	Human c-jun
IH-60030	371	Human c-myc
IH-60031	409	Human NFκB Factor
IH-60032	200	Human P53 Gene
IH-60035	261	Human TGF-β
IH-60036	680	Human TNF-α
IH-60038	294	Human VEGF, all types
IH-60024	395	Human MMP1
IH-60025	191	Human MMP2
IH-60026	351	Human MMP3
IH-60027	282	Human MMP7
IH-60028	216	Human MMP9
Bacteria		
IH-60045	182	C. trachomatis
IH-60046	364	C. trachomatis cryptic
IH-60051	300	N. gonorrhoea
IH-60061	349	H. pylori/ Cag A
IH-60062	298	H. pylori/ Specific Ag
IH-60023	384	M. avium/ 16S
IH-60029	470	M. tuberculosis IS6110
IH-60037	218	U. urealyticum urease



Order Information

<u>Cat. No.</u>	<u>Probe Size (bp)</u>	<u>Encoding Gene</u>
Virus		
IH-60043	400	CMV Matrix Protein
IH-60052	433	HBV core antigen
IH-60053	150	HCV unknown region
IH-60054	154	HDV ORF9
IH-60055	480	HHV6 Major Capsid
IH-60056	263	HPV Type 6
IH-60057	144	HPV Type 11
IH-60058	601	HPV Type 16
IH-60059	360	HPV Type 18
IH-60060	350	HPV Type 31
IH-60063	241	HSV I/II DNA Pol.
IH-60039	224	Varicella-Zoster Virus

Maxim has many different gene fragments available for biotinylation to be used for in situ hybridization, please inquire for any that are not listed in the current list.



VIII. Tissue Block

Featured Applications:

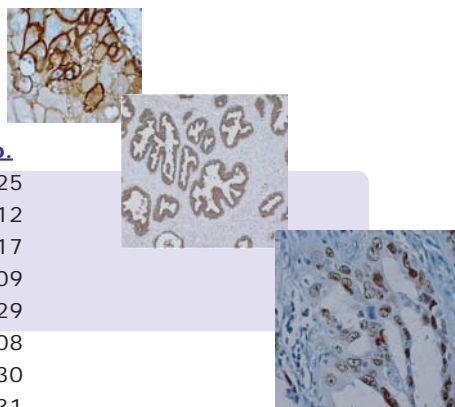
- √ In Situ Hybridization
- √ PCR
- √ In Situ PCR
- √ Antibody Quality Control
- √ Antigen Specificity Distribution
- √ Total RNA Isolation
- √ Genomic DNA Isolation
- √ Differentiation Study and More.....

Maxim is proud to announce that we offer tissue blocks from various normal and cancer patients. Tissue blocks are treated with 10% neutral buffered formalin for 16-24 hours and embedded in high quality, advanced formulated tissue embedding paraffin.

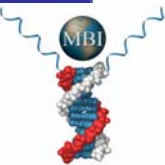
Order Information

The following tissues are available:

<u>Species</u>	<u>Tissue</u>	<u>Unit</u>	<u>Cat. No.</u>
Human	Appendix	Block	TB-50025
Human	Bladder	Block	TB-50012
Human	Brain	Block	TB-50017
Human	Breast	Block	TB-50009
Human	Cholecyst	Block	TB-50029
Human	Colon	Block	TB-50008
Human	Endometrium Cervix	Block	TB-50030
Human	Esophagus	Block	TB-50031
Human	Hepatocellular Carcinoma	Block	TB-50032
Human	Hodgkin's Lymphoma	Block	TB-50006
Human	Kidney	Block	TB-50033
Human	Leiomyosarcoma	Block	TB-50027
Human	Lipoma	Block	TB-50034
Human	Liver	Block	TB-50015
Human	Lung	Block	TB-50013
Human	Lymph Node	Block	TB-50004
Human	Malignant Fibrohistocytoma	Block	TB-50019
Human	Malignant Melanoma	Block	TB-50018
Human	Pancreas	Block	TB-50011
Human	Placenta	Block	TB-50010
Human	Prostate	Block	TB-50023
Human	Salivary Gland Mixed Tumor	Block	TB-50024
Human	Schwann's Tumor	Block	TB-50028
Human	Skin	Block	TB-50035
Human	Small Intestine	Block	TB-50022
Human	Smooth Muscle	Block	TB-50002
Human	Spleen	Block	TB-50036
Human	Stomach	Block	TB-50016
Human	Striated Muscle	Block	TB-50001
Human	Testis	Block	TB-50026
Human	Thyroid	Block	TB-50007
Human	Tonsil	Block	TB-50005
Human	Uterine Leiomyoma	Block	TB-50014



Please inquire if you cannot find the tissue that you need.



