2024 Catalog

Princeton Separation Scientific LLC

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www.prinsep.com

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2024 PRODUCT LIST

Centri-Sep™ Products

	Catalog Number	Product Description	Price (USD)
1	CS-900	Centri-Sep Spin Columns - Box of 20 count	$62.00
2	CS-901	Centri-Sep Spin Columns - Box of 50 count	$118.00
3	CS-912	Centri-Sep 8 Well Strips - 12 x 8-Well Strips	$225.00
4	CS-961	Centri-Sep 96 Well Plates - Box of 2 plates with 2 PCR Collection Plates	$240.00
5	CS-963	Centri-Sep 96 Well Plates - Box of 25 plates	$2,450.00
6	CS-965	Centri-Sep 96 Well Plates - Box of 50 plates	$3,525.00

Centri-Spin™ Products

	Catalog Number		
7	CS-100	Centri-Spin 10 - Box of 20 Columns	$62.00
8	CS-101	Centri-Spin 10 - Box of 50 Columns	$118.00
9	CS-200	Centri-Spin 20 - Box of 20 Columns	$62.00
10	CS-201	Centri-Spin 20 - Box of 50 Columns	$118.00
11	CS-400	Centri-Spin 40 - Box of 20 Columns	$62.00
12	CS-401	Centri-Spin 40 - Box of 50 Columns	$118.00

Electro-Sep™ Products

	Catalog Number		
13	ES-100-S	Gene Stix™ DNA Recovery Starter Kit- Box of 2 x Gene Stix™ + Associated Plastic Parts + Extra Buffer	$25.00
14	ES-100	Gene Stix™ DNA Recovery Kit- Box of 10 x Gene Stix™ + Associated Plastic Parts + Extra Buffer	$45.00
15	ES-102	Gene Stix™ DNA Recovery Kit- Box of 50 x Gene Stix™ + Associated Plastic Parts (Buffer Not Included)	$135.00
16	ES-302	ElectroSep Binding Buffer Concentrate for 5L Working	$46.00
17	ES-303	ElectroSep Binding Buffer Concentrate for 5 x 5L Working	$180.00
18	ES-401	ElectroSep Elution Buffer Concentrate 16.5 mL for 50 x Gene StixTM	$24.00
19	ES-406	ElectroSep Elution Buffer Concentrate 16.5 mL w 0.1% Tween for 50 x Gene StixTM	$24.00

Please contact Princeton Separations Scientific LLC at info@prinsep.com for further information

Princeton Separations Scientific LLC Offers a Portfolio of Essential Protein Purification and Extraction Products Addressing Needs from Individual Spin Columns to High Throughput Products

MADE IN USA	Brand	SKU	Prod Image	DNA Recovery[1]	Storage
Dry Gel Products	Centri-Sep Spin Columns	Box of 20 Count Box of 50 Count		Excellent recovery of DNA fragments with **sizes greater than 16 base pairs or 25-mer**, while removing > 98 % of salts, NTP's and other unwanted low- molecular- weight impurities	Room Temperature
	Centri-Spin 10	Box of 20 Count Box of 50 Count		Excellent recovery of DNA fragments with **sizes greater than 10 base pairs or 10-mer**. Proteins, peptides, and protein conjugates **> 5 kD** can also be efficiently separated	Room Temperature
	Centri-Spin 20	Box of 20 Count Box of 50 Count		Excellent recovery of DNA fragments with **sizes greater than 20 base pairs or 20-mer**. Proteins, peptides, and protein conjugates **> 25 kD** can also be efficiently separated	Room Temperature
	Centri-Spin 40	Box of 20 Count Box of 50 Count		80 % of short oligonucleotides **(< 25-mer**); excellent recovery of up to 70 % with **sizes greater than 135 base pairs**. Proteins, peptides, and protein conjugates **> 100 kD** can also be separated	Room Temperature
Hydrated Gel Products	Centri-Sep 8-Well Strips	12 x 8-Well Strips		Excellent recovery of DNA fragments with **sizes greater than 16 base pairs or 25-mer**, while removing > 98 % of salts, NTP's and other unwanted low- molecular- weight impurities	2 - 8 C[2]
	Centri-Sep 96-Well Plates	Box of 2 Plates Box of 25 Plates Box of 50 Plates		Excellent recovery of DNA fragments with **sizes greater than 16 base pairs or 25-mer**, while removing > 98 % of salts, NTP's and other unwanted low- molecular- weight impurities	2 - 8 C[2]
ElectroSep Products	GeneStix	Box of 2 GeneStix Box of 10 GeneStix Box of 50 GeneStix		DNA size of desire. **DNA recovery is ca. 85%.** Process **efficiency improvement of up to 35%.** It does not require specialized Electrophoresis device.	Room Temperature

[1] See further details of each product at https://www.prinsep.com/sites/prinsep.rpdesign.com/files/2024-Catalog_vf.pdf

[1] Shipment can be done in room temperature

Centri-Sep^{TM}

Products

Princeton Separation Scientific LLC

7 Deerpark Drive, Suite M-12, Monmouth Junction

New Jersey 08852 United States

www.prinsep.com

CENTRI-SEP COLUMNS

For Research Use Only

PRINCIPLE

CENTRI-SEP Columns are used for the fast and efficient purification of large molecules (proteins, nucleic acids, complex carbohydrates, etc.) from small molecules (nucleotides, buffer salts, etc.). The column design is based on the description by Sambrook, et al.[1] of gel filtration for the purification of DNA from nick translation reactions. Each unit consists of a special fritted microfuge tube, dry gel, a wash tube and a sample collection tube - all designed for this purpose.

The gel will provide excellent recovery of DNA fragments ≥16 base pairs or oligonucleotides ≥25-mer while removing >98% of salts, NTP's and other low-molecular-weight compounds from the sample. The column gel is hydrated with reagent grade water or a suitable buffer and spun in a microcentrifuge or swinging-bucket centrifuge to remove the interstitial fluid. The sample is then applied and the column is spun again, processing the sample. The sample is thus purified by removing low molecular weight components and exchanged into the buffer of choice.

CENTRI-SEP Columns have been designed specifically for the following uses:

- Purification of fluorescent reaction mixtures, as in DNA sequencing with the ABI 373A and 377A
- Removal of free and labeled dNTP's from DNA/RNA as in:
  - nick translation
  - end-labeling reactions
  - polymerization reactions
- Desalting, removal of traces of phenol, or exchange of buffer salts, as in multiple restriction digestions
- Purification/desalting of proteins

Use of these columns is far superior in ease of use, speed, and non-toxicity, to such common techniques as phenol/chloroform extractions and ethanol precipitations.

