3

DNA cleanup and concentration

| 3.0 | DNA cleanup selection guides   |                                     | 98  |  |  |
|-----|--|-------------------------------------|-----|--|--|
| 3.1 | PCR cleanup www.qiagen.com/PC  | 6/PCRcleanup                        |     |  |  |
|     | ■ DNA cleanup from PCR, minimal elution volumes  |                                     |     |  |  |
|     | Spin-column format   | MinElute PCR Purification Kit       | 100 |  |  |
|     | 96-well format   | MinElute 96 UF PCR Purification Kit | 101 |  |  |
|     | ■ DNA cleanup from PCR, standard elution v   | olumes                              |     |  |  |
|     | ·  | QIAquick PCR Purification Kits      | 102 |  |  |
|     | ■ 96-well format   | QIAquick 96 PCR Purification Kits   | 103 |  |  |
|     | <ul> <li>Automated systems for DNA cleanup</li> <li>Fully automated PCR purification,</li> </ul> |                                     |     |  |  |
|     | up to 12 samples per run   | New QIAcube                         | 363 |  |  |
|     | <ul> <li>Rapid and economical PCR<br/>purification, up to 96 samples<br/>per run</li> </ul>      | BioSprint 96                        | 369 |  |  |
|     | •  | BioRobot Universal System           | 366 |  |  |
|     | •  | BioRobot 8000                       | 371 |  |  |
| 3.2 | Gel extraction www.qiagen.com/F  | <u>G/gelextraction</u>              |     |  |  |
|     | ■ Gel extraction of DNA, minimal elution volumes   |                                     |     |  |  |
|     | ■ DNA fragments 70 bp – 4 kb   | MinElute Gel Extraction Kit         | 104 |  |  |
|     | ■ Gel extraction of DNA, standard elution vo   | lumes                               |     |  |  |
|     |  | QIAquick Gel Extraction Kit         | 105 |  |  |
|     | ■ DNA fragments 40 bp – 50 kb  | QIAEX II Gel Extraction Kit         | 106 |  |  |
| 3.3 | Enzymatic reaction cleanup www.qiagen.com/PG/rxncleanup  |                                     |     |  |  |
|     | ■ Cleanup of DNA, minimal elution volumes  |                                     |     |  |  |
|     | Spin-column format   | MinElute Reaction Cleanup Kit       | 107 |  |  |
|     | cDNA labeling and cleanup  |                                     |     |  |  |
|     | Labeling and cleanup kit   | LabelStar Array Kit                 | 188 |  |  |
| 3.4 | Nucleotide removal www.qiagen.c  | com/PG/ntremoval                    |     |  |  |
|     | Removal of nucleotides, standard elution v   |                                     |     |  |  |
|     | ·  | QIAquick Nucleotide Removal Kit     | 108 |  |  |
|     | cDNA labeling and cleanup  |                                     |     |  |  |
|     | Labeling and cleanup kit   | LabelStar Array Kit                 | 188 |  |  |
| 3.5 | Dye-terminator removal www.qiagen.com/PG/dyeremoval  |                                     |     |  |  |
|     | ■ Cleanup of DNA from sequencing reactions   |                                     |     |  |  |
|     | ■ Spin-column and 96-well formats  | DyeEx Kits                          | 109 |  |  |
|     | ■ Manual solutions □ Automated solutio   | ns Automatable solutions            |     |  |  |

