

# *Application Manual*

## **GENECLEAN® Turbo 96 Kit**

*DNA purification from solutions in a 96-well format for PCR, sequencing, microarrays and other high-throughput applications*

- › *One Call*
- › *One Source*
- › *A World of Biotechnology Reagents*

Revision # 1104-200-32410

Catalog # 1104-200  
1 x 96 Preps

Catalog # 1104-400  
4 x 96 Preps

Storage temperature:  
Ambient temperature (15–30°C)

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## **TABLE OF CONTENTS**

1. Introduction .....	5
2. Kit Components and User Supplied Materials .....	5
2.1 GENECLEAN® Turbo 96 Kit Components .....	5
2.2 User Supplied Materials .....	5
2.2.1 Vacuum Protocol .....	5
2.2.2 Centrifugation Protocol .....	6
3. Preparation of the Turbo 96 Wash Solution Concentrate .....	6
4. Safety Precautions .....	6
5. Vacuum Protocol .....	6
6. Centrifugation Protocol .....	8
7. Recommended Reference Format for Publications .....	9
8. Related Products .....	9
8.1 Gel Isolation and Reaction Cleanup Products .....	9
8.2 GENECLEAN®-Based Genomic DNA Isolation Kits .....	10
9. Product Use Limitation & Warranty .....	10



## I. Introduction

The GENE CLEAN<sup>®</sup> *Turbo* 96 Kit is an advanced adaptation of the original GENE CLEAN<sup>®</sup> kit containing the patented GLASSMILK<sup>®</sup> nucleic acid binding matrix. Based on the GLASSMILK<sup>®</sup>-embedded membrane and patented Turbo Cartridge of the GENE CLEAN<sup>®</sup> *Turbo* Kits, the GENE CLEAN<sup>®</sup> *Turbo* 96 Kit uses the same DNA binding technology in a 96-well format. Optimized buffers allow for purification of up to 10 µg DNA per well, from 100 bp to 300 kb. The protocol can be used with either a centrifuge or a vacuum manifold.

## 2. Kit Components and User Supplied Materials

### 2.1 GENE CLEAN<sup>®</sup> *Turbo* 96 Kit Components

Component	Cat # 1104-200	Cat # 1104-400
GENE CLEAN <sup>®</sup> <i>Turbo</i> 96 DNA Filter Plate	1	4
GENE CLEAN <sup>®</sup> <i>Turbo</i> 96 Binding Solution	75 ml	300 ml
<i>Turbo</i> 96 Wash Solution Concentrate	18 ml	72 ml
Collection Plate	1	4
Collection Plate Mat	1	4
Elution Solution	10 ml	40 ml
User manual	1 each	1 each
MSDS	1 each	1 each
Certificate of Analysis	1 each	1 each

### 2.2 User Supplied Materials

#### 2.2.1 Vacuum Protocol

100% ethanol

Bottle capable of storing 180 ml prepared wash solution (for Cat # 1104-200)

Bottle capable of storing 720 ml prepared wash solution (for Cat # 1104-400)

96-well plates capable of holding > 900 µl of liquid

Appropriate pipettes and tips

Vacuum manifold system (ex. Whatman #7705-0107)

Vacuum source capable of generating at least 15 inches Hg

2 ml waste collection plate

### 2.2.2 Centrifugation Protocol

100% ethanol

Bottle capable of storing 180 ml prepared wash solution (for Cat # 1104-200)

Bottle capable of storing 720 ml prepared wash solution (for Cat # 1104-400)

96-well plates capable of holding > 900 µl of liquid

Appropriate pipettes and tips

Centrifuge capable of 1800 x g

Microcentrifuge capable of spinning a stack height of 7.5 cm

## 3. Preparation of the *Turbo 96* Wash Solution Concentrate

The GENECLEAN® *Turbo 96* Kit contains a bottle with either 18 ml (with Cat # 1104-200) or 72 ml (with Cat # 1104-400) of *Turbo 96* Wash Solution Concentrate. Before using this solution, add the contents of the *Turbo 96* Wash Solution Concentrate to a larger volume of 100% ethanol as shown in the table below.

Cat #	<i>Turbo 96</i> Wash Solution Concentrate	100% ethanol
1104-200	18 ml	162 ml
1104-400	72 ml	648 ml

Mark on the bottle label the date ethanol was added. Ensure that the bottle is securely closed to prevent evaporation, and store at room temperature.