Benefits include:

- RAPID AND EFFICIENT SEPARATIONS
- BUFFER NOT PRESELECTED
- COLUMNS STABLE AT ROOM TEMPERATURE
- CONVENIENT 20-100 µL SAMPLE SIZE

PROCEDURAL NOTES

Maximum yield and efficiency are obtained with the horizontal or swinging-bucket rotors. However, fixed-angle-rotor microcentrifuges provide acceptable performance and save time. On a variable speed microcentrifuge, DO NOT use the pulse button, which overrides the speed setting and takes the rotor to maximum g-force. If you are not sure of the g-force generated by your centrifuge at specific speeds, calculate the correct speed by using the following formula:

$$rpm = \sqrt{\frac{RCF}{(1.119\ x\ 10^{-5})(r)}}$$

Where rpm = revolutions per minute;

RCF = Relative Centrifugal Force, and

r = radius (cm) measured from center of spindle to bottom of rotor bucket.

Example:

For RCF = 750

r = 7.5 cm:

$$rpm = \sqrt{\frac{750}{(1.119\ x\ 10^{-5})(7.5)}} = 2990$$

QUALITY CONTROL

Every batch of CENTRI-SEP Columns is tested for separation efficiency and fill accuracy.

MATERIALS PROVIDED

- CENTRI-SEP Columns containing dry gel
- Wash Tubes (2 mL)
- Sample Collection Tubes (1.5 mL)

ADDITIONAL MATERIALS RECOMMENDED

- Microcentrifuge (Eppendorf 5415C, Variable Speed or equivalent)
- Variable pipets (Pipetman 100 µl)
- Pipet Tips
- Pipet Bulb, Dispo, 2ml Latex
- Microtube Rack
- Vortex Mixer

COMMON PROBLEMS OFTEN RESULTING IN INEFFECTIVE SEPARATION

1) A failure to remove excess interstitial fluid after hydration of the columns.

Solution: Note if any columns have released less fluid than the others during the first spin. Simply spinning them again briefly will usually remove the excess fluid.

2) Touching the side of the column during sample application.

Solution: Load the sample directly into the center of the gel bed and do not touch the sample to the walls of the column.

REFERENCE

[1] Sambrook, J., Fritsch, E.F., and Maniatis, T., *Molecular Cloning: A Laboratory Manual*, Cold Spring Harbor Laboratory, 1989.

CATALOG NO.	SIZE
CS-900	20 pack
CS-901	50 pack

CENTRI-SEP
Protocol

Removal of Dye Terminators Prior to Sequencing

CENTRI-SEP Columns are recommended by Applied Biosystems, Inc. for effective and reliable removal of excess DyeDeoxy™ terminators from completed DNA sequencing reactions. The procedure below is intended to be used in conjunction with the Taq DyeDeoxy™ and ABI Prism™ terminator cycle sequencing kits, including those with AmpliTaq®, FS, used on the ABI 373A or 377A Sequencer.

CENTRI-SEP is designed For Research Use Only

1.0 Column Hydration

1.1 Gently tap the column to insure that the dry gel has settled in the bottom of the spin column.

1.2 Remove the top column cap and reconstitute the column by adding 0.80 mL of reagent grade water or buffer. Leave the column end stopper in place so the column can stand up by itself. Replace the column cap and hydrate the gel by shaking and inverting the column or vortexing briefly. It is important to hydrate all of the dry gel.

1.3 Allow at least 30 minutes of room temperature hydration time before using the columns. Reconstituted columns may be stored refrigerated at 4°C for several days. Longer storage can be accomplished in 10 mM sodium azide (NaN3). Allow refrigerated columns to warm to room temperature before continuing this procedure.

2.0 Removal Of Interstitial Fluid

2.1 Remove air bubbles from the column gel by inverting the column and sharply tapping the column, allowing the gel to slurry to the opposite end of the column. Stand the column up and allow the gel to settle while in a microtube rack.

2.2 After the gel has settled and is free of bubbles, first remove the top column cap, and then remove the column end stopper from the bottom.

2.3 Allow excess column fluid to drain (gravity) into a WASH TUBE (2 mL). If the fluid does not begin to flow immediately through the end of the column, use a 2 mL latex pipet bulb to apply gentle air pressure to the top of the column to force the fluid to start through the column filter. The column will stop draining on its own. Approximately 200–250 µL will drain from the column. Discard this fluid.

2.4 Spin the column and wash tube in a variable speed centrifuge at 750 × g for 2 minutes to remove interstitial fluid. For example, using the Eppendorf microcentrifuge, Model 5415C at 750 × g (7.3 cm rotor), the correct speed is 3,000 rpm. If you use a microcentrifuge, it is important to keep track of the position of the column using the orientation mark molded into the column.

2.5 Approximately 300 µL of fluid will be removed. If there is a drop at the end of the column, blot it dry. Discard the wash tube and the interstitial fluid. Do not allow the gel material to dry excessively. Process the sample within the next few minutes.

3.0 Sample Processing

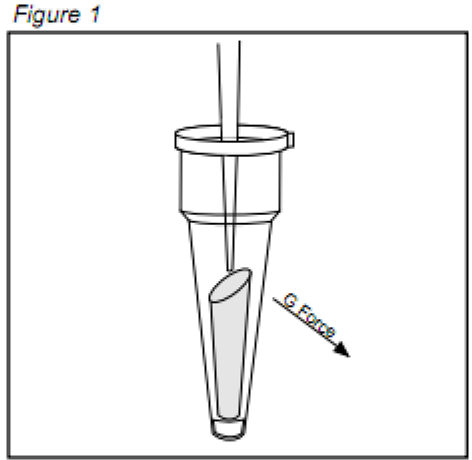
3.1 Hold the column up to the light. Transfer 20 µL of completed DyeDeoxy™ terminator reaction mixture to the top of the gel. Carefully dispense the sample DIRECTLY ONTO THE CENTER OF THE GEL BED at the top of the column, without disturbing the gel surface (See Figure 1). DO NOT contact the sides of the column with the reaction mixture or the sample pipet tip, since this can reduce the efficiency of purification and possibly ruin the analysis due to excess dyes.

3.2 Place the column into the SAMPLE COLLECTION TUBE (1.5 mL) and place both into the rotor. Maintain proper column orientation. The highest point of the gel media in the column should always point toward the outside of the rotor (See Figure 1). Spin the column and collection tube at 750 × g for 2 minutes. The purified sample will collect in the bottom of the Sample Collection Tube. Discard the spin column and proceed with the ABI sample preparation procedure.

3.3 Dry the sample in a vacuum centrifuge. Do not apply heat.

*DyeDeoxy™, Prism™, and AmpliTaq® are trademarks of Applied Biosystems, Inc.

Figure 1



CENTRI-SEP™ 8 STRIPS

Dye Terminator Cleanup in 8-Well Format

For Research Use Only

PRINCIPLE

CENTRI-SEP™ 8 is used for the fast and efficient purification of large molecules (proteins, nucleic acids, complex carbohydrates, etc.) from small molecules (nucleotides, buffer salts, etc.). The column design is based on the description by Sambrook, et al.(1) of gel filtration for the purification of DNA from nick translation reactions. Each unit consists of a special fritted 8-column microfuge tube set containing hydrated gel designed for this purpose.

The gel will provide excellent recovery of DNA fragments **>16 base pairs or 25-mer** while removing >98% of salts, NTP's and other low-molecular-weight compounds.

