Nucleic acids preparation / DNA & RNA Purification

Many methods are available to extract and purify nucleic acids, depending on:
- starting material; this include complex biological samples (tissues, cells, bacteria, virus...) and in vitro (amplifications reactions, affinity chromatography fractions...)
- desired nucleic material: DNA, cDNA, plasmids, RNA, mRNA,...
- the goal: to isolate, concentrate or desalt nucleic material. The purity and quality of DNA/RNA, usually estimated with OD \(_{260/280}\) measurement, should suit downstream applications, including analysis, PCR amplifications, diagnostics or therapeutics.

Interchim offers basic chemical reagents for extraction of nucleic acids, as well as kits, based mainly on ionic exchange, that make easier process of specific applications including difficult samples or demanding genetic techniques as DNA amplification, RT-PCR, or transfections.

See also:
- Desalting/dialysis, electroelution
- DNA/RNA labelling

Nucleic acid purification kit (general use)

Total RNA Purification Kit

Pour la purification rapide de l'ARN total - y compris microARN - sans phénol

- Isoler les ARN totaux, y compris siRNA et microARN
- Enlever rapidement l'ADN génomique contaminant sans utilisation d'enzymes
- Pas de phénol ou chloroforme extractions
- Purifier l'ARN de haute qualité en 20 minutes
- Extraire l'ARN à partir d'une seule cellule
- Isoler à partir d'une grande variété d'échantillons

<table>
<thead>
<tr>
<th>Total RNA Purification Kit</th>
<th>17200, 50 preps</th>
<th>37500, 100 preps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inserer le log Norgen</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Plasmid DNA Preparation

DNA-spin™ Plasmid DNA Mini-prep

DNA-spin™ Plasmid DNA Purification Kit provides a fast, efficient means of preparing high purity plasmid DNA without specialized devices or equipment. This kit contains a spin-type column filled with silica bead membrane and reagents optimizing alkali lysis for easy purification of plasmid DNA from bacteria. The specially treated silica bead membrane makes it easy to harvest high quality plasmid DNA by eliminating RNA and genomic DNA during the quick spin-down process. The plasmid DNA is free from protein, chromosomal DNA, RNA contaminants, and can be used directly in experiment.

Characteristics
- Takes only 30 minutes to extract plasmid DNA
- Optimized silica bead membrane allows recovery of highly purified plasmid DNA
Minimal nicking of plasmid DNA guarantees accurate results in plasmid DNA sequencing.

Optimal culture volume: 3-5 ml at OD<sub>600</sub> of 1-1.5

Applications: PCR, Cloning, Sequencing, in vitro transcription, Translation, and etc

DNA-spin™

Comparison of transfection result

DNA-midi™ SV Plasmid DNA Purification Kit

DNA-midi™ SV Plasmid DNA Purification Kit provides easy and rapid method for the midi scale preparation of plasmid DNA from bacterial cells. This kit can be used to isolate and purify any plasmid, also can isolated maximum 40 kb size plasmid DNA. The plasmid DNA is free from protein, genomic DNA, and RNA contaminants. This pure plasmid DNA is ready for PCR, cloning, automated or manual sequencing, transfection, synthesis of labeled hybridization probes, electroporation, and enzymatic restriction analysis.

Characteristics
- Easy to use - organic extraction or ethanol precipitation is no required.
- No phenol or chloroform is used.
- Spend only 30 min (vacuum protocol), 50 ~ 60 min (spin protocol) to extract plasmid DNA
- Cell lysates remove easily with Pre Column. After mixing with M3 Buffer, the cellular debris and precipitates should be removed completely not to clog Binding Column in subsequent binding. Pre Column facilitates the clearance of the lysate by filtration instead of laborious incubation on ice and centrifugation which has been used widely in traditional methods.
- Plasmid DNA binds selectively to silica membrane.
- This column system applies spin and vacuum protocol.
- Volume of bacterial cultures: 30 ~ 50 ml for high copy number plasmid, up to 100 ml for low copy number plasmid.

