



Genomics Research with BIOCHAIN

High Throughput mRNA Northern Blot

A revolutionary technology of Northern Blot
One blot has 32 lanes and more



biotechnology
(europe) ltd

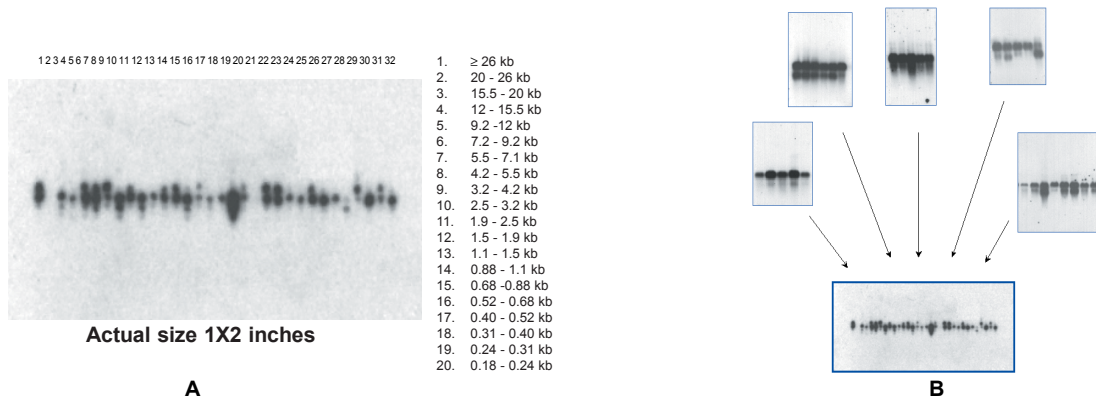


Fig. 1 Image of High Throughput Northern Blot

A. A High Throughput mRNA Northern Blot was hybridized with a non-radioactive labeled GAPDH cDNA probe at 65°C over night, washed, detected by non-radioactive method, and expose to x-ray film for 30 seconds. The blot was hybridized in BioChain's FastHyb hybridization solution (Cat# L1021250)

B. One single High Throughput Northern Blot replaces 5 multiple-lane northern blots

Features

- Reproducible results - The product comes in an array format. Any two membranes are nearly identical.
- Higher sensitivity - mRNA species are highly concentrated per unit area on the membrane and are readily accessible to probes
- Versatile - Suitable for both radioactive and non-radioactive probes
- Easy-to-use - The membrane can be treated/handled the same as a conventional Northern blot.
- Economical - One hybridization analysis reveals gene expression in 30 different tissues, and the smaller size of the membrane saves reagent costs

Applications

- Identification of tissue-specific genes in a wide variety of tissues
- Gene expression pattern analysis
- Comparison of expression levels of novel genes
- Determination of size and relative abundance of genes in different tissues
- Examination of alternative splicing and premature termination of specific gene transcripts

Cat# N8234480

Genomic DNAs

The largest collection of premium quality DNAs from human, monkey, rat, mouse, and plant

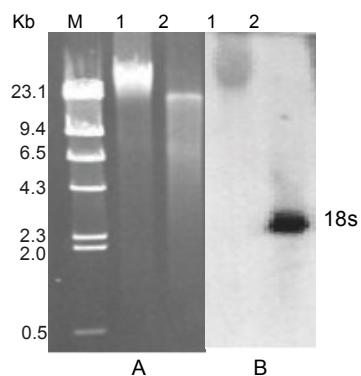


Fig. 2 Image of human placenta genomic DNA. A: Genomic DNA on 0.7% agarose gel; B: Southern blot analysis by 18s. Lane 1: 1 µg placenta genomic DNA; Lane 2: 1 µg placenta genomic DNA after BamHI digestion.