The Centri-Sep™ 8 is a strip of 8-columns with hydrated, preservative-free separation matrix that is ready for sample application following a 2 minute spin. Centri-Sep™ 8 comes packaged with 12 strips sealed with foil in a single block. The block must be separated into single strips before the sealing foil is removed. Centri-Sep™ 8 strips must be brought to room temperature for at least two hours before use.

CENTRI-SEP™ 8 has been designed specifically for the following uses:

- Purification of fluorescent reaction mixtures, as in DNA sequencing with the **ABI models 373A, 377A, 310, 3100, 3700 and 3730.**
- Removal of free and labeled dNTP's from DNA/RNA as in:
  - nick translation
  - end-labeling reactions
  - polymerization reactions
- Desalting, removal of traces of phenol, or exchange of buffer salts, as in multiple restriction digestions
- Purification/desalting of proteins

These columns are far superior - in **ease of use, speed, and non-toxicity** - to such common techniques as phenol/chloroform extractions and ethanol precipitations.

Benefits include:

- **RAPID AND EFFICIENT SEPARATIONS**
- **OPTIMIZED FOR CENTRIFUGE USAGE**
- **HYDRATED AND PRESERVATIVE FREE**
- **CONVENIENT 20 µL SAMPLE SIZE**

CENTRIFUGE NOTES

Maximum yield and efficiency are obtained with the horizontal or swinging-bucket rotors. However, fixed-angle-rotor microcentrifuges provide acceptable performance and save time.

On a variable speed microcentrifuge, DO NOT use the pulse button, which overrides the speed setting and takes the rotor to maximum g-force. If you are not sure of the g-force generated by your centrifuge at specific speeds, calculate the correct speed by using the following formula:

$$rpm = \sqrt{\frac{RCF}{(1.119\,x\,10^{-5})(r)}}$$

Where *rpm* = revolutions per minute
RCF = Relative Centrifugal Force, and
r = radius (cm) measured from center of spindle to bottom of rotor bucket.

Example:

For RCF = 750 and r = 7.5 cm

$$rpm = \sqrt{\frac{750}{(1.119\,x\,10^{-5})(7.5)}} = \textbf{2990 rpm}$$

QUALITY CONTROL

Every batch of CENTRI-SEP™ 8 is tested for separation efficiency and fill accuracy.

MATERIALS PROVIDED

- CENTRI-SEP™ 8 Hydrated Strip (12 Strips)

ADDITIONAL MATERIALS RECOMMENDED

- Deep 96-Well (500-800 µl) plate wash plates (**sold by Princeton Separations under catalog number CS-962**)
- 96-Well PCR Plate
- 8-Well PCR strip (200 µL)

Note: These are not provided.

COMMON PROBLEMS & SOLUTIONS

•A failure to remove excess interstitial fluid before sample addition to the columns.
Common Solution: Observe if any columns have released less fluid than the others during the first spin. Simply spinning them again briefly will usually remove the excess fluid.

•Touching the inside wall of the column during sample application.
Common Solution: Load the sample directly into the center of the gel bed and do not contact the sample or the pipette tip to the walls of the column.

REFERENCE

1 Sambrook, J., Fritsch, E.F., and Maniatis, T., *Molecular Cloning: A Laboratory Manual*, Cold Spring Harbor Laboratory, 1989.

ORDERING INFORMATION

CATALOG NO.	SIZE
CS-912	**12 x 8 well strips**

79-100613E

TM

CENTRI-SEP™ 8 strips are recommended by Applied Biosystems, Inc. for effective and reliable removal of excess DyeDeoxy™ terminators from completed DNA sequencing reactions. The procedure below is intended to be used in conjunction with the Tag DyeDeoxy™ and ABI Prism™ terminator cycle sequencing kits, including those with AmpliTaq®, FS, used on the ABI models 373A, 377A, 310, 3100, 3700 and 3730.

For Research Use Only

PROTOCOL for 20 µL SEQUENCING REACTION VOLUMES

1.0 Separate the desired number of strips for use by cutting the foil between strips with a blade (Fig 1). Avoid bending the block of strips since this may weaken the foil seal and cause columns to dry out.

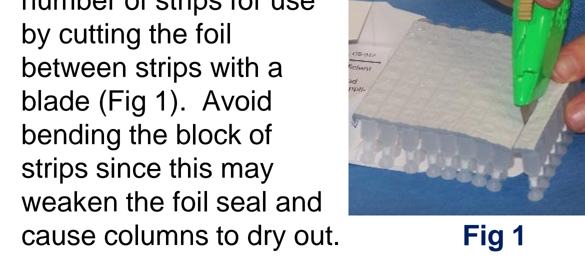


Fig 1

2.0 Open the column outlets on each strip by cutting through the bottom plastic seals with scissors. (Fig 2)

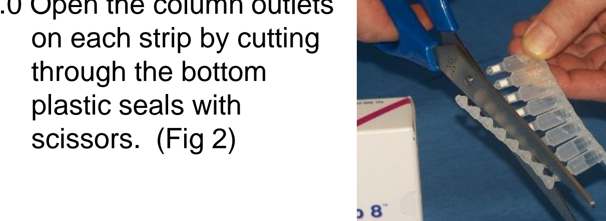


Fig 2

3.0 Remove the foil from the top of the strip. (Fig 3)

The 8-column strips perform best when centrifuging is oriented vertical to the axis of rotation.

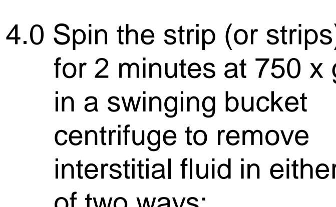


Fig 3

4.0 Spin the strip (or strips) for 2 minutes at 750 x g in a swinging bucket centrifuge to remove interstitial fluid in either of two ways:

4.1 The 8-Column strips should be positioned in **A6→H6, A7→H7** direction as close to the center as possible, when placed in microplate carriers found in "H" shaped rotors. (Fig 4)

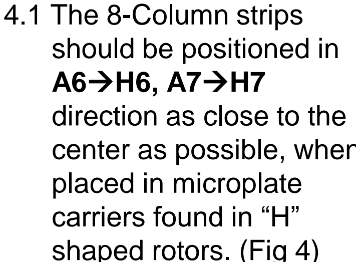


Fig 4

4.2 The 8-Column strips should be positioned in **D3→D10, E3→E10** direction as close to the center as possible, when placed in microplate carriers in rotors similar to snowflake rotors. (Fig 5)

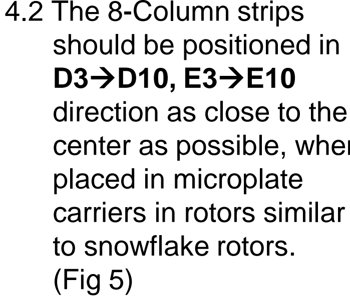
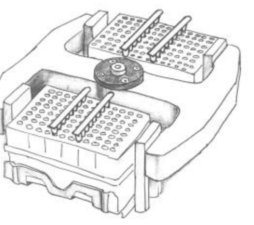
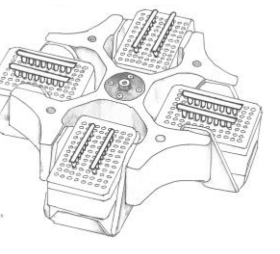