DNA-midi™ Plasmid DNA Extraction Kit

This DNA-midi™ kit is adjustable for midi scale (midi protocol). However, you can extract massively plasmid DNA by using an additional protocol (maxi protocol). For the midi protocol, the expected yields are 75 ~ 150µg for high-copy plasmids and 25 ~ 150µg for low-copy plasmids. For the maxi protocol, the expected yields are 300 ~ 600 µg for high-copy plasmids and 100 ~ 600 µg for low-copy plasmids.

1) Saving your time(just 50-60min)
2) No problem for both endA+ & endA-E.coli strain
3) No alcohol Precipitation
4) No Phenol/Chloroform Extractions
5) No Slow Gravity Column like company Q
Applications: Sequencing, transfection, in vitro Transcription/Translation

<table>
<thead>
<tr>
<th>DNA-midi™ Plasmid DNA Extraction Kit</th>
<th>MP2700</th>
<th>50 columns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contains: 3 buffers, RNase A solution, midi-Bead sol., 2 washing buffers, Elution buffer, Filter columns, Collection tubes</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

DNA-maxi™ SV Plasmid DNA Purification Kit

DNA-maxi™ SV Plasmid DNA Purification Kit provides easy and rapid method for the maxi scale preparation of plasmid DNA from bacterial cells. This kit can be used to isolate and purify any plasmid, also can islated maximum 40 kb size plasmid DNA. The plasmid DNA is free from protein, genomic DNA, and RNA contaminants. This pure plasmid DNA is ready for PCR, cloning, automated or manual sequencing, transfection, synthesis of labeled hybridization probes, electroporation, and enzymatic restriction analysis.

Characteristics:
- **Easy to use** - organic extraction or ethanol precipitation is no required.
- **Safe**: No phenol or chloroform is used.
- **rapid**: Spend only 30 min (vacuum protocol), 80 ~ 90 min (spin protocol) to extract plasmid DNA
- **Cell lysates remove easily with Pre Column.**
  - After mixing with M3 Buffer, the cellular debris and precipitates should be removed completely not to clog Binding Column in subsequent binding. Pre Column facilitates the clearance of the lysate by filtration instead of laborious incubation on ice and centrifugation which has been used widely in traditional methods.
- **Plasmid DNA binds selectively to silica membrane.**
- **This column system applies spin and vacuum protocol.**
- **Volume of bacterial cultures**: 100 ~ 150 ml for high copy number plasmid, up to 300 ~ 400 ml for low copy number plasmid.

Yield & purity of various size plasmid DNA isolated from DH5α

<table>
<thead>
<tr>
<th>No.</th>
<th>Sample (Size)</th>
<th>Conc (ng/μl)</th>
<th>Yield (μg)</th>
<th>A260nm</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>pUC18 (2.9 kb)</td>
<td>135.01</td>
<td>270</td>
<td>1.82</td>
</tr>
<tr>
<td>2</td>
<td>pTA (7.1 kb)</td>
<td>127.66</td>
<td>235.3</td>
<td>1.78</td>
</tr>
<tr>
<td>3</td>
<td>pCEP4 (10.5 kb)</td>
<td>125.35</td>
<td>230.7</td>
<td>1.88</td>
</tr>
<tr>
<td>4</td>
<td>pAd EASY1 (33.2 kb)</td>
<td>187.80</td>
<td>2740</td>
<td>1.70</td>
</tr>
<tr>
<td>5</td>
<td>pHiM7 (40.2 kb)</td>
<td>90.66</td>
<td>191.2</td>
<td>1.03</td>
</tr>
</tbody>
</table>

PCRquick-spin™ PCR Product Purification Kit

The PCRquick-spin™ Kit procedure uses silica-membrane technology to remove nucleotides, dNTPs, enzymes, primers, mineral oil, salts, ethidium bromide, dyes, detergents and other impurities from PCR reactions quickly and efficiently. The PCRquick-spin products contain silica-gel membrane binding of up to 15μg DNA in high-salt buffer and eluting the DNA in low-salt buffer.
The system uses a simple bind-wash-elute procedure. PCR reaction samples are mixed with the appropriate binding buffer and then applied to the PCRquick-spin column where DNA binds to the silica-gel membrane. Impurities are washed away, and pure DNA is eluted in a small volume of the low-salt elution buffer provided or water, ready for use in any subsequent application.