# **DNA** cleanup: applications

|                                     |                |                                       | DNA fragmen                                 | t size                                      |   |
|-------------------------------------|----------------|---------------------------------------|---|---|---|
| DNA cleanup application             | Elution volume | <100 bp                               | 100 bp – 4 kb                               | 4 kb – 10 kb                                | 10 kb – 50 kb                               |
| PCR cleanup*                        | 30–50 µl†      | -                                     | QIAquick PCR<br>Purification Kits           | QIAquick PCR<br>Purification Kits           | QIAEX II Gel<br>Extraction Kit <sup>‡</sup> |
|                                     | 20–30 μΙ       |                                       | MinElute 96 UF<br>PCR Purification Kits     | MinElute 96 UF<br>PCR Purification Kits     | -   |
|                                     | 10 µl          | MinElute PCR<br>Purification Kit      | MinElute PCR<br>Purification Kit            | -   | -   |
| Gel extraction                      | 30–50 µl       | QIAquick Gel<br>Extraction Kit        | QIAquick Gel<br>Extraction Kit              | QIAquick Gel<br>Extraction Kit              | -   |
|                                     | ≥20 µl         | QIAEX II Gel<br>Extraction Kit        | QIAEX II Gel<br>Extraction Kit              | QIAEX II Gel<br>Extraction Kit              | QIAEX II Gel<br>Extraction Kit <sup>‡</sup> |
|                                     | 10 µl          | MinElute Gel<br>Extraction Kit        | MinElute Gel<br>Extraction Kit              | -   | -   |
| Cleanup from enzymatic reactions    | 30–50 µl       | -                                     | QIAquick DNA<br>Cleanup System <sup>§</sup> | QIAquick DNA<br>Cleanup System <sup>§</sup> | QIAEX II Gel<br>Extraction Kit <sup>‡</sup> |
|                                     | 10 µl          | MinElute Reaction<br>Cleanup Kit      | MinElute Reaction<br>Cleanup Kit            | -   | -   |
| Nucleotide removal                  | 30–200 µl      | QIAquick<br>Nucleotide<br>Removal Kit | QIAquick<br>Nucleotide<br>Removal Kit       | QIAquick<br>Nucleotide<br>Removal Kit       | n.a.  |
| Dye-terminator removal <sup>¶</sup> | n.a.           | DyeEx 2.0<br>Spin Kits                | DyeEx 2.0<br>Spin Kits                      | DyeEx 2.0<br>Spin Kits                      | n.a.  |

n.a.: Not applicable.

<sup>\*</sup> For throughput greater than 24 samples in parallel, the QIAquick 8 PCR Purification Kit, MinElute 96 UF PCR Purification Kit, QIAquick 96 PCR Purification Kit, or QIAquick 96 PCR BioRobot Kit should be used.

<sup>&</sup>lt;sup>†</sup> Elution volume used in spin column procedures.

<sup>\*</sup> See QIAEX II Gel Extraction Kit Protocol for "Desalting and Concentrating DNA from Solutions".

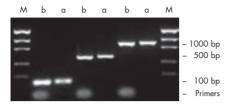
<sup>§</sup> For the kit best suited to your specific application, please see table on page 99.

<sup>1</sup> For throughput greater than 24 samples in parallel use the DyeEx 96 Kit.

# DNA cleanup: enzymatic reactions

|   | QIAquick PCR<br>Purification Kit<br>(page 102) | QIAquick Nucleotide<br>Removal Kit<br>(page 108) | QIAquick Gel<br>Extraction Kit<br>(page 105) |
|---|--|--|--|
| For DNA cleanup from the following reactions: |  |  |  |
| Alkaline phosphatase                          |  |  |  |
| cDNA synthesis                                |  |  |  |
| DNase, nuclease digestion                     |  |  |  |
| Kinase:  DNA fragments                        | •  | :  |  |
| Oligonucleotides<br>Ligation                  | _  |  |  |
| Nick translation                              |  | -  |  |
| PCR   |  |  |  |
| Random priming                                |  |  |  |
| Restriction digestion                         |  |  |  |
| Tailing:  DNA fragments  Oligonucleotides     | •  | :  |  |
| Specifications                                |  | _  |  |
| Recovery:                                     |  |  |  |
| Oligonucleotides                              | _  | 17-40mers  | _  |
| dsDNA   | 100 bp – 10 kb                                 | 40 bp – 10 kb                                    | 70 bp – 10 kb                                |
| Removal:                                      |  |  |  |
| <10mers                                       |  |  |  |
| 17-40mers                                     |  |  |  |
| Automatable on the QIAcube                    |  |  |  |

#### Efficient Primer Removal Using the MinElute PCR Purification Kit



Analysis of PCR products before (b) and after (a) purification with the MinElute PCR Purification Kit. Samples were analyzed on a 1.2% TAE agarose gel. M: markers.

#### Improved MinElute® PCR Purification Kit

For purification of up to 5 µg PCR products (70 bp to 4 kb) in low elution volumes

- Very small elution volumes
- Fast procedure and easy handling
- High, reproducible recoveries
- Gel loading dye containing 3 tracking dyes for more convenient sample analysis

#### **Product description**

The MinElute PCR Purification Kit provides spin columns, buffers, and collection tubes for silica-membrane–based purification of PCR products of 70 bp – 4 kb. The spin columns are designed to allow elution in very small volumes (as little as 10  $\mu$ l) delivering highly concentrated DNA in high yields. An integrated pH indicator allows easy determination of the optimal pH for DNA binding to the spin column.

