GENECLEAN® *Turbo* Kit

For purification of DNA fragments of sizes 0.1 kb to 300 kb from agarose gels, PCR reactions and other enzymatic solutions

Revision # 1102-999-3I12

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For purification of DNA fragments of sizes 0.1 kb to 300 kb from agarose gels, PCR reactions and other enzymatic solutions

Application Manual

Revision # 1102-999-3I12

Cat. Nos.
1102-000, 10 preps (sample size)
1102-200, 50 preps
1102-400, 100 preps
1102-600, 300 prepss

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1. Introduction

The GENECLEAN® *Turbo* Kit is an advanced adaptation of the original GENECLEAN® kit containing the patented GLASSMILK® nucleic acid binding matrix. It uses a novel and patented GENECLEAN® *Turbo* Cartridge system designed to further simplify the purification process. This system contains a special GLASSMILK® embedded membrane optimized for DNA purification from any type of agarose gel or solution in the size range of 0.1 kb to 300 kb. A carefully engineered hole in the Cartridge cap allows the addition of solutions without removing and closing the cap each time. A second hole in the outer portion of the cap permits the removal of waste solution from the Catch Tube using vacuum aspiration without removing the *Turbo* Cartridge from the Catch Tube. DNA is eluted in 30 µl of H_20 or TE buffer. *Turbo* Cartridges also have a luer lock fitting for use with any vacuum manifold.

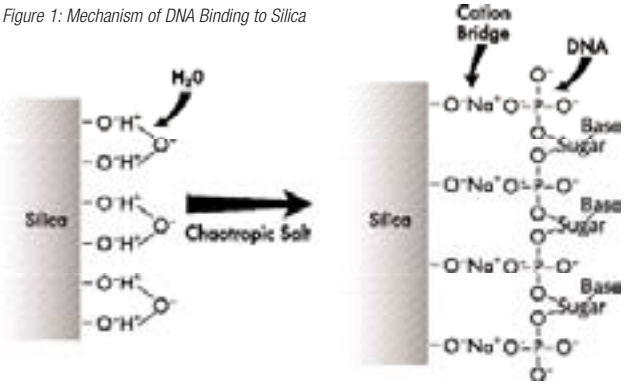
1.1 Applications for GENECLEAN® *Turbo* Technology

- Desalting
- Isolate nucleic acids from agarose gels
- Eliminate proteins from enzymatic reactions
- Remove primers and unincorporated nucleotides from enzymatic reactions
- Separate linearized from uncut vectors
- Isolate PCR product away from genomic DNA and primers
- Clean DNA before sequencing, transfection, transformation and microinjection

1.2 How Does GENECLEAN® Technology Work?

DNA generally binds to silica in high concentrations of chaotropic salt and elutes when the salt concentration is lowered. The mechanism of DNA binding to silica in high salt has not been completely described, but may involve chaotropic salt disruption of the water structure around negatively charged silica, allowing a cation bridge to form between it and the negatively charged phosphate backbone of DNA (see figure 1). When the salt concentration is lowered, rehydration of the silica matrix breaks the attraction between the matrix and DNA. The fact that DNA binds in high salt and elutes in low salt makes this method especially useful as a purification procedure. Since the DNA is eluted with either water or a low salt buffer, it can be used immediately in subsequent reactions without precipitation or other further manipulation. This is unlike ion exchange methods that require binding in low salt and elution in high salt and require precipitation or other means of removing salt before the DNA can be used.