**Characteristics**
- Takes only 15 minutes to extract DNA fragment
- Minimize DNA loss: recovers DNA fragment without solvent extraction, precipitation, or other steps that can lead to loss or degradation of DNA.
- High yield and excellent quality
- PCR product volume: 20-50 µl

Applications: Sequencing, cloning, ligation, probe labeling ligation, random primed labeling, nick translation etc.

### % Recovery of DNA from the different fragment length & amount of DNA

<table>
<thead>
<tr>
<th>Fragment length</th>
<th>% Recovery</th>
<th>Amount of DNA</th>
<th>% Recovery</th>
</tr>
</thead>
<tbody>
<tr>
<td>50bp - 200bp</td>
<td>80%</td>
<td>5 - 10ug</td>
<td>80%</td>
</tr>
<tr>
<td>200bp - 4Kb</td>
<td>95%</td>
<td>10 - 30ug</td>
<td>95%</td>
</tr>
<tr>
<td>4Kb - 10Kb</td>
<td>90%</td>
<td>&gt; 30ug</td>
<td>75%</td>
</tr>
<tr>
<td>&gt; 10 Kb</td>
<td>75%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**PCRquick-spin™ PCR Product Purification Kit**

AP3879, 50 tests
AP387A, 250 tests

Contents: Binding buffer, Washing buffer, Elution buffer, columns, Collection tubes

**MEGA-spin™ Agarose Gel Extraction Kit**

DNA fragments for probe DNA or ligation must be separated and purified from other DNA fragments. MEGA-spin™ employs a column method to purify target DNA in excised agarose gel. The column method uses a highly concentrated salt solution to keep the target DNA bound to the column membrane. The binding reaction occurs due to the disruption of the organized structure of water molecules and the interaction with the nucleic acids. Thus the adsorption to the specifically pretreated membrane is favored. Since the binding process is specific for nucleic acids, the bound material can be separated and purified from impurities e.g. salts and proteins, with simple washing step. Nucleic acids elute from the column membrane in a low salt buffer or water.

MEGA-spin™ is designed to extract and purify DNA of 100bp to 10kb from standard or low-melt agarose gels in TAE or TBE buffer. Furthermore, the kit guarantees a high yield of purification up to 70-90%. DNA fragments isolated with MEGA-spin™ Agarose Gel Extraction Kit are efficiently ligated into plasmid cloning vectors or specifically labeled using either random primed labeling or nick translation. No inhibition of digestion with restriction endonucleases is observed.

**Characteristics**
- Extract and purify DNA of 100bp to 10kb from all types of agarose gel
- Recovery between 70 and 90%
- Spin column technology to recover DNA from excised agarose bands
- Efficient for small amounts of DNA: 300-500 ng of DNA

Applications: Sequencing, cloning, ligation, probe labeling ligation, random primed labeling, nick translation and etc.

### Comparison of different supplier's products

The DNA fragments (4.5Kb and 1.3Kb) were extracted from gels using kits from different suppliers. 1.3Kb DNA fragment; 4.5 Kb DNA fragment

Lane M, Marker DNA; Lane 1, MEGA-spin™ Kit; Lane 2, Supplier A; Lane 3, Supplier B; Lane 4, Supplier C; Lane 5, Supplier D

**MEGA-spin™ Agarose Gel Extraction Kit**

BZ4810, 50 tests
BZ4811, 250 tests

Contents: Agarose lysis buffer, Washing buffer, Elution buffer, columns with membrane, Collection tubes for 2 ml
MEGAquick-spin™ PCR & Agarose Gel DNA Extraction Kit

The MEGAquick-spin™ PCR & Agarose Gel DNA Extraction Kit is designed to recover or concentrate DNA fragments (87 bp–20 kb) from agarose gels, PCR or other enzymatic reactions. Up to 95% recovery is achieved depending upon the fragment size. PCR products are commonly purified to remove excess nucleotides and primers.

Fig.: The bar-graph shows the recovery of DNA fragment. The values of yield was estimated with TINA2.0 software.