#### **Applications**

DNA fragments purified with the MinElute system are ready for direct use in all applications, including:

- Sequencing
- Microarray analysis
- Ligation and transformation
- Restriction digestion
- Labeling
- Microinjection
- PCR and in vitro transcription

| Product                                 | Contents  | Cat. no. |
|---|---|----------|
| MinElute PCR Purification<br>Kit (50)*  | 50 MinElute Spin Columns, Buffers,<br>Collection Tubes (2 ml), Gel Loading Dye  | 28004    |
| MinElute PCR Purification<br>Kit (250)* | 250 MinElute Spin Columns, Buffers,<br>Collection Tubes (2 ml), Gel Loading Dye | 28006    |

<sup>\*</sup> MinElute spin columns can be used either in a microcentrifuge or on vacuum manifolds (QIAvac 24 Plus, or QIAvac 6S with Luer Adaptors, page 394).

For further information: www.giagen.com/PG/PCRcleanup

100 www.qiagen.com QIAGEN Product Guide 2007

### **Automatable**

#### MinElute 96 UF PCR Purification Kit

For high-throughput purification of up to 15 µg PCR products (over 100 bp) using ultrafiltration in a 96-well format

- Very small elution volumes
- Fast procedure and easy handling
- High, reproducible recoveries

#### **Product description**

The MinElute 96 UF PCR Purification Kit provides 96-well plates for high-throughput ultrafiltration-based purification of PCR products >100 bp. The plates are designed to allow elution in very small volumes (as little as 20 µl) delivering highly concentrated DNA in high yields. The procedure can be automated on the BioRobot Universal System (page 366) or BioRobot 8000 (page 371).

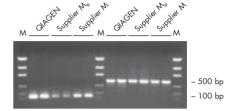
#### **Applications**

DNA fragments purified with the MinElute system are ready for direct use in all applications, including:

- Sequencing
- Microarray analysis
- Ligation and transformation
- Restriction digestion
- Labeling
- Microinjection
- PCR and in vitro transcription

See page 384 for ready-to-use DNA molecular weight markers.

# Efficient Purification of Concentrated DNA



DNA fragments (100 bp and 500 bp) were purified using either MinElute 96 UF PCR Purification Plates (**QIAGEN**) or ultrafiltration-based kits from other suppliers (**Supplier M**)<sub>III</sub> and **Supplier M**). Aliquots (5 µI) of the eluate were analyzed by aggrose-gel electrophoresis. **M**: markers.

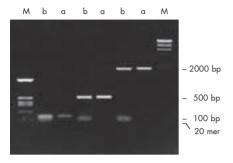
| Product                                      | Contents                                  | Cat. no. |
|--|---|----------|
| MinElute 96 UF PCR<br>Purification Kit (4)*  | 4 MinElute 96 UF PCR Purification Plates  | 28051    |
| MinElute 96 UF PCR<br>Purification Kit (24)* | 24 MinElute 96 UF PCR Purification Plates | 28053    |

<sup>\*</sup> Requires use of QIAvac Multiwell (page 394), or automation using the BioRobot Universal System (page 366), BioRobot 8000 (page 371), or BioRobot 3000 (no longer available).

For further information: www.giagen.com/PG/PCRcleanup

# Automatable on QIAcube

# Complete Primer Removal after PCR



Analysis of PCR reactions before (**b**) and after (**a**) purification with the QIAquick PCR Purification Kit. Samples were analyzed on a 1% TAE agarose gel. **M**: markers.

# Improved QIAquick® PCR Purification Kits

For purification of up to 10 µg PCR products, 100 bp to 10 kb

- Up to 95% recovery of ready-to-use DNA
- Cleanup of DNA up to 10 kb in three easy steps
- Gel loading dye containing 3 tracking dyes for more convenient sample analysis

#### **Product description**

QIAquick PCR Purification Kits provide spin columns or 8-well strips, buffers, and collection tubes for silica-membrane-based purification of PCR products >100 bp. DNA up to 10 kb is purified using a simple and fast bind-wash-elute procedure and an elution volume of 30–50 µl. An integrated pH indicator allows easy determination of the optimal pH for DNA binding to the spin column.\* The procedure can be fully automated on the QIAcube (page 363).