Figure 1: Mechanism of DNA Binding to Silica



2. Kit Components and User Supplied Materials

2.1 GENECLEAN® *Turbo* Kit Components

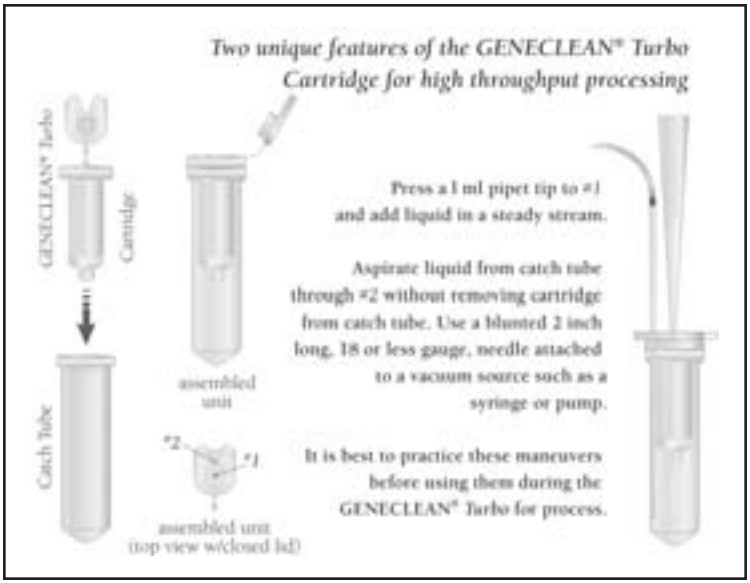
GENECLEAN® *Turbo* Salt Solution (14 ml, Cat. No. 1102-001; 55 ml, Cat. No. 1102-201; 110 ml, Cat. No. 1102-401; 330 ml, Cat. No. 1102-601) is a specially prepared aqueous solution of a guanidine chaotropic binding salt that allows the DNA to bind to the GLASSMILK® embedded in the GENECLEAN® *Turbo* Cartridge.

GENECLEAN® *Turbo* Wash Concentrate (1.5 ml, Cat. No. 1102-002; 6 ml, Cat. No. 1102-202; 11 ml, Cat. No. 1102-402; 32 ml, Cat. No. 1102-602) is a concentrated, proprietary salt solution to which ethanol is added to make GENECLEAN® *Turbo* Wash (see Section 3.1). Store prepared GENECLEAN® *Turbo* Wash at the bench (15°–30°C). Keep tightly capped to prevent evaporation of ethanol.

GENECLEAN® *Turbo* Cartridges (10, Cat. No. 1102-003; 50, Cat. No. 1102-203; 100, Cat. No. 1102-403; 300, Cat. No. 1102-603) contain a specially designed composite membrane that incorporates GLASSMILK® as an integral part. The irregular shape of GLASSMILK®, in addition to the thickness of the filter, provides a very large surface area and greater binding capacity than most silica-based filter media. Each column can bind up to 10 µg of DNA. The hole in the center of the cap allows for rapid delivery of solutions to the filter when the lid is closed and the hole in front allows for easy removal of liquid from the Catch Tube using vacuum aspiration. GENECLEAN® *Turbo* Cartridges have a luer lock fitting so they can also be used in a vacuum manifold (see figure 2).

GENECLEAN® *Turbo* Catch Tubes (10, Cat. No. 1102-004; 50, Cat. No. 1102-204; 100, Cat. No. 1102-

Figure 2: Patented Turbo Cartridge System



404; 300, Cat. No. 1102-604) are 1.5 ml microcentrifuge tubes with removable caps. They are used to recover and store DNA eluted from the GENECLEAN® *Turbo* Cartridges.

GENECLEAN® *Turbo* Elution Solution (1 ml, Cat. No. 1102-005; 3.3 ml, Cat. No. 1102-205; 6.6 ml, Cat. No. 1102-405; 20 ml, Cat. No. 1102-605) is RNase/DNase/pyrogen-free water for elution of DNA from the GENECLEAN® *Turbo* Cartridges.

GENECLEAN® *Turbo* GNomic Salt Solution (14 ml, Cat. No. 1102-206; 14 ml, Cat. No. 1102-206; 28 ml, Cat. No. 1102-406; 83 ml, Cat. No. 1102-606) is a specially prepared aqueous solution of guanidine chaotropic binding salt optimized for the purification of genomic sized DNA.

2.2 User Supplied Materials

Benchtop microcentrifuge
200 proof (100%) ethanol
Water bath or heat block
Vacuum aspirator (optional)
Vacuum manifold (optional)

3. Important Considerations Before Use

3.1 Preparation of GENECLEAN® *Turbo* Wash

Before first use, add the correct volume of 200 proof (100%) ethanol to the GENECLEAN® *Turbo* Wash Concentrate according to the chart below and mix well. Do not use denatured alcohol as it can cause precipitation of salts. Label the container and store tightly capped at 15° - 30°C.