IX. General Reagents and Buffers

Maxim offers molecular biology reagents and buffers for use in protein or nucleic acid detection/analysis procedures. These solutions are uniquely designed and formulated to offer high performance and excellent resolution. They are made with electrophoresis grade, easy-to-use reagents, which save time and eliminate errors in pH and weight adjustments.

Order Information

Cat.No.	BU-00012	50X TAE Buffer
Description	Tris-acetate/EDTA solution, 50X concentrated. When the buffer is diluted 50-fold, it will contain 40mM Tris-acetate and 1 mM EDTA; pH 8.3 ± 0.1	
Application	The buffer is used for preparation of agarose gels and electrophoresis of DNA fragments. Modified TAE buffer designed to deliver high voltage with low amperage.	
Size	1L	
Storage	Stable at room temperature (18-25°C) for at least one year.	

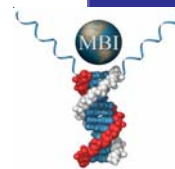
Cat. No.	BU-00013	10X TBE Buffer
Description	Tris-borate/EDTA solution, 10X concentrated. When the buffer is diluted 10-fold, it will contain 40 mM Tris, 90 mM boric acid and 1 mM EDTA, pH 8.3 ± 0.1.	
Application	The buffer is used for preparation of agarose gels and electrophoresis of DNA fragments. The buffer is suitable for sequencing gel, DNA separation.	
Size	1L	
Storage	Stable at room temperature (18-25°C) for at least one year.	

Cat. No.	BU-00014	6X Gel Loading Buffer
Description	This solution contains 15% Ficoll, 0.25% bromophenol blue, and 0.25% xylene cyanol FF.	
Application	This solution is used to prepare nucleic acid for loading onto agarose gels by providing color and appropriate density to sample.	
Size	1.5 ml X 6 tubes	
Storage	Stable at 4°C or room temperature for at least one year.	

Cat. No.	BU-00015	10X Gel Loading Buffer
Description	This solution contains 50% glycerol, 1mM EDTA, and 0.25% bromophenol blue.	
Application	This solution is used to prepare nucleic acid for loading onto agarose gels by providing color and appropriate density to sample.	
Size	1.5 ml X 6 tubes	
Storage	Stable at 4°C or room temperature for at least one year.	

Cat. No.	BU-00016	10 mg/ml EtBr
Description	10mg/ml solution of ethidium bromide in distilled water.	
Application	This product is used to visualize DNA and RNA on agarose gels when exposed to UV light. Ethidium bromide can be added to the agarose gel and / or electrophoresis buffer. Ethidium bromide is a powerful mutagen and is moderately toxic.	
Size	10 ml, amber bottle	
Storage	Stable at 4°C for at least one year, protect from light.	

Cat. No.	BU-00017	10X MOPS Buffer
Description	Contains 10X concentrated 3-[N-morpholino] propanesulfonic acid and EDTA; pH is adjusted to 7.0 with acetic acid.	
Application	This buffer is used for preparation of formaldehyde (denaturing) agarose gels and electrophoresis RNA samples. This solution is certified DNase/RNase free.	
Size	1L	
Storage	Stable at room temperature (18-25°C) for at least one year.	



Cat. No. BU-00018 **10% SDS Solution**
Description Sodium dodecyl sulfate solution. 10% (w/v), is prepared with RNase/DNase-free H₂O. SDS is an anionic detergent used for protein denaturation, membrane disruption, and for dissociating nucleic acid-protein complex.
Application This buffer is used in various procedures for DNA, RNA, and protein analysis. This buffer is prepared from high quality reagents, and sterile filtered to remove contaminants.
Size 500ml
Storage Stable at room temperature (18-25°C) for at least one year.

Cat. No. BU-00019 **20X SSC Buffer**
Description 20X SSC solution contains 3M NaCl and 0.3 M sodium citrate which is prepared from high quality reagents and is performance tested for quality.
Application This buffer is used in nucleic acid transfer, hybridization applications. It also can serve as a washing solution.
Size 1L
Storage Stable at room temperature (18-25°C) for at least one year.