#### **Applications**

DNA fragments purified with the QIAquick system are ready for direct use in all applications, including: sequencing, microarray analysis, ligation and transformation, restriction digestion, labeling, microinjection, PCR, and in vitro transcription. See page 384 for ready-to-use DNA molecular weight markers.

| Product   | Contents  | Cat. no. |
|---|---|----------|
| QIAquick PCR Purification<br>Kit (50) <sup>†‡</sup> | For purification of 50 PCR reactions:<br>50 QIAquick Spin Columns, Buffers,<br>Collection Tubes (2 ml), Gel Loading Dye   | 28104    |
| QIAquick PCR Purification<br>Kit (250)†‡            | For purification of 250 PCR reactions:<br>250 QIAquick Spin Columns, Buffers,<br>Collection Tubes (2 ml), Gel Loading Dye | 28106    |
| QIAquick 8 PCR Purification<br>Kit (50)*§           | For purification of 50 x 8 PCR reactions:<br>50 QIAquick 8 Strips, Buffers,<br>Collection Microtubes (1.2 ml), Caps       | 28144    |

<sup>\*</sup> pH indicator not included in the QIAquick 8 PCR Purification Kit. † Automatable on the QIAcube (page 363). † QIAquick spin columns can be used either in a microcentrifuge or on vacuum manifolds (QIAvac 24 Plus, or QIAvac 6S with Luer Adaptors, page 394). § Requires use of QIAvac 6S (page 394).

### For further information: www.qiagen.com/PG/PCRcleanup

102 www.qiagen.com QIAGEN Product Guide 2007

## **Automatable**

## **QIAquick 96 PCR Purification Kits**

For purification of 96 PCR products (up to 10  $\mu$ g), 100 bp to 10 kb

- Up to 95% recovery of ready-to-use DNA
- Fast procedure
- Cleanup of DNA up to 10 kb in three easy steps

#### **Product description**

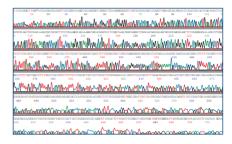
QlAquick 96 PCR Purification Kits provide 96-well plates, buffers, and collection tubes for high-throughput silica-membrane –based purification of PCR products >100 bp. DNA up to 10 kb is purified using a simple and fast bind-wash-elute procedure and an elution volume of 60–80 µl (resulting in an eluate volume of 40–60 µl). The cleanup procedure can be fully automated on BioRobot workstations.

#### **Applications**

DNA fragments purified with the QIAquick system are ready for direct use in all applications, including: sequencing, microarray analysis, ligation and transformation, restriction digestion, labeling, microinjection, PCR and in vitro transcription.

See page 384 for ready-to-use DNA molecular weight markers.

# Accurate Sequencing of Purified PCR Product



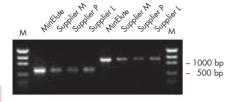
Dye-terminator sequencing of a 1 kb PCR product template purified using the QIAquick 96 PCR Purification Kit and sequenced on an ABI PRISM® 377XL DNA sequencer using an internal primer.

| Product                                   | Contents   | Cat. no. |
|---|--|----------|
| QIAquick 96 PCR<br>Purification Kit (4)*  | For purification of 4 x 96 PCR reactions:<br>4 QIAquick 96 Plates, Buffers,<br>Collection Microtubes (1.2 ml), Caps  | 28181    |
| QIAquick 96 PCR<br>Purification Kit (24)* | For purification of 24 x 96 PCR reactions:<br>24 QIAquick 96 Plates, Buffers,<br>Collection Microtubes (1.2 ml), Caps  | 28183    |
| QIAquick 96 PCR<br>BioRobot Kit (4)†      | For purification of 4 x 96 PCR products:<br>4 QIAquick 96 Plates, Reagents, Buffers,<br>Collection Microtubes (1.2 ml) and Caps,<br>96-Well Microplates RB and Lids, Tape Pads | 963141   |

<sup>\*</sup> Requires use of QIAvac 96 (page 394). † For use with the BioRobot 3000 workstation (no longer available). Larger kit sizes and special kit formats for use with the BioRobot 8000 workstation (page 371) are also available; please inquire.