Cat. No.	No. of Preps	*Turbo* Wash Concentrate	200 proof (100%) Ethanol
1102-000	10	1.5 ml	13.5 ml
1102-200	50	6 ml	54 ml
1102-400	100	11 ml	99 ml
1102-600	300	32 ml	288 ml

3.2 Binding Capacity

Each column can bind up to 10 µg of either ssDNA or dsDNA.

3.3 Yield Measurements

The best method for checking yields of DNA isolated by GENECLEAN® *Turbo* is to run an aliquot on an agarose gel using known quantities in adjacent lanes as controls. OD_{260} and fluorescent readings can also be used to estimate yields, but these methods can be affected by trace amounts of salts and silica matrix. It is best to confirm these readings by gel analysis.

3.4 Agarose Types

Low-melt agarose is not required for any GENECLEAN®-based kit. The procedure will work with any molecular biology-grade agarose.

3.5 Purifying Genomic DNA

Use the GENECLEAN® *Turbo* GNomic Salt Solution for maximum binding and recovery of genomic-sized DNA.

4. Simplified Protocols for Experienced Users

4.1 Rapid Isolation of DNA from PCR Reactions and Other Enzymatic Solutions

1. Measure DNA solution volume and place in 1.5 ml microcentrifuge tube.
2. Add 5 volumes GENECLEAN® *Turbo* Salt Solution and mix.
3. Transfer <600 µl DNA/Salt solution to GENECLEAN® *Turbo* Cartridge placed inside a cap-less Catch Tube.
4. Centrifuge for 5 seconds until all liquid has passed through filter. Empty Catch Tube as needed.
5. Add 500 µl prepared GENECLEAN® *Turbo* Wash Solution to the filter.
6. Centrifuge for 5 seconds. Empty Catch Tube as needed.

7. Centrifuge the GENECLEAN® *Turbo* Cartridge for an additional 4 minutes to remove residual Wash Solution.
8. Remove cap from a new, clean Catch Tube and insert GENECLEAN® *Turbo* Cartridge containing bound DNA.
9. Add 30 µl GENECLEAN® *Turbo* Elution Solution directly onto GLASSMILK®-embedded membrane and incubate at room temperature for 5 minutes.
10. Centrifuge for 1 minute to transfer eluted DNA to GENECLEAN® *Turbo* Catch Tube. Discard GENECLEAN® *Turbo* Cartridge and cap the Catch Tube.

4.2 Rapid Isolation of DNA from Agarose Gels

1. Place gel slice in 1.5 ml microcentrifuge tube.
2. Add 100 µl GENECLEAN® *Turbo* Salt Solution per 0.1 g gel slice and mix.
3. Incubate at 55°C for 5 minutes to melt gel. Invert tube to mix.
4. Transfer <600 µl DNA/Salt solution to GENECLEAN® *Turbo* Cartridge placed inside a cap-less Catch Tube.
5. Centrifuge for 5 seconds until all liquid has passed through filter. Empty Catch Tube as needed.
6. Add 500 µl prepared GENECLEAN® *Turbo* Wash Solution to the filter.
7. Centrifuge for 5 seconds. Empty Catch Tube as needed.
8. Centrifuge the GENECLEAN® *Turbo* Cartridge for an additional 4 minutes to remove residual Wash Solution.
9. Remove cap from a new, clean Catch Tube and insert GENECLEAN® *Turbo* Cartridge containing bound DNA.
10. Add 30 µl GENECLEAN® *Turbo* Elution Solution directly onto GLASSMILK®-embedded membrane and incubate at room temperature for 5 minutes.
11. Centrifuge for 1 minute to transfer eluted DNA to GENECLEAN® *Turbo* Catch Tube. Discard GENECLEAN® *Turbo* Cartridge and cap the Catch Tube.