## 4. Safety Precautions

GENECLEAN® *Turbo 96* Binding Solution contains guanidine thiocyanate. Wear personal protective equipment to prevent contact with the skin or mucous membranes (gloves, lab coat, and eye protection). Consult the enclosed Material Safety Data Sheet for additional details.

## 5. Vacuum Protocol

1. Aliquot DNA samples into a user-supplied 96-well plate that can hold at least 900  $\mu\text{l}$  of liquid. To each well, add 600  $\mu\text{l}$  of GENE CLEAN<sup>®</sup> *Turbo* 96 Binding Solution and mix well by pipetting up and down several times.

Note: Add up to 100 $\mu\text{l}$  of a PCR reaction or up to 10 $\mu\text{g}$  of DNA from other enzymatic/isolation processes in < 200  $\mu\text{l}$ . It might be necessary to transfer samples to a deep 96-well plate before adding the Binding Solution.

2. Prepare the vacuum manifold for the DNA binding step. Attach the vacuum source, and assemble the GENE CLEAN<sup>®</sup> *Turbo* 96 DNA Filter Plate into a vacuum manifold with a user-supplied waste tray in the bottom.
3. Transfer the entire volume of solution to the center of each well in the prepared GENE CLEAN<sup>®</sup> *Turbo* 96 DNA Filter Plate. Incubate 5 minutes at room temperature.
4. To drain the supernatant, apply vacuum between -15 and -20 inches Hg and allow the sample to be pulled through the DNA binding filter for 1 minute. Release the vacuum and check to see that all liquid has been evacuated from each well. If liquid remains in any of the wells, repeat this step until all liquid has cleared.

Note: If all wells of the plate are not being processed simultaneously, the unused wells must be sealed before vacuum is applied. If a well appears to clog, gently stir contents with a clean 200  $\mu\text{l}$  pipet tip while gently touching the membrane surface during the filtration process. A stronger vacuum source may be necessary if clogging persists.

5. Add 700  $\mu\text{l}$  of prepared *Turbo* 96 Wash Solution (see Section 3) to each used well. Apply vacuum between -15 and -20 inches Hg and allow the wash buffer to be pulled through the filter for 1 minute. Release the vacuum and check to see that all liquid has been evacuated from each well. If liquid remains in any of the wells, repeat this step until all liquid has cleared.

6. Repeat the wash step by adding a second 700 µl of prepared *Turbo 96 Wash Solution*. Apply vacuum between -15 and -20 inches Hg and allow the wash buffer to be pulled through the filter for 1 minute. Release the vacuum and check to see that all liquid has been evacuated from each well. If liquid remains in any of the wells, repeat this step until all liquid has cleared.
7. Completely remove residual *Turbo 96 Wash Solution* from the DNA binding filter by applying maximum vacuum for an additional 2 minutes. Ensure that the wells in use are exposed to ambient airflow for efficient drying, and make sure any unused wells are sealed. Release the vacuum and blot the bottom of the GENECLEAN® *Turbo 96 DNA Filter Plate* with a clean, absorbent paper towel to remove any residual *Turbo 96 Wash Buffer* from the drip directors.
8. Prepare the vacuum manifold for DNA collection. Place a spacer plate inside the vacuum manifold and set the Collection Plate on top of the spacer plate. Place the vacuum collar on top of the manifold and place the processed GENECLEAN® *Turbo 96 DNA Filter Plate* on top of the vacuum collar. Ensure that the GENECLEAN® *Turbo 96 DNA Filter Plate* and the Collection Plate are aligned.
9. Add 50 µl of Elution Solution to each used well. Incubate for 5 minutes at room temperature.
10. Apply vacuum between -15 and -20 inches Hg and allow the eluted DNA to be pulled through the filter for 1 minute. Release the vacuum and check to see that all liquid has been evacuated from each well. If liquid remains in any of the wells, repeat this step until all liquid has been drawn into the Collection Plate.
11. Remove the Collection Plate from the vacuum manifold. The purified DNA is now suitable for use in downstream applications. For storage, cover the Collection Plate with the Collection Plate Mat (provided) or adhesive seal. To remove the Collection Plate Mat, hold the Collection Plate securely on the bench top and pull the mat by the tab in a diagonal fashion (i.e. towards the opposite side of the tab).



## 6. Centrifugation Protocol

1. Aliquot DNA samples into a user-supplied 96-well plate that can hold at least 900  $\mu$ l of liquid. To each well, add 600  $\mu$ l of GENE CLEAN<sup>®</sup> *Turbo* 96 Binding Solution and mix well by pipetting up and down several times.