Fig 5





5.0 After centrifugation, the gel should be packed into the column and is ready to accept the sample (Fig 6)

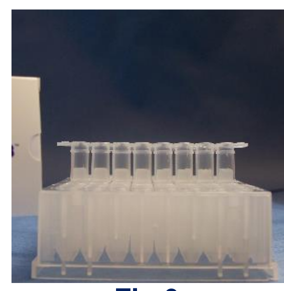


Fig 6

6.0 Add up to 20 µL of sample directly to the center of each well of Centri-Sep™ 8 column using either a mult-channel or single channel pipettor. (Fig 7)

Fig 7

7.0 Place the loaded Centri-Sep™ 8 into an 8-well PCR strip or 96-well PCR plate and spin for 2 minutes at 750 x g to collect the sample. Deep 96-well well plates (500-800 µL volume) are convenient for holding Centri-Sep™ 8 columns for both the initial spin and for the sample collection spin.

8.0 Discard the Centri-Sep™ 8 columns.

CENTRI•SEP 96 PLATES

For Research Use Only

PRINCIPLE

CENTRI•SEP 96 plates are recommended by Applied Biosystems, Inc for fast, efficient removal of excess dye terminators from completed DNA sequencing reactions. The plates are also useful for removing excess nucleotides, small primers, radioactive and fluorescent precursors, salts and buffers.

CENTR•SEP 96 plates are pre-packed with a hydrated, cross-linked gel suitable for removing excess terminators and nucleotides from dye terminator sequencing reaction mixtures. The plates are sealed top and bottom with an adhesive foil seal to prevent drying of the gel beds.

Purified reaction products from CENTRI•SEP 96 plates are collected into a standard 96 well PCR plate. The purified reaction mixtures are suitable for sequencing on an automated DNA sequencer such as the ABI 3100, ABI 3700, ABI 3130 and 3130x1, ABI 3730 and 3730x1. Subsequent drying and denaturing steps may be accomplished in Savant Speed-Vac or thermal cycler devices.

PROCEDURAL NOTES

Most centrifuges, either bench or floor models, which accept micro-plate rotors may be used with the CENTRI-SEP 96 protocol. However, the rotor must accept a plate stack approximately 5.1 cm in height (combined height of CENTRI-SEP 96 plate and wash plate) as the carrier swings 90° from its horizontal position to the vertical position.

Timing:

It is very important to control both the centrifuge speed and the duration of the run. Centrifuges vary by manufacturer with respect to when the internal timers start. Some models begin counting down as soon as the centrifuge run is started so that the ramp up to desired speed is included in the run time. If the ramp up is slow, the total time at the selected rpm is reduced, thus reducing the total g-force on the plates. We recommend the following procedure:

1. Use an external timer to monitor the centrifuge run
2. Start the timer after the rotor has reached the set speed
3. Set the brake on maximum
4. Switch off the centrifuge after 2 minutes at 1500 x g

As a visual check on centrifugation effectiveness, the matrix in the wells should appear opaque and slightly pulled away from the wall after the initial spin prior to sample application. If the matrix appears translucent or shiny, the initial centrifugation conditions are incorrect. Re-spin the plates at 1500 x g for 2 minutes.

Cushions:

Cushions supplied with the centrifuge should be used under the wash plates at all times.

g-Force:

Speed settings required for each centrifuge to reach 1500 x g will vary with the radius of the rotor used. The centrifuge manufacturer usually supplies a table or nomogram relating rpm to g force. Alternatively, the following table may be used. Values for fractional radii (i.e., 9.5 cm) may be determined by interpolation.

Radius (cm)	7	8	9	10	11	12	13	14
RPM required to reach 1500 x g	4375	4093	3860	3660	3490	3342	3211	3094

If you are not sure of the g-force generated by your centrifuge at specific speeds, you can calculate the correct speed by using the following formula:

$$rpm = \sqrt{\frac{RCF}{(1.119\ x\ 10^{-5})(r)}}$$

Where *rpm* = revolutions per minute;
RCF = Relative Centrifugal Force, and
r = radius (cm) measured from center of spindle to bottom of rotor bucket.

Example:

For RCF = 1500
r = 7.5 cm:

$$rpm = \sqrt{\frac{1500}{(1.119\ x\ 10^{-5})(7.5)}} = 4226$$

Manual Sample Application:

CENTR-SEP 96 plates are manufactured using precision filling equipment. This method ensures the extremely uniform gel bed heights required for robotic sample application. Since many users will be loading samples with multi-channel pipettors rather than robots, the following steps should be followed:

1. Samples should be loaded in the centers of the matrix beds, without touching the pipette tips to the beds or walls of the well
2. Allow the sample to "touch-off" onto the gel bed rather than "blowing-out" the pipette tips
3. Place the forefinger of your non-pipetting hand alongside the plate row to which the samples are to be applied
4. Rest the pipette tips on this finger as they are being guided to the center of the gel beds

STORAGE AND STABILITY

The CENTRI-SEP 96 plates are stable until the indicated expiration date when stored at 2-8°C.

MATERIALS PROVIDED

CATALOG NO.	CONTENTS
CS-961	96-well Plates (2) 96-well PCR Collection Plates (2) Thermal Seal® Film (2)
CS-962	96-well Reusable Wash Plates (2)
CS-963	96-well Plates (25)
CS-965	96-well Plates (50)

ADDITIONAL MATERIALS RECOMMENDED

- 2 Reusable 96-well wash plates (CS-962; supplied on request for use with CS-961)
- 96-well collection plates for CS-963, CS-965
- Thermal Seal® Films for CS-963, CS-965
- Any centrifuge with rotor and microwell plate carrier capable of handling stacked plates (5.1 cm height) at 1500 x g. Plates can also be centrifuged in vacuum concentrators, such as Savant Speed-Vac rotors like DSR6, MPTR-8-210, PRO-20 System and Genevac EZ-2.
- Multi-channel pipettor and tips

CATALOG NO.	SIZE
CS-961	2 pack
CS-963	25 pack
CS-965	50 pack

CENTRI-SEP 96
Protocol

CENTRI•SEP 96 plates must be allowed to equilibrate to room temperature before use. We recommend that the plates be removed from the refrigerator at the same time the sequencing reactions are initiated. This will allow sufficient time for the plates to warm.

1. Remove the adhesive foil from the bottom and then from the top of the CENTRI-SEP 96 plate.
2. Stack the CENTRI-SEP 96 plate on top of a 96-well wash plate and centrifuge at 1500 x g for 2 minutes. Use an external timer and start timing when the rotor has reached the set speed. Discard the liquid in the wash plate. The gel matrix in the wells should appear opaque at this point.
3. Transfer the samples (20 µL or less) to the individual wells in the CENTRI-SEP 96 plate, taking care to place the samples in the centers of the gel beds.
4. Stack the CENTRI-SEP 96 plate on top of a 96-well collection plate and centrifuge at 1500 x g for 2 minutes.
5. Remove the 96-well collection plate containing the cleaned samples and dry in a speed-vac equipped with the appropriate rotor. Alternatively the plate can be sealed for storage.