Before : Before purification
Control : PCRquick-spin™ PCR Product Purification Kit
MEGAquick-spin™ PCR & Agarose Gel DNA Extraction System
Supplier Q and P : Q and P company products
Lane M. 100 bp Ladder molecular weight DNA marker
Lane 1. Multiplex PCR purification
Lane 2. 570 bp DNA fragment purification
Lane 3. 1.0 kb DNA fragment purification

Characteristics
- Allows purification directly from PCR reactions or agarose gel slices
- Purify DNA fragments or PCR products in as little as 20 minutes.
- Up to 95% recovery of ready-to-use DNA.
- Purify DNA fragments (87 bp–20 kb).
- Purified DNA fragments are ready to use for PCR, sequencing, restriction digestion
- Maximum volume: 800 µl – Maximum capacity: 40 µg

MEGAquick-spin™ PCR & Agarose Gel DNA Extraction Kit

<table>
<thead>
<tr>
<th></th>
<th>S5432A, 50 tests</th>
<th>S5432B, 250 tests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contents</td>
<td>Agarose gel lysis &amp; DNA binding buffer, Washing buffer, Elution buffer, columns with silica membrane, 2 ml collection tubes</td>
<td></td>
</tr>
</tbody>
</table>

MonoFas® DNA Purification Kit I

A new method for purifying DNA by monolith technology

Based on Silica Monolith Technology MonoFas offers the advantage of large surface area for increased nucleic acid adsorption.

- Fast procedure and easy handling
  DNA purification from PCR samples in 4 minutes.
  DNA purification from agarose gels in 9 minutes.
- 10µL minimal elution volume
- High sample capacity
- Clean up with high recoveries
  Efficient enzymes/primers removal ratio of 99.5%.
  Sodium-free eluent.
  For PCR purification, 10 - 100µL can be applied.
  For agarose gels, 1 g can be applied.
- DNA size range: 35bp - 35 000bp
- This kit can be used for the DNA purification from both PCR and an agarose gel extraction

MonoFas® DNA Purification Kit I

<table>
<thead>
<tr>
<th></th>
<th>BN3314, 50 assays</th>
<th>BN3315, 100 assays</th>
<th>BN3316, 250 assays</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BN3314, 50 assays</td>
<td>BN3315, 100 assays</td>
<td>BN3316, 250 assays</td>
</tr>
</tbody>
</table>

MonoFas® DNA Purification technology is also available for blood and plasmid samples. Please ask for more details on thoses kits.
**PROBER™ Probe DNA purifying system**

PROBER™ Probe DNA purifying system is a disposable column, which removes unincorporated labeled nucleotides following end-labeling, probe labeling, or polymerization reaction with labeled nucleotides. Prepacked column is useful for the purification of probe DNA for Southern hybridization, Northern hybridization, and *in situ* hybridization.

**Characteristics:**
- **Simple step**: Only a few seconds of centrifugation will give you purified probe DNA.
- **Rapid reaction time**: All steps is performed in 30-60 seconds.
- **Comfortable column unit**: The pre-packed PROBER™ column format allows easy preparation of probe DNA.
- **High purity**: The kit produces high quality DNA
- **Column maximum volume**: 1 ml

**Contents:** 100 columns to be placed in 1.5 ml tube

**Electroelution from gels**

Please see ‘GebaFlex’ products in chapter B = Proteomics, that are efficient tools to recover nucleic acids from electrophoresis gels. Great applications are:

- recovery of large DNA fragments 10kB-200kb
  - HAND OFF WITH TEDIOUS DNAs
  - For >10kb DNAs, the bead technology purifications dont work properly. GebaFlex method offers a superior method to conventional elution that operates by diffusion overnight from agarose pieces. GebaFlex procedure takes only 15 minutes, and nucleic acids can be directly desalted, or purified by beads technology, for any downstream applications. To get i.e. 4 OD of DNA, you need much less (up 2 fold less) starting DNA because yield ranges 80 to 90% (see figure).