Features

- Genomic DNA isolated from a wide variety of hard to obtain tissues
- Decontamination of RNA, polysaccharides, and proteoglycans
- Extensive quality control procedures ensure high quality genomic DNA
- High efficiency in PCR
- Documentation of tissues' clinical histories available

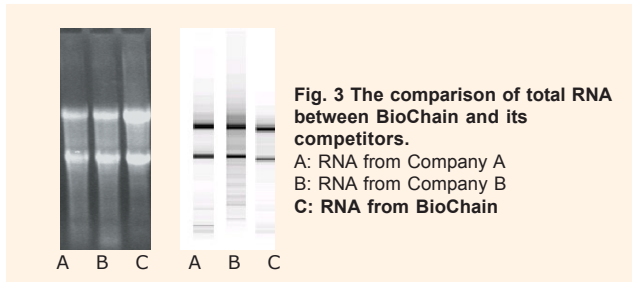
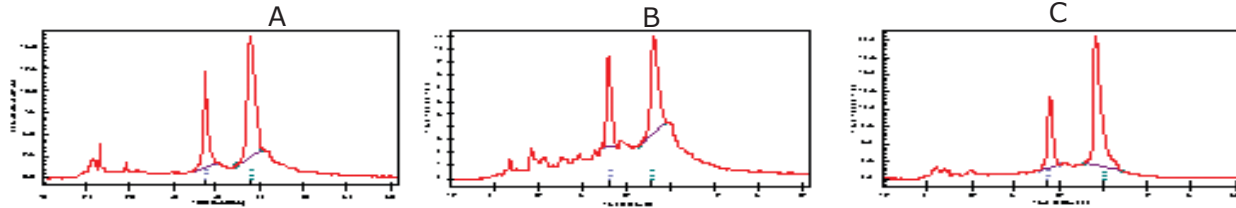
Applications

- SNP analysis, Southern Blotting, and PCR
- Genomic DNA library construction
- Profiling study in gene expression



Ready-to-Use Total RNA and mRNA

The largest collection of premium quality RNAs from human, monkey, rat, mouse, and plant



Convenient 10 µg, 50 µg, 250 µg packaging at an affordable price

Features

- Total RNA isolated from a wide variety of hard to obtain tissues
- Decontamination of polysaccharide, proteoglycan, RNase, and genomic DNA
- Extensive quality control procedures to ensure high quality
- High efficiency reverse transcription
- Documentation of tissues' clinical histories available upon request

Applications

- Northern Blotting, RT-PCR, and RACE
- cDNA probe for profiling study in gene expression
- RNA protection and primer extension
- cDNA synthesis and cDNA library construction
- RNA differential display
- Purification of mRNA

PCR Ready First Strand cDNAs

The largest collection of premium quality cDNAs from human, monkey, rat, mouse, and plant

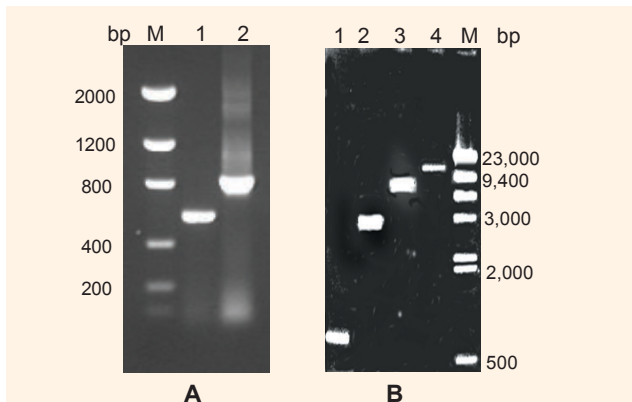


Fig. 4 A. Image of cDNA. Using BioChain's placenta cDNA as template, both human β -actin and clathrin genes are successfully amplified. Lane 1: 568 bp fragment from 5' end of clathrin gene; Lane 2: 838 bp fragment of β -actin gene.