5. Detailed Protocols

5.1 Rapid Isolation of DNA from PCR Reactions and Other Enzymatic Solutions

1. Measure DNA solution volume and place in 1.5 ml microcentrifuge tube.
   [***Note:*** If purifying more than 10 µg of DNA, divide sample into multiple preps.]

2. Add 5 volumes of GENECLEAN® *Turbo* Salt Solution to the DNA solution and mix by tapping the side of the tube with a finger.
   [***Note:*** If purifying genomic DNA, add 5 volumes of GENECLEAN® *Turbo* GNomic Salt Solution (instead of GENECLEAN® *Turbo* Salt Solution) to the DNA and mix by tapping the side of the tube with a finger.]

3. Transfer <600 µl of DNA/Salt solution to a GENECLEAN® *Turbo* Cartridge assembled in a kit-supplied 2 ml cap-less Catch Tube.

4. Centrifuge at <14,000 x g for 5 seconds, or until all liquid has passed through the filter. Empty Catch Tube as needed.
   [***Note:*** If volume of DNA and GENECLEAN® *Turbo* Salt Solution mixture is >600 µl, add the remainder of the DNA/Salt Solution to the GENECLEAN® *Turbo* Cartridge and repeat this step until all of the liquid passes through the filter.]

   Vacuum Manifold Option: Place the end of the GENECLEAN® *Turbo* Cartridge on a vacuum manifold. Apply vacuum to <25 inches Hg to completely drain liquid. Repeat this step until all the DNA/Salt solution has passed through the filter.

5. Add 500 µl of prepared GENECLEAN® *Turbo* Wash to the filter.*
   [***Note:*** Save time by bringing pipet tip in contact with opening #1 to deliver solution while the tube is in the microcentrifuge.]
   ****VERY IMPORTANT:*** Be sure ethanol has been added to the GENECLEAN® *Turbo* Wash Concentrate before using. See Section 3.1 for instructions.

6. Centrifuge at <14,000 x g for 5 seconds. Empty the Catch Tube as needed.
   [***Note:*** Save time by aspirating liquid through opening #2 with a vacuum needle.]

   Vacuum Manifold Option: Place the GENECLEAN® *Turbo* Cartridge on a vacuum manifold. Apply vacuum to <25 inches Hg until Cartridge is emptied of Wash. Repeat this step until all the Wash solution has passed through the filter.

   Optional: Repeat Wash procedure as detailed in Steps 5 & 6.

7. Empty the Catch Tube and centrifuge the GENECLEAN® *Turbo* Cartridge at <14,000 x g for an additional 4 minutes to drive the last of the Wash solution from the *Turbo* Cartridge.
   [***Note:*** Centrifugation in an empty Catch Tube in this step is essential for removing trace alcohol from the final product.]

8. Remove the detachable cap from a new, clean GENECLEAN® *Turbo* Catch Tube and set it aside. Insert the GENECLEAN® *Turbo* Cartridge containing the bound DNA.

9. Add 30 µl GENECLEAN® *Turbo* Elution Solution directly onto the GLASSMILK®-embedded membrane and incubate for 5 minutes at room temperature.

10. Centrifuge at <14,000 x g for 1 minute to transfer eluted DNA to GENECLEAN® *Turbo* Catch Tube. Discard GENECLEAN® *Turbo* Cartridge and cap the Catch Tube.
    DNA is now ready to use without further manipulation.

[***Note:*** A second elution is not necessary or recommended. Repetition of this step will cause the total volume to increase and the concentration of DNA to decrease.]

5.2 Rapid Isolation of DNA from Agarose Gels

1. Place gel slice in 1.5 ml microcentrifuge tube.
   [***Note:*** If purifying more than 10 µg of DNA, divide sample into multiple preps.]

2. Add 100 µl of GENECLEAN® *Turbo* Salt Solution per 0.1 g of gel slice.
   [***Note:*** If purifying genomic DNA, add 5 volumes of GENECLEAN® *Turbo* GNomic Salt Solution (instead of GENECLEAN® *Turbo* Salt Solution) to the DNA and mix by tapping the side of the tube with a finger.]

3. Incubate at 55°C in a water bath or heat block for 5 minutes to melt gel. Invert tube to mix until the solution is homogeneous.