For further information: www.qiagen.com/PG/PCRcleanup

# Higher DNA Concentrations Obtained Using MinElute Spin Kits



A 500 bp and a 1000 bp fragment purified using the MinElute Gel Extraction Kit and 3 different silica-based DNA purification kits from the suppliers indicated. Two microliters of each eluate was loaded onto a 1.5% agarose gel. **M**: markers.

### Improved MinElute Gel Extraction Kit

For gel extraction of up to 5 µg DNA fragments (70 bp to 4 kb) in low elution volumes

- Very small elution volumes
- Fast procedure and easy handling
- High, reproducible recoveries
- Gel loading dye containing 3 tracking dyes for more convenient sample analysis

#### **Product description**

The MinElute Gel Extraction Kit provides spin columns, buffers, and collection tubes for silica-membrane–based purification of DNA fragments of 70 bp – 4 kb from gels. The spin columns are designed to allow elution in very small volumes (as little as 10  $\mu$ l) delivering highly concentrated DNA in high yields. An integrated pH indicator allows easy determination of the optimal pH for DNA binding to the spin column.

#### **Applications**

DNA fragments purified with the MinElute system are ready for direct use in all applications, including:

- Sequencing
- Microarray analysis
- Ligation and transformation
- Restriction digestion
- Labelina
- Microinjection
- PCR and in vitro transcription

See page 384 for ready-to-use DNA molecular weight markers.

| Product                               | Contents   | Cat. no. |
|---------------------------------------|--|----------|
| MinElute Gel Extraction<br>Kit (50)*  | 50 MinElute Spin Columns, Buffers,<br>Collection Tubes (2 ml), Gel Loading Buffer  | 28604    |
| MinElute Gel Extraction<br>Kit (250)* | 250 MinElute Spin Columns, Buffers,<br>Collection Tubes (2 ml), Gel Loading Buffer | 28606    |

<sup>\*</sup> MinElute spin columns can be used either in a microcentrifuge or on vacuum manifolds (QIAvac 24 Plus, or QIAvac 6S with Luer Adaptors, page 394).

For further information: www.qiagen.com/PG/gelextraction

104 www.qiagen.com QIAGEN Product Guide 2007

# Automatable on QIAcube

## Improved QIAquick Gel Extraction Kit

For gel extraction or cleanup of up to 10 µg DNA (70 bp to 10 kb) from enzymatic reactions

- Up to 95% recovery of ready-to-use DNA
- Cleanup of DNA up to 10 kb in three easy steps
- Gel loading dye containing 3 tracking dyes for more convenient sample analysis

#### **Product description**

The QIAquick Gel Extraction Kit provides spin columns, buffers, and collection tubes for silica-membrane–based purification of DNA fragments from gels or enzymatic reactions. DNA from 70 bp to 10 kb is purified using a simple and fast bind–wash–elute procedure and an elution volume of 30–50 µl. An integrated pH indicator allows easy determination of the optimal pH for DNA binding to the spin column. The procedure can be fully automated on the QIAcube (page 363).

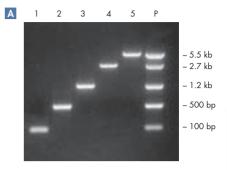
#### **Applications**

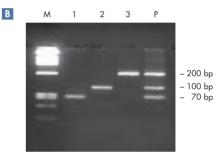
DNA fragments purified with the QIAquick system are ready for direct use in all applications, including:

- Sequencing
- Ligation and transformation
- Restriction digestion
- Labeling
- Microinjection
- PCR and in vitro transcription

See page 384 for ready-to-use DNA molecular weight markers.

#### **High Recoveries from Gels**





DNA fragments (sizes indicated) before extraction with the QIAquick Gel Extraction Kit and pooled after extraction. Recoveries of approximately 80% are obtained for all fragment sizes. A 1-5: before extraction; P: pooled after extraction. Samples were analyzed on a 1.5% agarose gel in TAE buffer. D 1-3: before extraction; P: pooled after extraction. Samples were analyzed on a 3.5% high-resolution-agarose gel in TAE buffer.

M: pTZ-Hinfl markers.

| Product                                | Contents  | Cat. no. |
|--|---|----------|
| QIAquick Gel Extraction<br>Kit (50)*†  | 50 QIAquick Spin Columns, Buffers,<br>Collection Tubes (2 ml), Gel Loading Dye  | 28704    |
| QIAquick Gel Extraction<br>Kit (250)*† | 250 QIAquick Spin Columns, Buffers,<br>Collection Tubes (2 ml), Gel Loading Dye | 28706    |

<sup>\*</sup> Automatable on the QIAcube (page 363). <sup>†</sup> QIAquick spin columns can be used either in a microcentrifuge or on vacuum manifolds (QIAvac 24 Plus, or QIAvac 65 with Luer Adaptors, page 394).