B. 1% agarose gel PCR products from human muscle tissue cDNA. PCR primers were designed to amplify a 1.7 kb region of β -actin (Lane 1, 0.83 kb), a 6.0 kb region of clathrin (Lane 2, 4.2 kb) and an 80 kb region (Lane 3, 8.6 kb) and 91.5 kb region of titin (lane 4, 12 kb). Lane M is *Hind* III/ λ DNA marker. Results showed cDNA with length up to 90 kb region

Features

- Ready to use for PCR
- Oligo dT primer ensures that entire 3' end of cDNA is present
- With some cDNA used as templates, 12 kb PCR amplicon was obtained to ensure the intact cDNAs
- The largest selection of cDNAs from different tissues on the market
- Documentation of tissues' clinical histories available upon request

Applications

- Immediate PCR Amplification of known genes
- Verification of genetic mutation
- Comparison of a specific gene among different tissues
- Analysis of mRNA alternative splicing
- Gene cloning and target sequencing

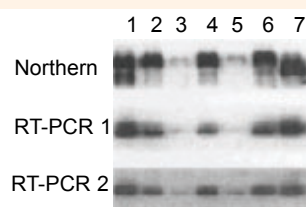


Fig. 5 Comparison of RT-PCR quantitative analysis of β -actin expression in a cDNA panel with that of Northern analysis. Northern Blot of 7 normal human tissues hybridized with β -actin DNA probes shows different levels of expression of the gene in different tissues (upper panel). 1.7kb region of β -Actin was amplified by PCR from 1 μ l of cDNA in the panel which was corresponding RNA in the blot respectively, and transferred on to nylon membrane and hybridized with the same probes used in the Northern blot (lower panel). This demonstrates that the representation of gene expression is maintained from the total RNA to cDNA panel. Lane 1 through 7 is brain, kidney, liver, lung, pancreas, spleen and skeletal muscle respectively.

Matched Products

Dr. P Products - Genomic DNA, RNA, and protein are isolated from the same piece of biomaterial
Ideal for advanced analysis of gene expression

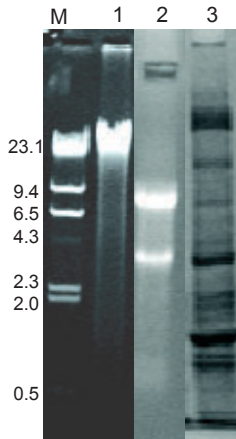


Fig. 6 The image of Dr. P product set from monkey colon tissues. Lane 1: Dr. P genomic DNA on agarose gel; Lane 2: Dr. P Total RNA on agarose gel; Lane 3: Dr. P protein on SDS-PAGE gel.

Application

- Simultaneous studies of RNA, genomic DNA, and protein, in parallel
- Northern Blotting, RT-PCR, and purification of mRNA
- cDNA synthesis and cDNA library construction
- cDNA gene pool probes for profiling study in gene expression
- RNA protection assay, primer extension, and RNA differential display
- PCR, Sequencing, and Single Nucleotide Polymorphism (SNP) analysis
- Restriction enzyme digestion and genomic DNA library construction
- Electrophoresis, Western blotting, and immunoprecipitation
- Labeled protein probes to screen antibody and antigen arrays
- HPLC, mass spectrum analysis, and protein-protein interaction analysis
- Identification of tissue specific expression and protein expression profiling analysis

Feature

- Dr. P Products isolated from a wide variety of tissues
- No Cross contamination
- Free contamination by polysaccharides, proteoglycans, and RNase
- Extensive quality control procedures ensure high quality
- Documentation on tissues' clinical histories available upon request