4. Transfer <600 µl of DNA/Salt solution to a GENECLEAN® *Turbo* Cartridge assembled in a kit-supplied 2 ml cap-less Catch Tube.

5. Centrifuge at <14,000 x g for about 5 seconds, or until all liquid has passed through the filter. Empty Catch Tube as needed.
   [***Note:*** If volume of DNA and GENECLEAN® *Turbo* Salt Solution mixture is >600 µl, add the remainder of the DNA/Salt Solution to the GENECLEAN® *Turbo* Cartridge and repeat this step until all of the liquid passes through the filter.]

   Vacuum Manifold Option: Place the end of the GENECLEAN® *Turbo* Cartridge on a vacuum manifold. Apply vacuum to <25 inches Hg to completely drain liquid. Repeat this step until all the DNA/Salt solution has passed through the filter.

6. Add 500 µl of prepared GENECLEAN® *Turbo* Wash to the filter.*
   [Note: Save time by bringing pipet tip in contact with opening #1 to deliver solution while the tube is in the microcentrifuge.]
   ****VERY IMPORTANT:*** Be sure ethanol has been added to the GENECLEAN® *Turbo* Wash Concentrate before using. See Section 3.1 for instructions.

7. Centrifuge at <14,000 x g for 5 seconds. Empty the Catch Tube as needed.
   [***Note:*** Save time by aspirating liquid through opening #2 with a vacuum needle.]

Vacuum Manifold Option: Place the GENECLEAN® *Turbo* Cartridge on a vacuum manifold. Apply vacuum to <25 inches Hg until Cartridge is emptied of Wash. Repeat this step until all the Wash solution has passed through the filter.

Optional: Repeat Wash procedure as detailed in Steps 6 & 7.

8. Empty the Catch Tube and centrifuge the GENECLEAN® *Turbo* Cartridge at <14,000 x g for an additional 4 minutes to drive the last of the Wash solution from the *Turbo* Cartridge.
   [***Note:*** Centrifugation in an empty Catch Tube in this step is essential for removing trace alcohol from the final product.]

9. Remove the detachable cap from a new, clean GENECLEAN® *Turbo* Catch Tube and set it aside. Insert the GENECLEAN® *Turbo* Cartridge containing the bound DNA.

10. Add 30 µl GENECLEAN® *Turbo* Elution Solution directly onto the GLASSMILK®-embedded membrane and incubate for 5 minutes at room temperature.

11. Centrifuge at <14,000 x g for 1 minute to transfer eluted DNA to GENECLEAN® *Turbo* Catch Tube. Discard GENECLEAN® *Turbo* Cartridge and cap the Catch Tube.
    DNA is now ready to use without further manipulation.
    [***Note:*** A second elution is not necessary or recommended. Repetition of this step will cause the total volume to increase and the concentration of DNA to decrease.]

6. Common Questions

6.1 Does GENECLEAN® *Turbo* work on all conformations of plasmid DNA?

Our line of Plasmid Purification Kits would be best-suited for purification of plasmid DNA. See Section 10 for related products.

6.2 Can I substitute GENECLEAN® *Turbo* Wash Concentrate for other GENECLEAN® Solutions?

No. The wash solutions have different salt concentrations and are prepared differently.

6.3 If I'm using GENECLEAN® *Turbo*, what do I do if I have more than 10 µg of DNA or a large gel slice?

Our line of slurry-based purification kits would be best-suited for larger quantities of DNA (specifically GENECLEAN®, GENECLEAN® II, or GENECLEAN® III Kits.) See Section 10 for related products.

7. Troubleshooting

7.1 Low or No Recovery with the GENECLEAN® *Turbo* Kit

7.1.1 Problems with Binding

Yields can be affected by insufficient incubation and mixing time during the DNA/Salt solution binding step. Inversion of the tube to mix the solution to homogeneity before loading the GENECLEAN® *Turbo* Cartridge will increase efficiency. If purifying DNA from agarose, ensure complete melting of the gel.

7.1.2 Problems with Washing

DNA may elute in the Wash if ethanol was not added to the GENECLEAN® *Turbo* Wash Concentrate prior to use. Prepare GENECLEAN® *Turbo* Wash as described in Section 3.1.