Large DNA fragment Electro Elution method with GeBAflex-tube

- recovery of complexes (RNA-protein, DNA-protein): >60% recovery, <2h process

- recovery of small DNA (oligos): 90% recovery, minimum size of oligo 15 nt
  - DON’T GO TO HPLC !
  - GebaFlex offers an excellent alternative method to HPLC purification of oligonucleotides (cheap, and too time consuming and low yield diffusion elutions. Scale up is easier then with HPLC

- recovery of RNA: intact with >60% recovery

**Compared with:**

HPLC purification of oligonucleotides diffusion elutions

GebaFlex method has following advantages:
- cheaper, no development, scale up is more easy much higher yield, quicker
- GebaFlex offers an excellent alternative method to HPLC purification of oligonucleotides (cheaper, scalable), and to time consuming and low yield diffusion elutions.
Cells & Tissue DNA Preparation

G-DEX™ IIc Genomic DNA Extraction Kit (For Cell/Tissue)

G-DEX™ IIc Genomic DNA Extraction Kit (for cell/tissue) is a rapid and efficient method for isolation of high molecular weight genomic DNA from Gram(-) bacteria, yeast, animal cells and tissues of all types. For the most samples, it takes just 5 steps and less than 1 hour. All samples can yield high-quality DNA. Also, sample sizes can range from a single cell to 1 gram of tissue. It is suitable for PCR, DNA hybridization, genomic DNA library construction, or other applications.

Characteristics:
- Sample size: 1-2 x 10^6 cells
- Variety: extract from a wide range of biological samples
- Rapid isolation of genomic DNA: 20-60 min.
- Easy-to-use: Lysis → Protein remove → DNA pellet → DNA hydration
- High Yield: Recovers up to 20 µg (1-2x10^6 Cells), 35 µg (20mg Tissue)
- High Purity: DNA ratio (OD_{260/280})= 1.9-2.1 (free from contaminants)

G-DEX™ IIc Genomic DNA Extraction Kit (For Cell/Tissue)

i-genomic CTB DNA Extraction Mini Kit

i-genomic CTB DNA Extraction Mini kit provides a fast and easy way to purify DNA from cultured animal cell, animal tissue, rodent tail, fixed tissue, animal hair, insect/worm, stool, bone, swab, and gram negative bacteria. Furthermore, we have tested i-genomic CTB DNA Mini Kit to get more practical data with 102 numbers of CTB samples.

Characteristics:
- Loading capacity: maximum 800 µl
- DNA binding capacity: maximum 45 µg
- Recovery: 85-95% depending on the elution volume
- Elution volume: 30-200 µl of elution buffer
G-spin™ Genomic DNA Extraction Kit (Bacteria)

G-spin™ Genomic DNA Extraction Kit are designed for rapid isolation of genomic DNA from a variety of sample sources including fresh or frozen animal cells/tissues (for Cell/Tissue) and Gram-negative & Gram-positive bacteria (for Bacteria), yeast (for Yeast), or bloods (for Blood). The purified DNA is free of contaminants and impurities and is ideal for all PCR, Southern blotting, RAPD, and sequencing applications.

G-spin™ Kit uses advanced silica-gel membrane technology for rapid and efficient purification of genomic DNA without organic extraction or ethanol precipitation. Furthermore, G-spin™ buffer system is optimized to allow rapid and simple cell lysis followed by selective binding of DNA to the column. G-spin™ procedure is very simple, so you can purify DNA from a variety of target source within 20-40min.

Characteristics:
- Convenience: no ethanol precipitation step
- Rapid isolation of genomic DNA: max. 30 min.
- Application: almost all gram (+) and gram (-) bacteria
- Sample size: 1-2 ml of cells

Comparison of extracted genomic DNA G-spin™ Kit and other company's kits.
Lane 1, 2: G-spin™, Lane 3, 4: Supplier A Sample: Salmonella pullorum

i-genomic BYF DNA Extraction Mini Kit (Bacteria, Yeast, Fungi)

i-genomic BYF DNA Extraction Mini Kit provides a fast and easy way to purify DNA from BYF samples such as various gram positive bacteria, yeast, fungal tissue and fungi. Furthermore, we have tested i-genomic BYF DNA Mini Kit to get more practical data with 23 BYF samples.