Centri-Spin™

Products

Princeton Separation Scientific LLC

7 Deerpark Drive, Suite M-12, Monmouth Junction

New Jersey 08852 United States

www.prinsep.com

CENTRI • SPIN™-10 COLUMNS

For Research Use Only

PRINCIPLE

CENTRI • SPIN™-10 Columns are used for the fast and efficient purification of large molecules (peptides, proteins, nucleic acids, complex carbohydrates) from small molecules (nucleotides, labels and buffer salts). The column design is based on the description by Sambrook, *et al.* (1) of gel filtration for the purification of DNA from nick translation reactions. Each unit consists of a special fritted microfuge tube, dry gel, wash tube and sample collection tube.

The gel will provide excellent recovery of DNA fragments **>10-mer or 10 base pairs** while removing >98% of salts, NTP's and other low- molecular-weight compounds.

The column gel is **hydrated** with reagent-grade water or a suitable buffer and spun in a microcentrifuge or swinging-bucket centrifuge to **remove the interstitial fluid**. The sample is then applied and the column is spun again, **processing the sample**. The sample is purified by the retention of low-molecular-weight contaminants in the matrix, while the larger molecules of interest are exchanged into the buffer of choice and eluted into the collection tube.

These columns are far superior — in **ease of use, speed, and non-toxicity** — to such common techniques as phenol/chloroform extraction, ethanol precipitation, dialysis and ultrafiltration.

79-100146B Ver. 2.0 1/97

Benefits include:

- **RAPID AND EFFICIENT SEPARATIONS**
- **BUFFER NOT PRESELECTED**
- **COLUMNS STABLE AT ROOM TEMPERATURE**
- **CONVENIENT 20-50µl SAMPLE SIZE**

CENTRIFUGE NOTES

Maximum yield and efficiency are obtained with the horizontal or swinging-bucket rotors. However, fixed-angle-rotor microcentrifuges provide acceptable performance and save time.

On a variable speed microcentrifuge, DO NOT use the pulse button, which overrides the speed setting and takes the rotor to maximum g-force. If you are not sure of the g-force generated by your centrifuge at specific speeds, calculate the correct speed by using the following formula:

$$\text{rpm} = \sqrt{\frac{\text{RCF}}{(1.119 \times 10^{-5})\ r\ (\text{cm})}}$$

Where
rpm = revolutions per minute;
RCF = Relative Centrifugal Force
and
r = radius (cm) measured from center of spindle to bottom of rotor bucket.

Example:

For RCF = 750 and r = 7.5 cm

$$\text{rpm} = \sqrt{\frac{750}{(1.119 \times 10^{-5})\ (7.5)}} = 2990 \text{ rpm}$$

QUALITY CONTROL:

Every batch of CENTRI • SPIN-10 Columns is tested for separation efficiency and fill accuracy.

MATERIALS PROVIDED

- CENTRI • SPIN-10 Columns containing dry gel
- Wash Tubes (2 ml)
- Sample Collection Tubes (1.5 ml)

ADDITIONAL MATERIALS RECOMMENDED

- Microcentrifuge (Eppendorf 5415C, Variable Speed or equivalent)
- Variable pipets (Pipetman 100 µl)
- Pipet Tips
- Pipet Bulb, Dispo, 2ml Latex
- Microtube Rack
- Vortex Mixer

COMMON PROBLEMS

(1) A failure to remove excess interstitial fluid after hydration of the columns.
(2) Touching the side of the column during sample application.

Both errors can result in ineffective separation.

SOLUTIONS

(1) Note if any columns have released less fluid than the others during the first spin. Simply spinning them again briefly will usually remove the excess fluid.
(2) Load the sample directly into the center of the gel bed and do not touch the sample to the walls of the column.

REFERENCE

Sambrook, J., Fritsch, E.F., and Maniatis, T., *Molecular Cloning : A Laboratory Manual,* Cold Spring Harbor Laboratory, 1989.

CATALOG NO.	SIZE
CS-100	20 pack
CS-101	50 pack

CENTRI • SPIN-10 Protocol

CENTRI • SPIN-10 Columns have been designed specifically for the following uses:

- Purification of primers or probes ≥ 10 bases
- Purification of biotinylation reactions
- Purification of protein conjugates in
  - iodination
  - fluorescence labeling
  - cross-linking
  - haptenation
- Desalting/purification/buffer exchange of peptides or proteins prior to electrophoresis

CENTRI • SPIN-10 is designed For Research Use Only

The following protocol may be used for all recommended applications.

1.0 Column Hydration

1.1 Gently tap the column to insure that the dry gel has settled in the bottom of the spin column.

1.2 Remove the top column cap and reconstitute the column by adding **0.65 ml** of reagent grade water or buffer of choice. Replace the column cap and vortex vigorously for ~ 5 seconds. Remove air bubbles by sharply tapping the bottom of the column. It is important to hydrate all of the dry gel.

1.3 Allow at least 30 minutes of room temperature hydration time before using the columns. Reconstituted columns may be stored refrigerated at 4°C for several days. Longer storage can be accomplished in 10 mM sodium azide (NaN_3). **Allow refrigerated columns to warm to room temperature before use.**

2.0 Removal of Interstitial Fluid

2.1 After the gel has hydrated and is free of bubbles, first remove the top column cap, and then remove the column end stopper from the bottom.

2.2 Spin the column and wash tube in a variable speed centrifuge at **750 × g for 2 minutes** to remove interstitial fluid. (For example, for Eppendorf Model 5415C, spin at 3000 rpm for 2 minutes.) **If you use a fixed-angle microcentrifuge, keep track of the position of the column using the orientation mark molded into the column.**

2.3 If there is a drop at the end of the column, blot it dry. Discard the wash tube and the interstitial fluid. Do not allow the gel material to dry excessively. **Process the sample within the next few minutes.**

Experimental Results

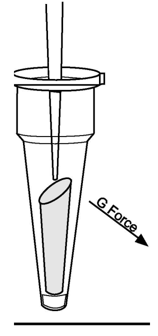
Size of DNA	% Recovery
NTP	<8
11-mer	64
15-mer	71
20-mer	71
24-mer	67

3.0 Sample Processing

3.1 Hold the column up to the light. Transfer 20 to 50 µl of the sample to the top of the gel. Carefully dispense the sample DIRECTLY ONTO THE CENTER OF THE GEL BED at the top of the column, without disturbing the gel surface (See Figure 1). DO NOT contact the sides of the column with the reaction mixture or the sample pipet tip, since this can reduce the efficiency of purification.

3.2 Place the column into the SAMPLE COLLECTION TUBE (1.5 ml) and place both into the rotor. **Maintain proper column orientation.** The highest point of the gel media in the column should always point toward the outside of the rotor. (See Figure 1). Spin the column and collection tube at **750 × g for 2 minutes**. The purified sample will collect in the bottom of the Sample Collection Tube. Discard the spin column and continue with your procedure.