If the GENECLEAN® *Turbo* Wash ethanol concentration drops significantly due to evaporation, the DNA may elute in the Wash. Store the prepared GENECLEAN® *Turbo* Wash tightly capped at 15° - 30°C.

7.1.3 Problems with Eluting

Add GENECLEAN® *Turbo* Elution Solution directly onto the GLASSMILK®-embedded membrane and incubate 5 minutes at room temperature before recovering the DNA.

7.1.4 Rapid Kit Reagent – Test Procedure

If yields are less than 50%, this test takes 15-20 minutes to determine if the problem is due to reagents or to some other aspect of the procedure.

1. Put 0.5 µg – 1 µg of DNA into a final volume of 20 µl H_2O or TE buffer. Transfer 10 µl into a micro-centrifuge tube.
2. Add 50 µl GENECLEAN® *Turbo* Salt Solution to the DNA in the microcentrifuge tube and mix well.
3. Transfer solution to a GENECLEAN® *Turbo* Cartridge assembled into a 2 ml cap-less microcentrifuge tube. Centrifuge at <14,000 x g until all liquid has transferred to Catch Tube. Transfer the flow-through to a new microcentrifuge tube.
4. Precipitate any DNA present in the flow-through by adding 50 µl water and 100 µl isopropanol and mix. Centrifuge at <14,000 x g for 5 minutes. Drain the tube and add 10 µl of water.
5. Add 300 µl GENECLEAN® *Turbo* Wash and centrifuge. Save the Wash.
6. Centrifuge to dry for 4 minutes and transfer the GENECLEAN® *Turbo* Cartridge to a new GENECLEAN® *Turbo* Catch Tube.
7. Add 30 µl TE or H_2O directly onto the GLASSMILK®-embedded membrane and incubate for 5 minutes at room temperature. Centrifuge at <14,000 x g for 1 minute and save supernatant. Transfer filter to a new Catch Tube.
8. Repeat elution (step 7).
9. Run the following samples on a 0.8% agarose mini-gel until the samples migrate 1–2 cm.

Lane 1: 5 µl DNA from the 10 µl left in step 1 that was not purified with the GENECLEAN® *Turbo*.
Lane 2: 15 µl first elution (step 7).
Lane 3: 15 µl second elution (step 8).
Lane 4: 10 µl GENECLEAN® *Turbo* Wash (step 5, add Ficoll®, sucrose, or glycerol to keep the GENECLEAN® *Turbo* Wash in the well).
Lane 5: 10 µl of the precipitated GENECLEAN® *Turbo* supernatant after absorption (step 4).

The results of the gel should show the fate of DNA during the GENECLEAN® *Turbo* procedure. Most of the DNA should be in the first elution (lane 2), some (approximately 10%) should be in the second elution (lane 3), and none in GENECLEAN® *Turbo* Wash or GENECLEAN® *Turbo* Salt Solution after absorption (lanes 4 and 5, respectively). If DNA is seen in lane 5, this indicates that not all the DNA bound to the *Turbo* Filter. DNA in lane 4 indicates loss during the Wash step. The relative quantities of DNA in each elution will indicate efficiencies during this step. The results of this rapid kit test normally show a recovery of 70% or more in the first elution.

7.1.5 Problems Measuring Yield

DNA yield can be quantified with a fluorometer or estimated by running the sample against a known amount of DNA on an agarose gel. Using a spectrophotometer to quantify DNA yield is not recommended for the following reasons:

1. Residual silica particles (which do not interfere with downstream reactions or uses of the DNA) can scatter UV light, affecting OD_{260} readings and OD_{260}/OD_{280} ratios.
2. After diluting part of your sample up to the minimum volume of the cuvette, the DNA will often be too dilute to give a significant reading. For example, if you eluted 0.5 µg in 20 µl of water and diluted 2 µl of this to 200 µl, the final concentration of DNA in the cuvette would be 0.5 µg/0.02 ml x 0.01=0.25 µg/ml. This would give an absorbance of only 0.005, which is too low to be significant on most instruments.