Tumor and Its Normal Adjacent Matched Pairs

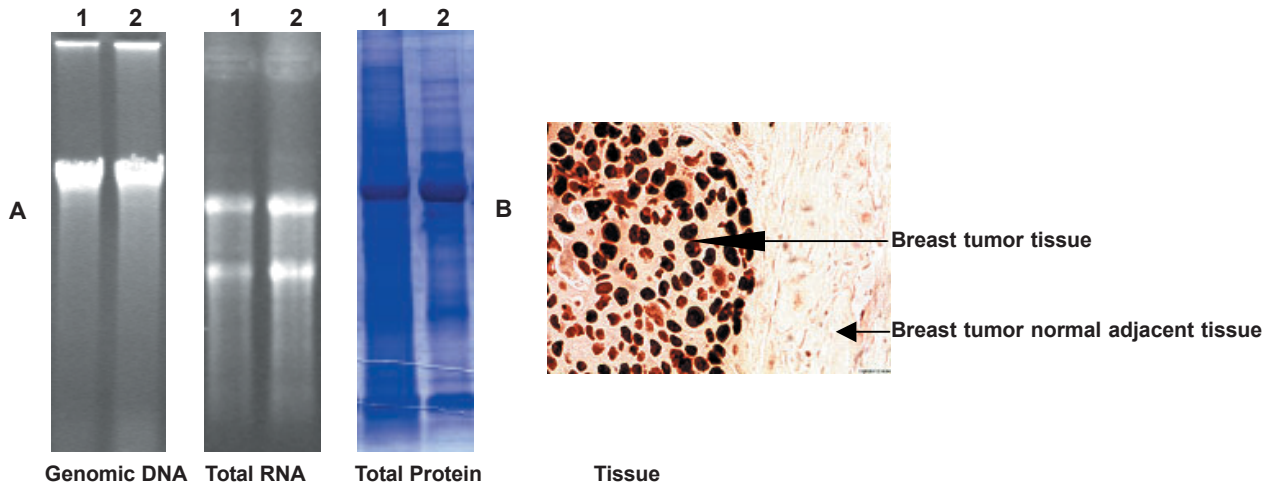
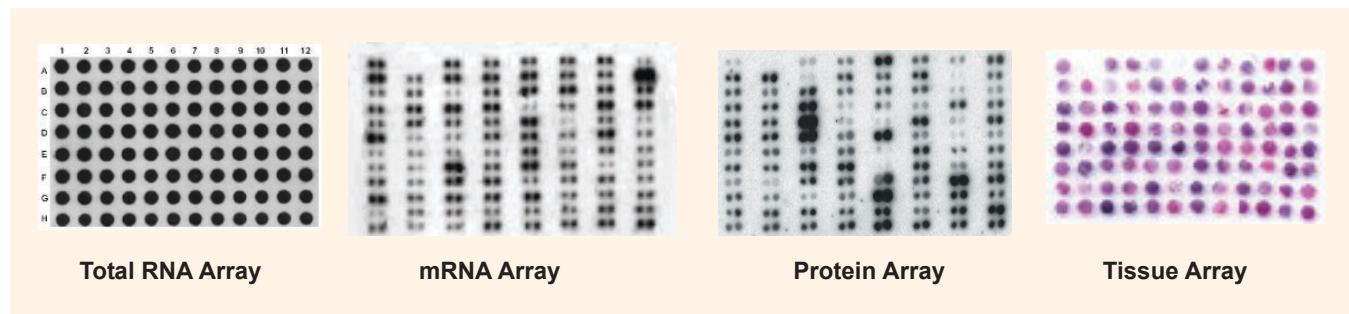


Fig. 7 The image of a series matched pair products
A. Genomic DNA, total RNA, and total protein isolated from breast tumor and its normal adjacent tissue. Lane 1, tumor; lane 2, normal adjacent tissue.
B. Breast tumor tissue and its normal adjacent tissue immuno stained by PCNA

Tumor matched pair products include: Primary Pair (PP), Primary and Metastasis Pair (PM). PP consists of products isolated from primary tumor and its normal adjacent tissue; PM consists of products from primary tumor and corresponding metastatic tumor. Products in each pair are prepared from the same donor. This product line is designed for identifying tumor-specific genes and tumor metastatic genes.

High Throughput Screening

Integrated High Throughput Arrays



Features

- Integrated array system from RNA, protein, and tissues
- Ready-to-use, pre-spotted with high quality total RNA, mRNA, total protein, and tissues
- Suitable for both radioactive and non-radioactive detection
- Documentation of clinical histories available upon request
- Matched slides or cDNA of each tissue on arrays for immunohistochemistry, in situ hybridization or PCR available upon request
- Coverage of almost all types of human adult, fetal or tumor tissues in a single array

Fast, easy, and reliable arrays for expression analysis of gene and protein

Applications

- High throughput screening using either microarrays scanner or routine film exposure
- Rapid screening of your novel gene's expression against an extensive panel of normal adult, fetal, or tumor tissues
- Gene expression pattern analysis

cDNA Libraries - human, monkey, rat, and mouse

Features

- 10^6 minimum numbers of primary clones, and 3×10^6 average numbers of primary clones
- At least 87% of recombinant clones, and 95% average of recombinant clones
- Insert size at least 1 kb, and average insert size 1.5 kb