Figure 1



For Research Use Only

CENTRI • SPIN™-20 COLUMNS

For Research Use Only

PRINCIPLE

CENTRI • SPIN™-20 Columns are used for the fast and efficient purification of large molecules (peptides, proteins, nucleic acids, complex carbohydrates) from small molecules (nucleotides, labels and buffer salts). The column design is based on the description by Sambrook, *et al.* (1) of gel filtration for the purification of DNA from nick translation reactions. Each unit consists of a special fritted microfuge tube, dry gel, wash tube and sample collection tube.

The gel will provide excellent recovery (>70%) of DNA fragments **>20-mer or 20 base pairs** while removing >98% of salts, NTP's and other low-molecular-weight compounds.

The column gel is **hydrated** with reagent-grade water or a suitable buffer and spun in a microcentrifuge or swinging-bucket centrifuge to **remove the interstitial fluid**. The sample is then applied and the column is spun again, **processing the sample**. The sample is purified by the retention of low-molecular-weight contaminants in the matrix, while the larger molecules of interest are exchanged into the buffer of choice and eluted into the collection tube.

These columns are far superior — in **ease of use, speed, and non-toxicity** — to such common techniques as phenol/chloroform extraction, ethanol precipitation, dialysis and ultrafiltration.

79-100168C

Benefits include:

- **RAPID AND EFFICIENT SEPARATIONS**
- **BUFFER NOT PRESELECTED**
- **COLUMNS STABLE AT ROOM TEMPERATURE**
- **CONVENIENT 20-50µl SAMPLE SIZE**

CENTRIFUGE NOTES

Maximum yield and efficiency are obtained with the horizontal or swinging-bucket rotors. However, fixed-angle-rotor microcentrifuges provide acceptable performance and save time.

On a variable speed microcentrifuge, DO NOT use the pulse button, which overrides the speed setting and takes the rotor to maximum g-force. If you are not sure of the g-force generated by your centrifuge at specific speeds, calculate the correct speed by using the following formula:

$$\text{rpm} = \sqrt{\frac{\text{RCF}}{(1.119 \times 10^{-5})\ r\ (\text{cm})}}$$

Where
rpm = revolutions per minute;
RCF = Relative Centrifugal Force
and
r = radius (cm) measured from center of spindle to bottom of rotor bucket.

Example:

For RCF = 750 and r = 7.5 cm

$$\text{rpm} = \sqrt{\frac{750}{(1.119 \times 10^{-5})\ (7.5)}} = 2990 \text{ rpm}$$

QUALITY CONTROL:

Every batch of CENTRI • SPIN-20 Columns is tested for separation efficiency and fill accuracy.

MATERIALS PROVIDED

- CENTRI • SPIN-20 Columns containing dry gel
- Wash Tubes (2 ml)
- Sample Collection Tubes (1.5 ml)

ADDITIONAL MATERIALS RECOMMENDED

- Microcentrifuge (Eppendorf 5415C, Variable Speed or equivalent)
- Variable pipets (Pipetman 100 µl)
- Pipet Tips
- Pipet Bulb, Dispo, 2ml Latex
- Microtube Rack
- Vortex Mixer

COMMON PROBLEMS

(1) A failure to remove excess interstitial fluid after hydration of the columns.
(2) Touching the side of the column during sample application.

Both errors can result in ineffective separation.

SOLUTIONS

(1) Note if any columns have released less fluid than the others during the first spin. Simply spinning them again briefly will usually remove the excess fluid.
(2) Load the sample directly into the center of the gel bed and do not touch the sample to the walls of the column.

REFERENCE

Sambrook, J., Fritsch, E.F., and Maniatis, T., *Molecular Cloning : A Laboratory Manual,* Cold Spring Harbor Laboratory, 1989.

CATALOG NO.	SIZE
CS-200	20 pack
CS-201	50 pack

CENTRI • SPIN-20 Protocol

CENTRI • SPIN-20 Columns have been designed specifically for the following uses:

- Removal of free and labeled dNTP's from DNA/RNA as in:
  - nick translation
  - end-labeling reactions
  - PCR reactions
- Primer removal
- Removal of hexamers and octamers from primer-walking and random primer labeling.
- Desalting, removal of traces of phenol or exchange of buffer salts, as in multiple restriction digestions
- Purification/desalting of proteins

CENTRI • SPIN-20 is designed For Research Use Only

The following protocol may be used for all recommended applications.

1.0 Column Hydration

1.1 Gently tap the column to insure that the dry gel has settled in the bottom of the spin column.

1.2 Remove the top column cap and reconstitute the column by adding **0.65 ml** of reagent grade water or buffer of choice. Replace the column cap and vortex vigorously for ~ 5 seconds. Remove air bubbles by sharply tapping the bottom of the column. It is important to hydrate all of the dry gel.

1.3 Allow at least 30 minutes of room temperature hydration time before using the columns. Reconstituted columns may be stored refrigerated at 4°C for several days. Longer storage can be accomplished in 10 mM sodium azide (NaN_3). **Allow refrigerated columns to warm to room temperature before use.**

2.0 Removal of Interstitial Fluid

2.1 After the gel has hydrated and is free of bubbles, first remove the top column cap, and then remove the column end stopper from the bottom.

2.2 Spin the column and wash tube in a variable speed centrifuge at **750 g for 2 minutes** to remove interstitial fluid. (For example, for Eppendorf Model 5415C, spin at 3000 rpm for 2 minutes.) **If you use a fixed-angle microcentrifuge, keep track of the position of the column using the orientation mark molded into the column.**

2.3 If there is a drop at the end of the column, blot it dry. Discard the wash tube and the interstitial fluid. Do not allow the gel material to dry excessively. **Process the sample within the next few minutes.**

Experimental Results

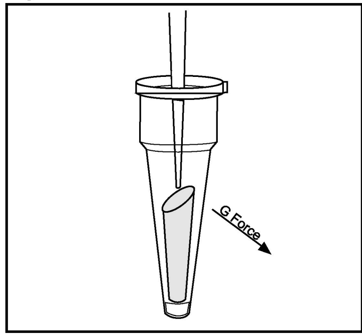
Size of DNA	% Recovery
NTP	0
11-mer	<2
15-mer	39
20-mer	72
24-mer	71
28-mer	81

3.0 Sample Processing

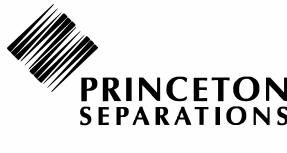
3.1 Hold the column up to the light. Transfer 20 to 50 µl of the sample to the top of the gel. Carefully dispense the sample DIRECTLY ONTO THE CENTER OF THE GEL BED at the top of the column, without disturbing the gel surface (See Figure 1). DO NOT contact the sides of the column with the reaction mixture or the sample pipet tip, since this can reduce the efficiency of purification.