For further information: www.giagen.com/PG/gelextraction

#### QIAEX® II Gel Extraction Kit

For batch purification of DNA fragments (40 bp to 50 kb) from agarose gels and from solutions

- Efficient extraction of DNA from 40 bp to 50 kb
- Gel extraction from standard or low-melt agarose gels in TAE or TBE buffer and from polyacrylamide gels
- No sodium iodide to interfere with subsequent reactions
- No shearing of large DNA fragments

#### **Product description**

The QIAEX II Gel Extraction Kit provides a suspension of silica particles to which DNA fragments bind in the presence of chaotropic salts. QIAEX II Suspension is added to solutions or solubilized agarose gel slices and binds DNA. The particles are collected by a brief centrifugation, washed, and DNA from 40 bp to 50 kb is eluted in Tris buffer or water.

#### **Applications**

DNA fragments purified with the QIAEX II system can be used directly in most applications, including:

- Sequencing
- Restriction digestion
- Labeling
- Ligation
- PCR

See page 384 for ready-to-use DNA molecular weight markers.

| Product                              | Contents  | Cat. no. |
|--------------------------------------|---|----------|
| QIAEX II Gel Extraction<br>Kit (150) | For 150 extractions: 3 x 0.5 ml<br>QIAEX II Suspension, Buffers | 20021    |
| QIAEX II Gel Extraction<br>Kit (500) | For 500 extractions: 5 x 1.0 ml<br>QIAEX II Suspension, Buffers | 20051    |
| QIAEX II Suspension (1.5 ml)         | 1.5 ml suspension   | 20902    |

For further information: www.qiagen.com/PG/gelextraction

## Improved MinElute Reaction Cleanup Kit

For cleanup of up to 5 µg DNA (70 bp to 4 kb) from enzymatic reactions

- Very small elution volumes
- Fast procedure and easy handling
- High, reproducible recoveries
- Gel loading dye containing 3 tracking dyes for more convenient sample analysis

#### **Product description**

The MinElute Reaction Cleanup Kit provides spin columns, buffers, and collection tubes for silica membrane-based purification of DNA of 70 bp -4 kb from enzymatic reactions. The spin columns are designed to allow elution in very small volumes (as little as 10  $\mu$ l) delivering highly concentrated DNA in high yields. An integrated pH indicator allows easy determination of the optimal pH for DNA binding to the spin column.

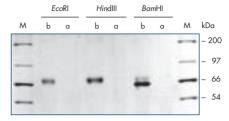
#### **Applications**

DNA fragments purified with the MinElute system are ready for direct use in all applications, including:

- Sequencing
- Microarray analysis
- Ligation and transformation
- Restriction digestion
- Labeling
- Microinjection
- PCR and in vitro transcription

See page 384 for ready-to-use DNA molecular weight markers.

### Complete Removal of Restriction Enzymes



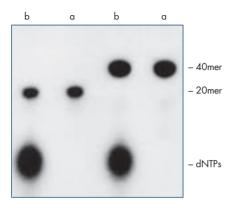
SDS-PAGE analysis of samples containing 4 units of the indicated restriction enzyme before (b) and after (a) processing with the MinElute Reaction Cleanup Kit. Proteins were visualized by silver staining. M: markers.

| Product                                 | Contents  | Cat. no. |
|---|---|----------|
| MinElute Reaction<br>Cleanup Kit (50)*  | 50 MinElute Spin Columns, Buffers,<br>Collection Tubes (2 ml), Gel Loading Dye  | 28204    |
| MinElute Reaction<br>Cleanup Kit (250)* | 250 MinElute Spin Columns, Buffers,<br>Collection Tubes (2 ml), Gel Loading Dye | 28206    |

<sup>\*</sup> MinElute spin columns can be used either in a microcentrifuge or on vacuum manifolds (QIAvac 24 Plus, or QIAvac 6S with Luer Adaptors, page 394).

For further information: www.giagen.com/PG/rxncleanup

# Complete Removal of Nucleotides from Labeled Oligos



Polyacrylamide gel analysis of radioactive labeling reactions before (**b**) and after (**a**) purification using the QIAquick Nucleotide Removal Kit.