Application

- Conventional library screening
- PCR amplification
- cDNA expression

Description

Our high quality cDNA libraries are constructed by using an oligo dT primer-adaptor and Moloney Murine Leukemia Virus Reverse Transcriptase (M-MLV RT) to prime and synthesize first strand cDNA from mRNA. After the second strand is synthesized, the double stranded cDNA is size fractionated, cloned directionally into our BioExpress vector and transformed into T1 phage resistant E. coli. **Average insert size and insert size range are determined by restriction enzyme digestion of 24 clones picked randomly from each library.** The 4 kb BioExpress vector used for cloning is Puc based, confers ampicillin resistance and contains the CMV promoter for expression analysis. This vector also contains the SP6 and T7 RNA polymerase promoters flanking the MCS for RNA synthesis, the Amersham ET and M13 primer sites for sequencing and the F1 ori for single-stranded DNA production. By cloning the cDNA directionally into this vector the cDNA clones can be expressed, detected by antibody screening and the libraries can be used to produce normalized or subtracted libraries.

Gene Cloning Tools

Express Cloning Checker

The fastest way, 40 minutes, to determine your vector construction. No E.Coli growing; No plasmid preparation; Even faster than colony PCR

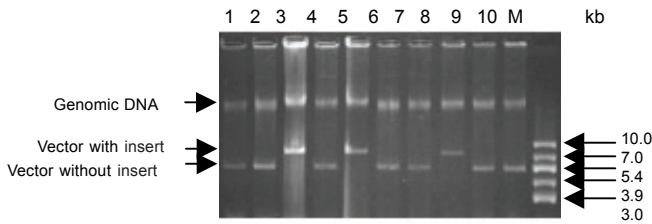


Fig. 8 Large scale screening of recombinant colonies. Partial colonies were picked up directly from overnight cultured transformation plates and treated with red and yellow solutions before electrophoresis. Three recombinants with 2.5 kb insert (lanes 3, 5 and 8) are identified. Lane M is the supercoiled DNA marker supplied in the kit.

Features

- Directly analyze plasmid recombinants in bacteria without extracting plasmid DNA
- Greatly shorten operation procedure - high speed analysis
- Easily handling of up to hundreds of colonies at one time - large-scale screening
- Compatible with most commonly used E. coli bacteria
- Apply to any bacterial form - plate colonies, liquid fresh culture or glycerol stock
- Replaces time-consuming DNA miniprep. and restriction enzyme digestions, or colony PCR

Cat# K5013200

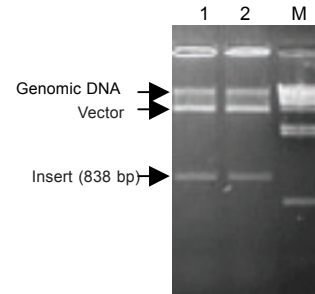


Fig. 9 Enzyme digestion analysis of recombinant colonies. Recombinant colonies were picked up directly from overnight cultured transformation plates in green solution and followed by restriction enzyme digestion (*Eco*R I, lanes 1 and 2) for 30 minutes at 37 °C. Lane M is *Hind* III/ λ DNA marker. An 838 bp insert was detected.

Applications

- Identifying recombinant colonies after transformation
- Analyzing insert sizes in constructed cDNA libraries
- Checking frozen stocks of bacterial clones
- Quick gel-recovering DNA inserts from clones in bacteria for subcloning
- Conquer difficult, high-background cloning jobs

RT (Reverse Transcription) Checker

Rapid and easy for quality control of cDNA synthesis

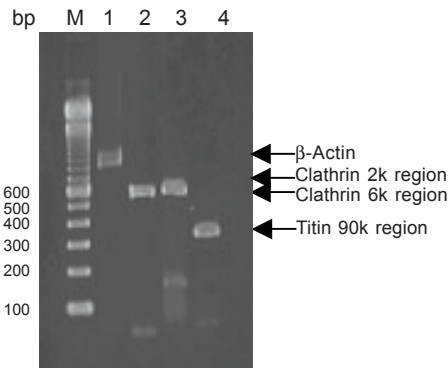


Fig. 10 Skeletal muscle cDNA was detected by RT-Checker Kit.