3.2 Place the column into the SAMPLE COLLECTION TUBE (1.5 ml) and place both into the rotor. **Maintain proper column orientation.** The highest point of the gel media in the column should always point toward the outside of the rotor. (See Figure 1.) Spin the column and collection tube at **750 g for 2 minutes**. The purified sample will collect in the bottom of the Sample Collection Tube. Discard the spin column and continue with your procedure.

Figure 1



For Research Use Only



CENTRI • SPIN™-40 COLUMNS

For Research Use Only

PRINCIPLE

CENTRI • SPIN™-40 Columns are used for the fast and efficient purification of large molecules (peptides, proteins, nucleic acids, complex carbohydrates) from small molecules (nucleotides, labels and buffer salts). The column design is based on the description by Sambrook, *et al.* (1) of gel filtration for the purification of DNA from nick translation reactions. Each unit consists of a special fritted microfuge tube, dry gel, wash tube and sample collection tube.

The gel will retain up to 80% of short oligonucleotides **(<25-mer)** while providing recovery of up to 70% of large DNA fragments **(>135 bp)**.

The column gel is **hydrated** with reagent-grade water or a suitable buffer and spun in a microcentrifuge or swinging-bucket centrifuge to **remove the interstitial fluid**. The sample is then applied and the column is spun again, **processing the sample**. The sample is purified by the retention of low-molecular-weight contaminants in the matrix, while the larger molecules of interest are exchanged into the buffer of choice and eluted into the collection tube.

These columns are far superior — in **ease of use, speed, and non-toxicity** — to such common techniques as phenol/chloroform extraction, ethanol precipitation, dialysis and ultrafiltration.

79-100177D

Benefits include:

- **RAPID AND EFFICIENT SEPARATIONS**
- **BUFFER NOT PRESELECTED**
- **COLUMNS STABLE AT ROOM TEMPERATURE**
- **CONVENIENT 20-50μl SAMPLE SIZE**

CENTRIFUGE NOTES

Maximum yield and efficiency are obtained with the horizontal or swinging-bucket rotors. However, fixed-angle-rotor microcentrifuges provide acceptable performance and save time.

On a variable speed microcentrifuge, DO NOT use the pulse button, which overrides the speed setting and takes the rotor to maximum g-force. If you are not sure of the g-force generated by your centrifuge at specific speeds, calculate the correct speed by using the following formula:

$$rpm = \sqrt{\frac{RCF}{(1.119 \times 10^{-5})\ r\ (cm)}}$$

Where
rpm = revolutions per minute;
RCF = Relative Centrifugal Force
and
r = radius (cm) measured from center of spindle to bottom of rotor bucket.

Example:

For RCF = 750 and r = 7.5 cm

$$rpm = \sqrt{\frac{750}{(1.119 \times 10^{-5})\ (7.5)}} = 2990\ rpm$$

MATERIALS PROVIDED

- CENTRI • SPIN-40 Columns containing dry gel
- Wash Tubes (2 ml)
- Sample Collection Tubes (1.5 ml)

ADDITIONAL MATERIALS RECOMMENDED

- Microcentrifuge (Eppendorf 5415C, Variable Speed or equivalent)
- Variable pipets (Pipetman 100 μl)
- Pipet Tips
- Microtube Rack
- Vortex Mixer

COMMON PROBLEMS

(1) A failure to remove excess interstitial fluid after hydration of the columns.

(2) Touching the side of the column during sample application.

Both errors can result in ineffective separation.

SOLUTIONS

(1) Note if any columns have released less fluid than the others during the first spin. Simply spinning them again briefly will usually remove the excess fluid.

(2) Load the sample directly onto the center of the gel bed and do not touch the sample to the walls of the column.

REFERENCE

Sambrook, J., Fritsch, E.F., and Maniatis, T., *Molecular Cloning : A Laboratory Manual,* Cold Spring Harbor Laboratory, 1989.

CATALOG NO.	SIZE
CS-400	20 pack
CS-401	50 pack

CENTRI • SPIN™-40 Protocol

CENTRI • SPIN-40 Columns have been designed specifically for the following uses:

- Removal of primers or primer-dimers from PCR extension products ≥ 150 bp
- Desalting/purification of proteins ≥ 100 kD
- Removal of transferrin, BSA, hemoglobin or albumin from solution

CENTRI • SPIN-40 is designed For Research Use Only

The following protocol may be used for all recommended applications.

1.0 Column Hydration

1.1 Hold the column at a 45 degree angle and tap it on the lab bench to dislodge the matrix from the frit.

1.2 Remove the top column cap. Reconstitute the column by adding **0.65 ml** of reagent grade water or buffer of choice, keeping the column as nearly horizontal as possible. Avoid creating clumps. If the matrix clumps on the surface of the frit during reconstitution, the frit may be occluded. It is important to hydrate all of the dry gel.

1.3 Replace the column cap and vortex the column vigorously right side up for ~ 5 seconds. Invert and vortex again. Repeat several times.

1.4 Invert columns and hydrate at room temperature for at least 2 hours prior to use.

1.5 Reconstituted columns may be stored refrigerated at 4°C for several days. Longer storage can be accomplished in 10 mM sodium azide (NaN_3).

Allow refrigerated columns to equilibrate to room temperature before use.

2.0 Removal of Interstitial Fluid

2.1 After the gel has hydrated and is free of bubbles, first remove the top column cap, and then remove the column end stopper from the bottom.

2.2 Spin the column and wash tube in a variable speed centrifuge at **750 × g for 2 minutes** to remove interstitial fluid. (For example, for Eppendorf Model 5415C, spin at 3000 rpm for 2 minutes.) **If you use a fixed-angle microcentrifuge, keep track of the position of the column using the orientation mark molded into the column.**

2.3 If there is a drop of liquid at the end of the column, blot it dry. Discard the wash tube and the interstitial fluid. **Do not allow the gel material to dry excessively. Process the sample within the next few minutes.**

Experimental Results

Percent Recovery: 0, 25, 50, 75, 100

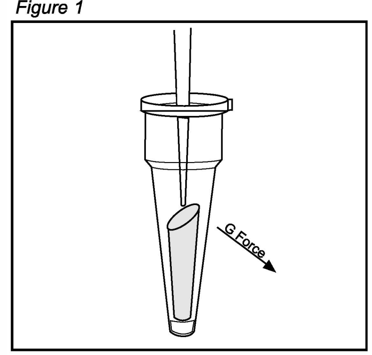
Number of Bases: 1, 10, 100, 1000

3.0 Sample Processing

3.1 Hold the column up to the light. Transfer 20 to 50 µl of the sample to the top of the gel. Carefully dispense the sample DIRECTLY ONTO THE CENTER OF THE GEL BED at the top of the column, without disturbing the gel surface (See Figure 1). DO NOT touch the sides of the column with the reaction mixture or the sample pipet tip, since this can reduce the efficiency of purification.

3.2 Place the column into the SAMPLE COLLECTION TUBE (1.5 ml) and place both into the rotor. **Maintain proper column orientation.** The highest point of the gel media in the column should always point toward the outside of the rotor. (See Figure 1). Spin the column and collection tube at **750 × g for 2 minutes**. The purified sample will collect in the bottom of the Sample Collection Tube. Discard the spin column and continue with your procedure.