7.2 Multiple Bands Observed after the Purification Process

Because the melting temperature of dsDNA decreases in high salt concentrations, AT-rich fragments may denature during the gel melting step. This may reveal itself by multiple bands in a gel after removal of a single band. Single-stranded species can be renatured to dsDNA by heating and slow cooling. Alternatively, the gel melting step can be done at lower temperatures than 55°C by rotating the tube on a turn wheel at room temperature for 15 minutes or until the agarose slice is completely dissolved.

7.3 Removing Primer Dimers (~50 bp) from Desired Fragment of 100 bp or More

To prevent the binding of primer dimers approximately 50bp in size, use diluted GENECLEAN® *Turbo* Wash Solution during the wash steps in the regular protocols (Section 5). To prepare diluted wash add 220 µl H_2O per 780 µl prepared GENECLEAN® *Turbo* Wash Solution (see Section 3.1). Diluted wash should be used only when necessary as it may reduce recovery of the desired fragment.

7.4 Replacing GENECLEAN® *Turbo* Wash Solution

The amount of GENECLEAN® *Turbo* Wash Concentrate provided is sufficient when the protocol is followed as recommended. If the protocol is changed such that more prepared GENECLEAN® *Turbo* Wash Solution is required, a solution of 80% ethanol can be made using TE (10 mM Tris and 1 mM EDTA, pH 7.5) and will work nearly as well as the proprietary GENECLEAN® *Turbo* Wash Solution.

8. References

Many of the principles of the GENECLEAN® procedures described here are based on the data of Vogelstein and Gillespie (1). See reference 2 for discussion of the effects of chaotropic salts and temperature on DNA stability.

1. Vogelstein, B. and Gillespie, D. (1979) Proc. Nat. Acad.Sci., USA. 76, 615.
2. Hamaguchi, K. and Geiduschek, E.P. (1962) J. Amer. Chem. Soc. 84, 1329.

9. Recommended Reference Format

DNA was purified from gel or solution using the GENECLEAN® *Turbo* Kit (Qbiogene, Inc., Carlsbad, California).

10. Related Products

10.1 Gel Isolation and Reaction Cleanup Products

Cat. No.	Description	Size
1102-200	GENECLEAN® *Turbo* Kit	50 preps
1102-400	GENECLEAN® *Turbo* Kit	100 preps
1103-200	GENECLEAN® *Turbo* for PCR Kit	50 preps
1103-400	GENECLEAN® *Turbo* for PCR Kit	100 preps
1001-200	GENECLEAN® Kit	200 preps
1001-400	GENECLEAN® II Ki	300 preps
1001-600	GENECLEAN® III Kit	600 preps
1101-200	GENECLEAN® SPIN Kit	50 preps
1101-400	GENECLEAN® SPIN Kit	100 preps
1104-200	GENECLEAN® *Turbo* 96 Kit	96 preps
1104-400	GENECLEAN® *Turbo* 96 Kit	384 preps
1005-200	MERmaid® Kit	200 preps
1105-200	MERmaid® SPIN Kit	25 preps
1105-400	MERmaid® SPIN Kit	75 preps
1105-600	MERmaid® SPIN Kit	150 preps
1007-200	RNaid® Kit	200 preps
1107-200	RNaid® SPIN Kit	200 preps
9903-100	SeqDirect™ PCR Cleaning Kit	16 reactions

9903-200	SeqDirect™ PCR Cleaning Kit	32 reactions
9904-200	SeqDirect™ 96 PCR Cleaning Kit	1 x 96-well plate
2350-200	EtBr GREENBAG™ Disposal Kit	50 bags
2300-604	50xTAE "GENECLEAN Grade™" Electrophoresis Buffer	1.0 L
2305-204	TBE "GENECLEAN Grade™" Electrophoresis Buffer Mix	425 g
2305-304	TBE "GENECLEAN Grade™" Electrophoresis Buffer Mix	1,700 g
2080-600	SPIN Module (Includes #2080-601)	60 F/T
2080-800	SPIN Module (Includes #2080-801)	100 F/T
1001-605	Label Block	1 mL