## Improved QIAquick Nucleotide Removal Kit

For up to 10 µg oligonucleotide (17–40mers) and DNA (40 bp to 10 kb) cleanup from enzymatic reactions

- Up to 95% recovery of ready-to-use DNA
- Fast procedure
- Cleanup of DNA up to 10 kb in three easy steps
- Gel loading dye containing 3 tracking dyes for more convenient sample analysis

#### **Product description**

The QIAquick Nucleotide Removal Kit provides spin columns, buffers, and collection tubes for silica membrane-based purification of oligonucleotides and DNA. Unincorporated nucleotides, salts, and other contaminants are removed and oligonucleotides (>17 nt) and DNA from 40 bp – 10 kb are purified using a simple and fast bind–wash–elute procedure and an elution volume of 30–200 µl.

#### **Applications**

DNA fragments purified with the QIAquick system are ready for direct use in all applications, including:

- Sequencing
- Microarray analysis
- Ligation and transformation
- Restriction digestion
- Labeling
- Microinjection

See page 384 for ready-to-use DNA molecular weight markers.

| Product                                   | Contents  | Cat. no. |
|---|---|----------|
| QIAquick Nucleotide<br>Removal Kit (50)*  | 50 QIAquick Spin Columns, Buffers,<br>Collection Tubes (2 ml), Gel Loading Dye  | 28304    |
| QIAquick Nucleotide<br>Removal Kit (250)* | 250 QlAquick Spin Columns, Buffers,<br>Collection Tubes (2 ml), Gel Loading Dye | 28306    |

<sup>\*</sup> QIAquick spin columns can be used either in a microcentrifuge or on vacuum manifolds (QIAvac 24 Plus, or QIAvac 6S with Luer Adaptors, page 394).

For further information: www.qiagen.com/PG/ntremoval

## DyeEx® Kits

For removal of unincorporated dye terminators from 1–96 sequencing reactions

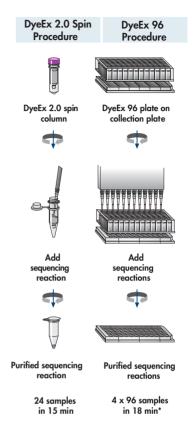
- Fast procedure with only two short centrifugation steps
- Ready-to-use prehydrated gel-filtration material
- Efficient removal of any dye terminator

#### **Product description**

DyeEx Kits provide either spin columns or 96-well plates and use gel-filtration technology to remove dye terminators from sequencing reactions. Sequencing reactions are loaded onto the pre-hydrated gel-filtration material. After a short centrifugation step, the reactions are ready to be loaded onto a capillary sequencer. Unincorporated dye terminators are retained in the gel matrix.

#### **Applications**

DyeEx Kits remove any type of dye terminator from 10–20 µl sequencing reactions including BigDye<sup>™</sup>, dRhodamine dye, Rhodamine, DYEnamic<sup>™</sup> ET, and WellRED terminators. After cleanup, the sequencing reactions can be separated on ABI PRISM 377, 373, 310, 3100, 3130, 3700, or 3730, MegaBACE<sup>™</sup> 1000, or CEQ<sup>™</sup> 2000 sequencers. Sequencing intensities are high, resulting in long read-lengths.



<sup>\*</sup> Using the standard protocol.

| Product                  | Contents   | Cat. no. |
|--------------------------|--|----------|
| DyeEx 2.0 Spin Kit (50)  | 50 DyeEx Spin Columns,<br>Collection Tubes (2 ml)                          | 63204    |
| DyeEx 2.0 Spin Kit (250) | 250 DyeEx Spin Columns,<br>Collection Tubes (2 ml)                         | 63206    |
| DyeEx 96 Kit (4)*        | 4 DyeEx 96 Plates;<br>4 Collection Plates, 48-Well                         | 63181    |
| DyeEx 96 Kit (24)*       | <ul><li>24 DyeEx 96 Plates;</li><li>4 Collection Plates, 48-Well</li></ul> | 63183    |

<sup>\*</sup> Requires use of a table-top centrifuge equipped with a rotor with swing-out buckets, such as the QIAGEN® 96-Well-Plate Centrifugation system (page 396).

For further information: www.qiagen.com/PG/dyeremoval