Characteristics:
- Loading capacity: maximum 800 µl
- DNA binding capacity: maximum 45 µg
- Recovery: 85-95% depending on the elution volume
- Elution volume: 30-200 µl
- Sample size: 1-5 ml of gram positive bacteria and yeast, 50-100 mg of fungal tissue and 2-3 pieces of 0.5 x 1 cm² of fungi grow plate
i-genomic Plant DNA Extraction Mini Kit

i-genomic Plant DNA Extraction Mini Kit provides a fast and easy way to purify DNA from plant-like samples such as various leaves, stems, roots, fruits, and seeds. Furthermore, we have tested i-genomic Plant DNA Mini Kit to get more practical data with 104 plant samples. You can also extract genomic DNA from various plant samples in addition to 75 plant samples by selecting an appropriate protocol.

Characteristics:

- Loading capacity: maximum 800 µl
- DNA binding capacity: maximum 45 µg
- Recovery: 85-95% depending on the elution volume
- Elution solution: 30 – 200 µl

Agarose gel electrophoresis of eluted genomic DNA (1.0%)

Contents: Lysis buffer, Precipitation buffer, Binding buffer, Washing buffers A & B, Elution buffer, Binding enhancer buffer, Spin columns 2ml with silica membrane, Collection tubes, RNases A solution, Protease K solution
Blood DNA Preparation

G-spin™ Genomic DNA Extraction Kit (for Blood)

G-spin™ Genomic DNA Extraction Kits are designed for rapid isolation of genomic DNA from various sample sources including fresh or frozen animal cells/tissues (for Cell/Tissue) and bacteria (for Bacteria), yeasts (for Yeast), plant (for Plant) or bloods (for Blood). The purified DNA is free of contaminants and impurities, and is ideal for all PCR, Southern blotting, RAPD, and RFLP applications.

G-spin™ kits use advanced silica-gel-membrane technology for rapid and efficient purification of genomic DNA without organic extraction or ethanol precipitation. Furthermore, G-spin™ buffer system is optimized to allow rapid and simple cell lysis followed by selective binding of DNA to the column. G-spin™ Genomic DNA Extraction Kit can obtain 35 ug per 1 ml of whole blood with an A260/280 of 1.7-2.0. Flexibility in amount of starting material, purification from 0.1-20 ml whole blood. Samples from 0.05 to 0.4 ml can be completed in 30 minutes or less. Recovery rates are 60 to 90%. For blood, 50 kb fragments are typical.

Identification of genomic DNA from blood

(M: 1kb ladder DNA, lane 1-6: blood samples)

i-genomic Blood DNA Extraction Mini Kit

I-genomic Blood DNA Extraction Mini Kit provides a fast and easy way to purify DNA from blood-like samples such as various whole blood, buffy coat, plasma, serum, dried blood spot, and blood swab. Furthermore, we have tested i-genomic Blood DNA Mini Kit to get more practical data with 24 blood samples.

Characteristics:
- Sample size: 200 µl of liquid sample and 1-3 ea of dried spot or swab sample
- Up to over 40 kb
- Loading capacity: maximum 800 µl
- DNA binding capacity: maximum 45 µg
- Recovery: 85-95% depending on the elution volume
- Elution volume: 30-200 µl
- High purity: A260/280 ratio of 1.8-2.0

Agarose gel electrophoresis of eluted genomic DNA (1.0%)
Already prepared DNA  Human Genomic DNA

Human Genomic DNA is obtained from 293 cells. More than 90% of the DNA molecules provided are larger than 50 kb in size as measured by gel electrophoresis by ethidium bromide staining. Human Genomic DNA can be used for gene amplification, gene analysis and similar applications. Concentration: 120 ng/µl in 10 mM Tris-HCl (pH8.0), 1 mM EDTA

Human Genomic DNA  DU1840, 100 µg

Genomic DNA and Total RNA

Genomic DNA and total RNA are prepared by superior extraction kits from the following cell lines. 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.

Cell lines available: B-958, Raji, C-33A, Caski, Hela, Hela S3, Siha, HUT 102, CCRF-CEM, HL-60, Jurkat, K562, KG-1, BeWo, BT-474, MCF 7, HT 1080, Fc2Lu, P388D1. Custom services for other cell lines are also available.

Each package contains 100 µg of genomic DNA or 100 µg total RNA.