Note: Add up to 100 $\mu$ l of a PCR reaction or up to 10 $\mu$ g of DNA from other enzymatic/isolation processes in < 200  $\mu$ l. It might be necessary to transfer samples to a deep 96-well plate before adding the Binding Solution.

2. Prepare plates for the DNA binding step. Stack the GENE CLEAN<sup>®</sup> *Turbo* 96 DNA Filter Plate on top of a user-supplied waste tray. Ensure that the centrifuge can accommodate the height of the stack.
3. Transfer the entire volume of solution to the center of each well in the prepared GENE CLEAN<sup>®</sup> *Turbo* 96 DNA Filter Plate. Incubate 5 minutes at room temperature.
4. To drain the supernatant, centrifuge for 2.5 minutes at 1800 x g. The DNA is now bound to the filter media of the DNA binding plate. Remove the stacked trays from the centrifuge.
5. Add 700  $\mu$ l of prepared *Turbo* 96 Wash Solution (see Section 3) to each used well. Centrifuge for 4.5 minutes at 1800 x g. Remove the stacked trays and empty the waste tray.
6. Repeat the wash step by adding a second 700  $\mu$ l of prepared *Turbo* 96 Wash Solution. Centrifuge for 4.5 minutes at 1800 x g. Remove the stacked trays and empty the waste tray.
7. Blot the bottom of the GENE CLEAN<sup>®</sup> *Turbo* 96 DNA Filter Plate with a clean, absorbent paper towel to remove any residual *Turbo* 96 Wash Buffer from the drip directors.

8. Prepare plates for DNA collection. Place the processed GENECLAN® *Turbo* 96 DNA Filter Plate on top of the Collection Plate. Ensure that the GENECLAN® *Turbo* 96 DNA Filter Plate and the Collection Plate are aligned.
9. Add 50 µl of Elution Solution to each used well. Incubate for 5 minutes at room temperature.
10. Centrifuge for 2.5 minutes at 1800 x g.
11. Remove the stacked plates from the centrifuge. The purified DNA in the Collection Plate is now suitable for use in downstream applications. For storage, cover the Collection Plate with the Collection Plate Mat (provided) or adhesive seal. To remove the Collection Plate Mat, hold the Collection Plate securely on the bench top and pull the mat by the tab in a diagonal fashion (i.e. towards the opposite side of the tab).

## 7. Recommended Reference Format for Publications

DNA was purified using the GENECLAN® *Turbo* 96 Kit (Qbiogene, Inc., CA).

## 8. Related Products

### 8.1 Gel Isolation and Reaction Cleanup Products

Cat #	Description	Size
1102-200	GENECLAN® <i>Turbo</i> Kit	50 preps
1102-400	GENECLAN® <i>Turbo</i> Kit	100 preps
1103-200	GENECLAN® <i>Turbo</i> for PCR Kit	50 preps
1103-400	GENECLAN® <i>Turbo</i> for PCR Kit	100 preps
1001-200	GENECLAN® Kit	200 preps
1001-400	GENECLAN® II Kit	300 preps
1001-600	GENECLAN® III Kit	600 preps

Cat #	Description	Size
1101-200	GENECLEAN® SPIN Kit	50 preps
1101-400	GENECLEAN® SPIN Kit	100 preps
1105-200	MERmaid® SPIN Kit	25 preps
1105-400	MERmaid® SPIN Kit	75 preps
1105-600	MERmaid® SPIN Kit	150 preps
1107-200	RNaid® SPIN Kit	200 preps
9903-100	SeqDirect™ PCR Cleaning Kit	16 preps
9903-200	SeqDirect™ PCR Cleaning Kit	32 preps
9904-200	SeqDirect™ 96 PCR Cleaning Kit	1 x 96-well plate
2350-200	EtBr GREENBAG™ Disposal Kit	50 bags

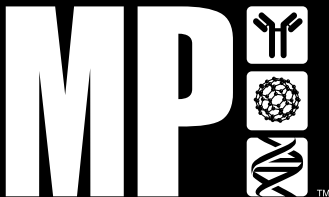
## 8.2 GENECLEAN®-Based Genomic DNA Isolation Kits

Cat #	Description	Size
6540-400	FastDNA® Kit	100 preps
6540-600	FastDNA® SPIN Kit	100 preps
6560-200	FastDNA® SPIN 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

## 9. Product Use Limitation & Warranty

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# Application

## GENECLEAN® Turbo 96 Kit

Revision # 1104-200-32410



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