Cat. No. BU-00020 **0.5M EDTA, pH8.0**
Description EDTA is a chelator of metal ions used in many molecular biology solutions and protocols.
Application Certified DNase/RNase free
Size 500 ml
Storage Stable at room temperature (18-25°C) for at least one year.

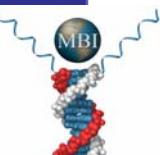
Cat. No. BU-00021 **Double-distilled H₂O**
Description Molecular biology graded H₂O. Certified DNase free.
Application Used in many molecular biology solutions and protocols.
Size 1 L
Storage Stable at room temperature (18-25°C) for at least one year.

Cat. No. BU-00022 **DEPC Double-distilled H₂O**
Description DEPC ddH₂O. Certified DNase/RNase free.
Application Used in many molecular biology solutions and protocols.
Size 1 L
Storage Stable at room temperature (18-25°C) for at least one year.

Cat. No. BU-00029 **Ampicillin**
Description Ampicillin is dissolved in ddH₂O and is sterilized by filtration through a 0.22-micron filter.
Application Used in many molecular biology protocols.
Size 1 ml 50 mg/ml solution
Storage Stable at -25°C for at least one year.

Cat. No. BU-00030 **Kanamycin**
Description Kanamycin is dissolved in ddH₂O and is sterilized by filtration through a 0.22-micron filter.
Application Used in many molecular biology protocols.
Size 1 ml 10 mg/ml solution
Storage Stable at -20°C for at least one year.

Cat. No. BU-00031 **50X Denhardt's Reagent**
Description 5g of Ficoll, 5g of polyvinylpyrrolidone, 5g of BSA are dissolved in ddH₂O to a final volume of 500 ml. Certified DNase free.
Application Used in many molecular biology protocols.
Size 50 ml 50X solution
Storage Stable at -20°C for at least one year.



Cat. No. BU-00032 **Proteinase K**

Description 20 mg proteinase K is dissolved in ddH₂O to final volume of 1 ml.
Application Used in many molecular biology protocols.
Size 1 ml 20 mg/ml solution
Storage Stable at -20°C for at least one year.

Cat. No. BU-00033 **dNTPs**

Description dNTPs is dissolved in ddH₂O to final concentration of 2.5 mM. Certified DNase free.
Application Used in many molecular biology protocols.
Size 1 ml 2.5 mM solution
Storage Stable at -20°C for at least one year.

Cat. No. BU-00034 **M13KO7**

Description Helper Phage M13KO7 with titer > 5 x 10¹⁰ pfu/ml.
Application For phage rescue.
Size 100 µl solution
Storage Stable at 4°C for at least one year.

Cat. No. BU-00035 **TG1**

Description Cultures of E.coli TG1.
Application For general use with phage-display vectors.
Size 1 vial
Storage Stable at -20°C for at least one year.

Cat. No. BU-00036 **HB2151**

Description Cultures of E.coli HB2151.
Application For general use with phage-display vectors.
Size 1 vial.
Storage Stable at -20°C for at least one year.

Cat. No. BU-00037 **pUC18**

Description pUC18, a well-characterized vector.
Application For general cloning use.
Size 100 µl 1mg/ml solution.
Storage Stable at -20°C for at least one year.

Cat. No. BU-00038 **pUC19**

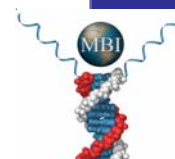
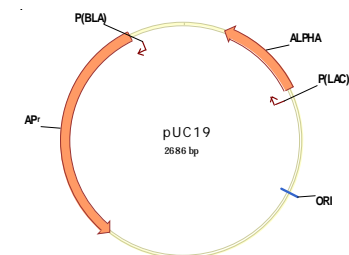
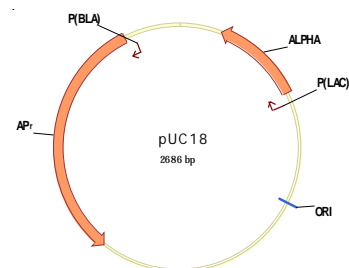
Description pUC19, a well-characterized vector.
Application For general cloning use.
Size 100 µl 1mg/ml solution.
Storage Stable at -20°C for at least one year.