Figure 1



For Research Use Only

Electro-Sep^{TM}

Products

Princeton Separation Scientific LLC

7 Deerpark Drive, Suite M-12, Monmouth Junction

New Jersey 08852 United States

www.prinsep.com

ElectroSep

A New DNA Size-Selection Technology using Gene Stix™

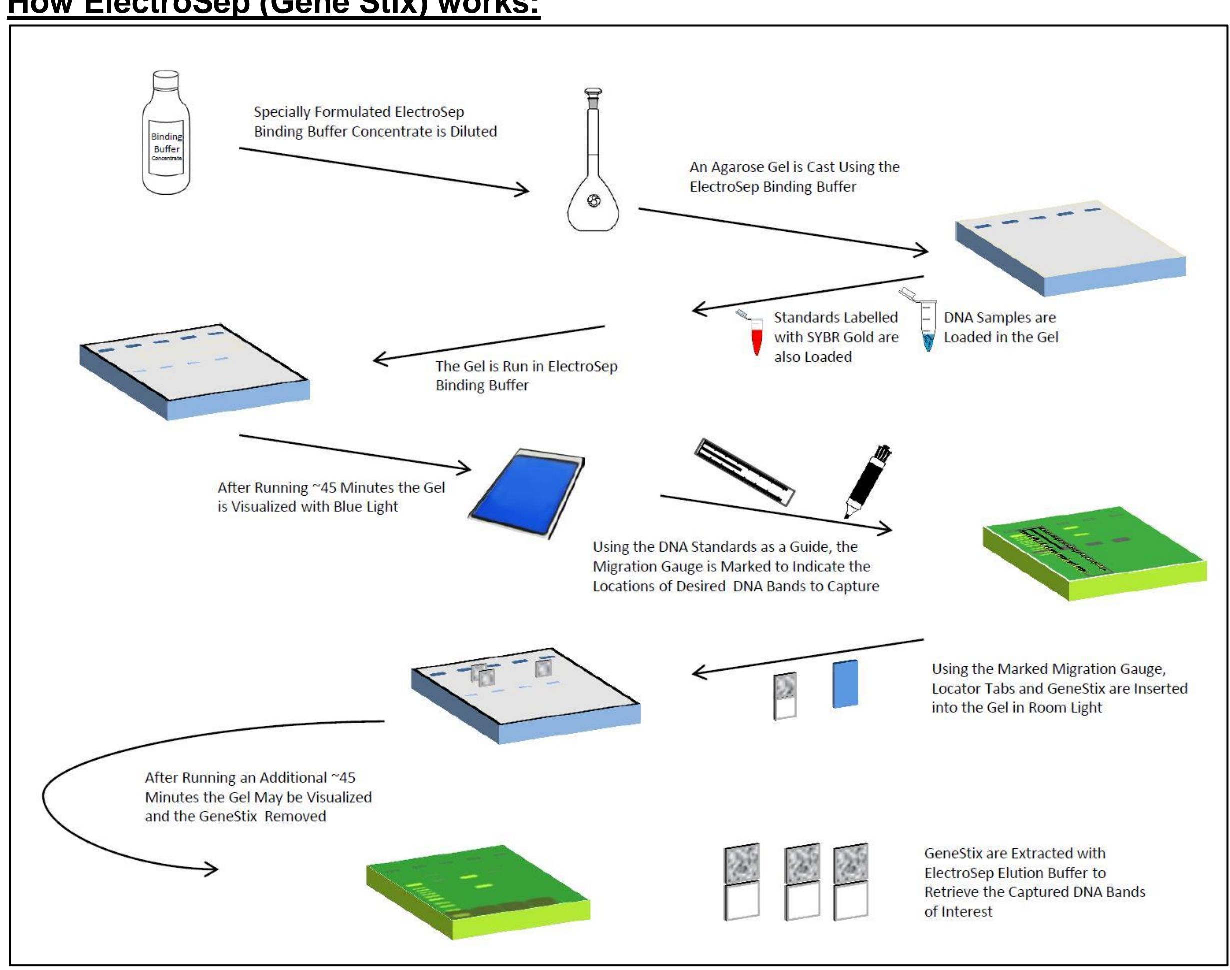
Introduction:

Electro-Sep products are designed to recover size-selected DNA from agarose gel. DNA (nucleic acid) is first electrophoretically separated by size in an agarose gel made with a special Binding Buffer, then the size-selected DNA is bound to a Gene Stix membrane in the gel. Gene Stix are removed from the gel and the DNA is eluted off into a Collection tube using a special Elution Buffer.

Highlights:

High DNA recovery
Rapid and easy to use
No damaging UV light needed

How ElectroSep (Gene Stix) works:



Advantages of Electro-Sep using Gene Stix technology:

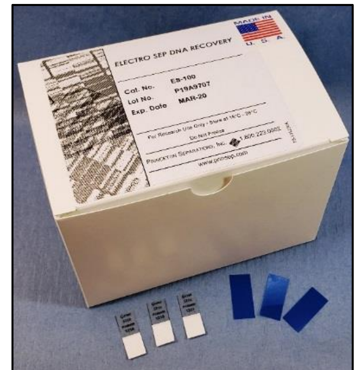
No specialized gel electrophoresis equipment needed.
NO UV dyes needed in sample.
Does not require use of damaging UV sensitive dyes.
Uses Calibrated DNA Migration Gauge in room light.
Multiple Gene Stix can be used with one sample.
Unique Serial Numbering system provides unambiguous sample identification.
No cutting of gel bands required.

Applications:

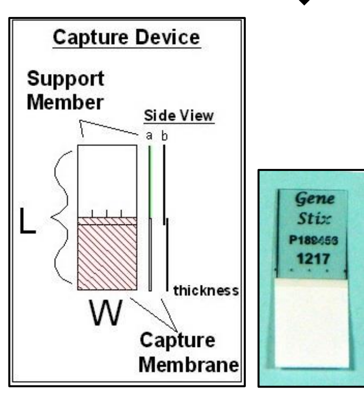
The Electro-Sep family of products can be used for the following applications:
Size Selection of DNA for use in Next Generation Sequencing (NGS)
Size Selection and recovery of RNA
NGS Library Prep
Long Range PCR
Barcoded Long Range PCR
mtDNA
eDNA

Products:

approx.
size
↓



ES-100 kit



Gene Stix design

Buffers (Binding and Elution)

ELECTRO SEP (5kb - 20kb) DNA RECOVERY KIT, Starter kit **ES-100**
- 10ea Gene Stix + associated plastic parts + extra buffers (complete)

ELECTRO SEP (5kb - 20kb) DNA RECOVERY 50 PC KIT, **ES-102**
- 50 Gene Stix + associated plastic parts (**Buffers not included**)

Binding Buffer, Elution Buffer (both in several configurations – go to https://www.prinsep.com/electrosep)

Contact us at

Princeton Separation Scientific LLC

7 Deerpark Drive, Suite M-12, Monmouth Junction

New Jersey 08852 United States

www.prinsep.com

info@prinsep.com