Lane 1, β -actin primer pair; lane 2, Clathrin 6 k primer pair; lane 3, Clathrin 2 k primer pair; lane 4, Titin primer pair.

Cat# K4121050

Features

- PCR-based quick assay
- Direct monitoring of housekeeping genes and tissue specific genes
- QC of full length and representation from RNA template to reverse transcribed cDNA

Application

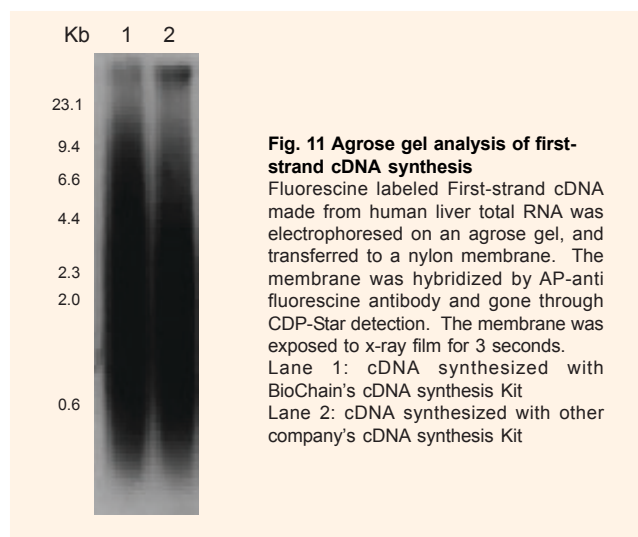
- Monitoring first strand cDNA synthesis
- Quality control of RNA or mRNA purity by RT-PCR
- Quality control of full length and representation of produced cDNA
- Quality control of cDNA libraries

Gene Cloning Tools

Optimax First Strand cDNA Synthesis Kit

A high-performance and complete system with positive control primers

Cat# K4201100



Feature

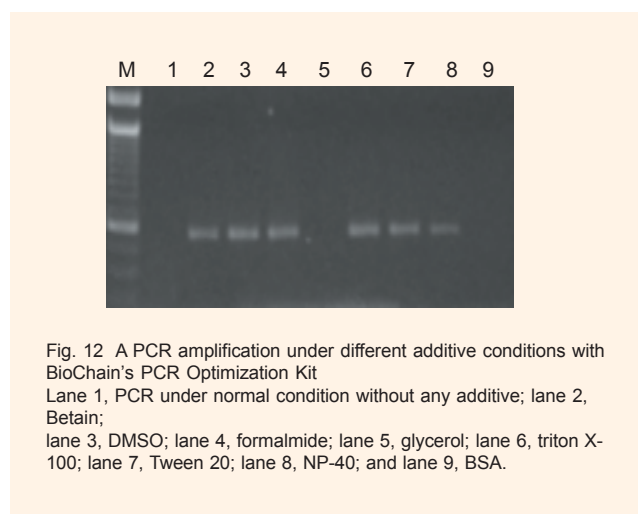
- Full-length first strand cDNA synthesis
- Ready for PCR amplification
- Templates for second strand synthesis and construction of cDNA libraries
- Complete system with positive control primers and BioChain's premium quality human placenta total RNA

Application

- Immediate PCR amplification of known genes
- Comparison of gene expression patterns among biological samples
- Gene mutation analysis
- Gene cloning and target sequencing

Optimax PCR Optimization and Starter Kit

Cat# K5051100



Features

- Reliable - Improves PCR amplification of difficult templates
- Fast – After two rounds of PCR, best conditions are obtained
- Easy – Two simple and easy to follow protocols are given
- Economical - Rapid optimization and consistent amplification results save time and money
- Complete – All necessary reagents for PCR are included. All you need to start the PCR reaction is a PCR machine

Applications

- Rapid optimization of PCR conditions for specific template/primer pair combinations, including those that are considered difficult to amplify
- Consistent, economical amplification with individual BioChain PCR- reagents once optimal PCR conditions have been obtained
- Complete PCR system: use it as a starter kit or a trouble shooting kit

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