Cat. No. BU-00039 **pUC119**

Description pUC119, a well-characterized vector.
Application For general cloning use.
Size 100 µl 1mg/ml solution.
Storage Stable at -20°C for at least one year.

Cat. No. BU-00040 **pBR322**

Description pBR322, a well-characterized vector.
Application For general cloning use.
Size 100 µl 1mg/ml solution.
Storage Stable at -20°C for at least one year.

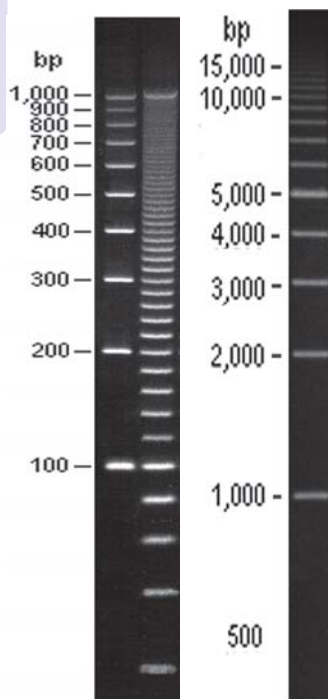


DNA Molecular Markers

Cat. No. [BU-00023](#) **100 bp Ladder**
Description The 100 bp ladder progresses from 100 bp to 1000 bp in exact 100 bp increments.
 Ladder is accompanied by 200 µl 6X loading buffer.
Application DNA/RNA gel electrophoresis.
Size 0.5 ml (100 gels)
Storage Store at 4°C.

Cat. No. [BU-00024](#) **20 bp Ladder**
Description The 20 bp ladder progresses from 20 bp to 1000 bp in exact 20 bp increments. Ladder is accompanied by 200 µl 6X loading buffer.
Application DNA/RNA gel electrophoresis.
Size 0.5 ml (100 gels)
Storage Store at 4°C.

Cat. No. [BU-00025](#) **1 kb Ladder**
Description The 1000 bp ladder progresses from 1000 bp to 10,000 bp in exact 1000 bp increments.
 Ladder is accompanied by 200 µl 6X loading buffer.
Application DNA/RNA gel electrophoresis.
Size 0.5 ml (100 gels)
Storage Store at 4°C.



DNA M.W. Marker

Agarose

Cat. No. [BU-00027](#) **Agarose**
Description Agarose for general purpose
Application Both conventional electrophoresis and pulse field electrophoresis.
Size 100 g
Storage Store at room temperature.

Cat. No. [BU-00028](#) **Agarose**
Description Agarose for general purpose
Application Both conventional electrophoresis and pulse field electrophoresis.
Size 500 g
Storage Store at room temperature.

PCR/MPCR Optimization

Cat. No. [BU-00001](#) **GC Normalizer**
Description The GC Normalizer was specially formulated chemicals for a PCR reaction compatible buffer, 10X.
Application PCR Optimization.
Size 3.0 ml
Storage Store at 4°C.

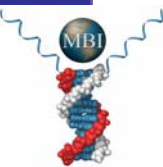
Cat. No. [BU-00002](#) **DMSO**
Description The DMSO has been quality controlled to assure its performance in a PCR reaction.
Application PCR Optimization.
Size 1.0 ml
Storage Store at 4°C.

Maxim's DNA molecular weight markers have the following features:

- ✓ Bands progress in even, easy-to-remember increments.
- ✓ Ladders come with a 6X loading buffer.
- ✓ Wide range of sizes available: 20 bp, 100 bp, and 1 kb.

Contents and Storage:

All DNA molecular weight markers are accompanied by 6X loading buffer. Enough ladder is provided for 100 applications. DNA molecular weight markers are stable for 6 months when stored at 4°C.



Cat. No. [BU-00003](#) **[10X MPCR Buffer 1](#)**
Description This 10X MPCR Buffer 1 is formulated to offer a balanced Mg⁺⁺ and pH in a proprietary buffer.
Application PCR/ MPCR Optimization.
Size 1.0 ml
Storage Store at 4°C or -20°C.

Cat. No. [BU-00004](#) **[10X MPCR Buffer 2](#)**
Description This 10X MPCR Buffer 2 is formulated to offer a balanced Mg⁺⁺ and pH in a proprietary buffer.
Application PCR/ MPCR Optimization.
Size 1.0 ml
Storage Store at 4°C or -20°C.