10.2 GENECLEAN®-Based Genomic DNA Isolation Kits

Cat. No.	Description	Size
6540-400	FastDNA® Kit	100 preps
6560-200	FastDNA® Kit for Soil	50 preps
2010-400	GNOME® DNA Isolation Kit	25 preps
2010-600	GNOME® DNA Isolation Kit	100 preps
2011-600	GNOME® Whole Blood DNA Isolation Kit	100 preps
2012-400	FLORACLEAN® Kit	25 preps
1002-200	GENECLEAN® for Ancient DNA Kit	100 preps
2016-200	Whole Cell Yeast PCR Kit	200 preps
2015-600	Yeast Cell Lysis Kit	100 preps
2055-400	λQuick!® Kit	25 preps
2065-200	ssPHAGE™ DNA SPIN Kit	60 preps

10.3 Plasmid Purification Products

Cat. No.	Description	Size
2066-200	RapidPURE™ Plasmid Mini Kit	60 preps
2066-400	RapidPURE™ Plasmid Mini Kit	120 preps
2066-600	RapidPURE™ Plasmid Mini Kit	300 preps
2067-200	RapidPURE™ Plasmid Mini 96 Kit	96 preps
2067-400	RapidPURE™ Plasmid Mini 96 Kit	192 preps
2070-200	RPM® Kit	60 preps
2070-400	RPM® Kit	120 preps
2070-500	RPM® Kit	300 preps
2069-400	Yeast RPM® Kit	100 preps
2000-200	MiniPrep Express™ Matrix	1,250 preps
2002-200	96well Prep Express	384 preps
2005-200	RapidPURE™ Plasmid Midi Kit	25 preps
2005-400	RapidPURE™ Plasmid Midi Kit	75 preps

2005-600	RapidPURE™ Plasmid Midi Kit	150 preps
2076-200	RapidPURE™ Plasmid Maxi GF Kit	20 preps
2073-200	RapidPURE™ Plasmid Maxi GF Reagent Kit	20 preps
2074-200	RapidPURE™ Plasmid Maxi GF Endo Free Kit	10 preps
2078-200	RapidPURE™ Plasmid Giga Kit	12 preps

10.4 TRIPLE CHECK® Tips

Cat. No.	Description	Size
5030-121	TRIPLE CHECK® Tips (non-sterile)	Bag of 500
5030-141	TRIPLE CHECK® Tips (non-sterile)	Bag of 1,000
5030-151	TRIPLE CHECK® Tips (non-sterile)	Bag of 5,000
5030-221	TRIPLE CHECK® Tips (non-sterile)	Box of 250
5030-241	TRIPLE CHECK® Tips (non-sterile)	Box of 500
5030-321	TRIPLE CHECK® Tips (non-sterile)	4 racks of 96
5030-331	TRIPLE CHECK® Tips (non-sterile)	10 racks of 96
5030-322	TRIPLE CHECK® Tips (sterile)	4 racks of 96
5030-332	TRIPLE CHECK® Tips (sterile)	10 racks of 96

11. Product Use Limitation & Warranty

Unless otherwise indicated, this product is for research use only. Purchase of Qbiogene, Inc. products does not grant rights to reproduce, modify, or repackage the products or any derivative thereof to third parties. Qbiogene, Inc. makes no warranty of any kind, expressed or implied, including merchantability or fitness for any particular purpose, except that the products sold will meet our specifications at the time of delivery. Buyer's exclusive remedy and the sole liability of Qbiogene, Inc. hereunder shall be limited to, at our discretion, no replacement or compensation, product credits, refund of the purchase price of, or the replacement of materials that do not meet our specification. By acceptance of the product, Buyer indemnifies and holds Qbiogene, Inc. harmless against, and assumes all liability for, the consequence of its use or misuse by the Buyer, its employees or others, including, but not limited to, the cost of handling. Said refund or replacement is conditioned on Buyer notifying Qbiogene, Inc. within thirty (30) days of receipt of product. Failure of Buyer to give said notice within thirty (30) days shall constitute a waiver by the Buyer of all claims hereunder with respect to said material(s).