RNA preparation

Cells & Tissues RNA preparation

easy-spin™ Total RNA Extraction Kit

easy-spin™ Total RNA Extraction Kit combines the advantages of solution type products and column type ones, removing the inconvenience of alcohol PPT process in solution type products and enabling the extraction of total RNA within 30 minutes without genomic DNA.

Characteristics:

- No genomic DNA contamination
- No alcohol PPT process
- Extraction time: <30 minutes
- Sample size: 50-100 mg of tissue, 10^6 cells in 1,5 ml tube
RNA-spin™ Total RNA Extraction Kit

- Variety: extract from animal cells, tissues, bacteria
- Rapid isolation of total RNA: <30 minutes, including a lysis step
- High yield: 90-95% RNA recovery
- Applications: RT-PCR, Northern blotting, Primer extension, cDNA synthesis.
- Sample size: animal cells (< $10^7$ cells), tissues (<30 mg), bacteria (<$10^9$ cells)
- RNA binding capacity: <100µl
- Throughput: 1-24 samples
- Elution volume: 30-100 µl

Result of RT-PCR with β-actin gene using One-Step RT-PCR PreMix Kit

<table>
<thead>
<tr>
<th>Supplier Q</th>
<th>RNA-spin™</th>
</tr>
</thead>
<tbody>
<tr>
<td>M 1 2 3 4 5 6</td>
<td>1 2 3 4 5 6</td>
</tr>
</tbody>
</table>

| β-actin |

Total RNA Extraction Kit

CE2590 50 columns

Contents: R buffer, Washing buffer A & B, Elution buffer, columns with silica membrane, 2 ml Collection tubes

easy-BLUE™ Total RNA Extraction Kit

There is about 1-2x10^{-5} µg of RNA per mammalian cell and we can theoretically obtain about 10-20 µg of RNA by extracting 1x10^6 cells. easy-BLUE can make RNA extraction rate nearing the theoretical number a reality. It has a clear advantage in dissolving RNA because it can obtain highly pure degree of RNA in contrast to the usual mal-dissolution problem due to a post-PPT contamination of protein, which is far too frequent in a RNA extraction.

Advantages:
- Very vivid color between aqueous phase and phenol phase
- Stable > 3 years
**easy-spin™ IIp Plant RNA Extraction Kits**

easy-spin™ IIp Plant RNA Extraction Kit is recommended for use total RNA isolation as maxi-scale from plant tissues. One of the kit component contains high molecular polyethyleneglycol (HMW-PEG) that binds to contaminants such as polyphenolic compounds and polysaccharides that are commonly present in plant tissues.

Glass fiber filter-based RNA isolation method, such as the easy-spin™ IIp Plant RNA Extraction Kit, are especially suited for plant RNA purification because they do not include any alcoholic precipitating steps; many kind of contaminants found in plant tissue are known to co-precipitate with nucleic acid during alcohol precipitation. When use with the easy-spin™ IIp Plant RNA Extraction Kit, the procedure consists of disrupting the plant tissue in a guanidinium based solution to which the pre-lysis buffer has been added. A brief centrifugation then remove the polyphenolic and polysaccharide contaminants. The supernatant is passed through a glass-fiber filter under conditions that support RNA binding to glass filter. The filter is then washed to remove other contaminants and the RNA is recover in adequate volume (50 ~ 100 ul or more) of elution buffer.

**Characteristics:**
- no genomic DNA contamination
- no alcohol PPT process
- Recover a high quality of plant total RNA.
- Sample size: 10-100 mg of tissue for Mini-prep, 1-2 g of tissue for Maxi-prep

**Extract total RNA from CGMMV-infected seed, then test virus detection by RT-PCR**

**Related products lines**
Electrophoresis reagents

**Information inquire**

Reply by Fax : +33 (0) 4 70 03 82 60 or email at interbiotech@interchim.com

☐ I wish to recieve the complete documentation about: ______________________________________________________

Name: __________________________ 2nd name: __________________________  Position: __________________________

Company/Institute: __________________________ Service, Lab: __________________________

Adress: __________________________

Zip code: ____________ Town*: __________________________

Tel: __________________________ Fax: __________________________ Email: __________________________