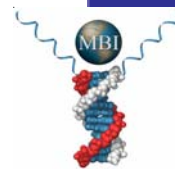
Cat. No. [BU-00005](#) **[10X MPCR Buffer 3](#)**
Description This 10X MPCR Buffer 3 is formulated to offer a balanced Mg⁺⁺ and pH in a proprietary buffer.
Application PCR/ MPCR Optimization.
Size 1.0 ml
Storage Store at 4°C or -20°C.

Cat. No. [BU-00006](#) **[10X MPCR Buffer 4](#)**
Description This 10X MPCR Buffer 4 is formulated to offer a balanced Mg⁺⁺ and pH in a proprietary buffer.
Application PCR/ MPCR Optimization.
Size 1.0 ml
Storage Store at 4°C or -20°C.

Cat. No. [BU-00007](#) **[10X MPCR Buffer 5](#)**
Description This 10X MPCR Buffer 5 is formulated to offer a balanced Mg⁺⁺ and pH in a proprietary buffer.
Application PCR/ MPCR Optimization.
Size 1.0 ml
Storage Store at 4°C or -20°C.

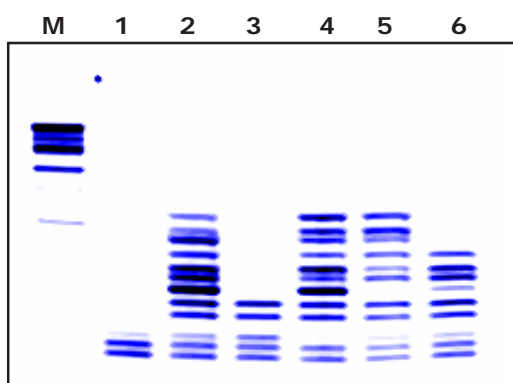
Cat. No. [BU-00008](#) **[10X MPCR Buffer 6](#)**
Description This 10X MPCR Buffer 6 is formulated to offer a balanced Mg⁺⁺ and pH in a proprietary buffer.
Application PCR/ MPCR Optimization.
Size 1.0 ml
Storage Store at 4°C or -20°C.

Cat. No. [BU-00009](#) **[10X MPCR Buffer 7](#)**
Description This 10X MPCR Buffer 7 is formulated to offer a balanced Mg⁺⁺ and pH in a proprietary buffer.
Application PCR/ MPCR Optimization.
Size 1.0 ml
Storage Store at 4°C or -20°C.



Cat. No. [BU-00010](#) [10X MPCR Buffer 8](#)
Description This 10X MPCR Buffer 8 is formulated to offer a balanced Mg⁺⁺ and pH in a proprietary buffer.
Application PCR/ MPCR Optimization.
Size 1.0 ml
Storage Store at 4°C or -20°C.

Cat. No. [BU-00011](#) [10X MPCR Buffer 9](#)
Description This 10X MPCR Buffer 9 is formulated to offer a balanced Mg⁺⁺ and pH in a proprietary buffer.
Application PCR/ MPCR Optimization.
Size 1.0 ml
Storage Store at 4°C or -20°C.



Gene Expression of Human Keratinocyte cDNA with different MPCR Buffers using Maxim MPCR kit MP-70228

Lane M: DNA M.W. Marker
 Lane 1: MPCR Buffer #2 (BU-00004)
 Lane 2: MPCR Buffer #3 (BU-00005)
 Lane 3: MPCR Buffer #4 (BU-00006)
 Lane 4: MPCR Buffer #5 (BU-00007)
 Lane 5: MPCR Buffer #6 (BU-00008)
 Lane 6: MPCR Buffer #7 (BU-00009)

Gene Expression of Mouse Brain cDNA with different MPCR Buffers using Maxim MPCR kit MP-70103

Lane M: DNA M.W. Marker
 Lane 1: MPCR Buffer #2 (BU-00004)
 Lane 2: MPCR Buffer #3 (BU-00005)
 Lane 3: MPCR Buffer #4 (BU-00006)
 Lane 4: MPCR Buffer #5 (BU-00007)
 Lane 5: MPCR Buffer #6 (BU-00008)
 Lane 6: MPCR Buffer #7 (BU-00009)

