



Cat No.: Gel *Advanced*[™] : EG2001 (50 preps/Kit) & EG2002 (250preps/Kit)
PCR *Advanced*[™] : PF 2001 (50 preps/Kit) & PF 2002 (250preps/Kit)

Gel Advanced[™]
Gel Extraction
System

PCR Advanced[™]
PCR Clean Up
System

User's Guide



For research use only



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Service

Viogene regards that it is very important to provide satisfactory service to our every customer. In order to guarantee the best quality of our products, we value our customers' comments and suggestions on our services, product performance, new applications, and techniques of our products. If there is any question or comment concerning the use of our products, please do not hesitate to contact our Technical Service Department by phone, e-mail, or fax, or to contact your local sales representatives. Our experienced staffs and researchers are pleased to provide you with technical help and advice. If you have problems on attaining the expected performance with our products, please contact our Technical Service Department for technical advice. If any product fails to perform properly not due to incorrect handling, please contact us or your local sales representatives for assistance.

Contact Information

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Shipping and Storage

Viogene Gel *Advanced*[™] Gel Extraction System and PCR *Advanced*[™] PCR Clean Up System are stable at 20-25°C for one Year. Product should be stored in dry place and kept away from direct sunlight.

Quality Certification

We strictly enforce good quality control of our products by regular testing of each lot to maintain a satisfactory yield of DNA or RNA. Testing results of all lots of each product are documented. Any inquiry to access them is welcome.

Equipments and Reagents to be supplied by users

- ▶ 1.5-ml or 2-ml microcentrifuge tubes for collecting the samples
- ▶ Clean razor blade to cut the gel (for Gel *Advanced*[™])
- ▶ UV light box for observing and managing the gel with DNA
- ▶ Microcentrifuge with rotor for 1.5-ml and 2-ml tubes
- ▶ Ethanol (98-100%)

Must-read Notes:

Please read the following notes carefully before starting the procedures.

- ▶ Buffers provided in this system contain irritants. Appropriate safety apparel such as gloves, lab coat, or even protective goggles should be worn. People handling the kit may need suitable instruction.
- ▶ All procedures should be done **at room temperature (20~25°C)** and centrifugation should be done **at full speed (10,000 x g or 13,000rpm)** in a microcentrifuge, unless otherwise notified.
- ▶ For long-term storage of the eluted DNA, TE buffer should be used for elution. Since EDTA in TE buffer may affect downstream applications, Elution Buffer (provided) or ddH₂O **(Be sure the pH of ddH₂O for elution is between 7.0 ~ 8.5!!)** is preferred for the elution of DNA immediately used for downstream enzymatic reactions.
- ▶ Please be aware that there are corresponding important notes listed below each step of the protocol. Important hints for users' references are listed beside the corresponding paragraph of the protocol. This information has been provided to help users minimize any potential problem.



Gel Advanced™ Gel Extraction System

Description

Viogene Gel Advanced™ Gel Extraction System is designed to extract and purify DNA fragments from agarose gel. This system is based on binding of up to 20µg DNA to silica-based membranes in chaotropic salts with average recoveries from 60% to 90% of 100-bp to 10-kb DNA fragments.

Parameter	Value
Average preparation time	10~15 minutes
Workable length of fragment	100-bp ~ 10-kb
Maximal recovery	60~90%
Minimal elution volume	15 µl
Maximal capacity	Up to 20 µg
Regular sample volume	50~200 mg

Downstream Applications

- Restriction enzyme digestion
- Modifying enzymatic reaction
- Radioactive and fluorescent labeling & sequencing
- Sequencing & PCR
- Ligation
- Labeling & hybridization

Product Contents:

Please check if the contents enclosed match the checklist. Record the date when the first open of each component. It is not recommended to pool together columns or solutions from different lots.

Cat. No.	EG2001 (50 preps) (amount)	EG2002 (250 preps) (amount)	Check
GEX Buffer	50 ml	250 ml	<input type="checkbox"/>
WN Buffer	6 ml*	30 ml**	<input type="checkbox"/>
WS Buffer	6 ml*	30 ml**	<input type="checkbox"/>
Elution Buffer	5 ml	25 ml	<input type="checkbox"/>
GP™ Column	50 pieces	250 pieces	<input type="checkbox"/>
Collection Tube	50 pieces	250 pieces	<input type="checkbox"/>
Protocol	1	1	<input type="checkbox"/>

* For EG2001

- Add 24 ml of 98-100% ethanol into WN and WS Buffer before first use. Please be sure to tighten the cap after each use when the ethanol has been added.

** For EG2002

- Add 120 ml of 98-100% ethanol into WN and WS Buffer before first use. Please be sure to tighten the cap after each use when the ethanol has been added.

Columns and buffers are available for separated purchase. Please contact us for ordering information.



Protocol for Spin Method:

1. Use a clean, sharp scalpel or razor blade to excise the gel slice containing the DNA fragment of interest.
 - ⚠ *DO NOT expose the gel to UV light for extended periods of time as DNA may be nicked or denatured.*
 - ⚠ Minimize the size of the gel slice by removing extra agarose.
2. Measure the weight of the gel slice (about 50 -200 mg) and place it into a sterile 1.5-ml or 2-ml centrifuge tube. Add 0.5 ml GEX Buffer into it.
 - ⚠ *When agarose percentage of the gel slice is higher than 2 %, adjust the use of GEX Buffer as 5x volumes of the gel slice (100 mg gel with 0.5ml GEX buffer).*
 - ⚠ Cutting the gel slice into small pieces can facilitate dissolution.
 - ⚠ If more than 200 mg gel is used in order to harvest more DNA, increase the applied volume of GEX buffer proportionally.
3. Incubate at 60°C for 5 to 10 minutes until the gel is completely dissolved. Invert the tube every 1-2 minutes during incubation. Stop incubation when the gel has been completely dissolved.
 - ⚠ *Let the gel mixture cool down slowly to room temperature.*
 - ⚠ Ensure that the gel has been completely dissolved before proceeding to step 4. Gently invert the tube, and observe the contents of the vial with back light, to see if there is any gel-like substance remaining.
 - ⚠ If gel dissolution cannot be completed in 10 minutes, refer to the Troubleshooting Guide on page 12.
4. Place a GP™ Column onto a Collection Tube. Load no more than 0.7 ml dissolved gel mixture into each column. Centrifuge for 30-60 seconds. Discard the flow-through.
 - ⚠ If the volume of dissolved mixture is more than 0.7ml, load and filter 0.7ml at each time until all the mixture has been filtrated.

5. Repeat step 4 for the rest of the mixture.
6. Wash the column once with 0.5 ml of WN Buffer by centrifuging for 30-60 seconds. Discard the flow-through.
 - ❏ Ensure that the ethanol has been added into WN and WS buffer before first use.
7. Wash the column once with 0.5 ml of WS Buffer by centrifuging for 30-60 seconds. Discard the flow-through.
 - ❏ Keep the cap of the WN and WS bottle tight after each use to avoid volatilization of ethanol. Decreased ethanol content in WN or WS buffer may cause DNA loss during the wash.
8. Centrifuge the column at full speed for another 3 minutes to remove residual ethanol.
 - *DO NOT remove ethanol by baking the column in an oven, as high temperatures may affect the intactness of the column.*
 - ❏ Residual ethanol may affect the quality of DNA and may interfere subsequent enzymatic reactions or sequencing. If necessary, stand the column at room temperature for a few minutes before eluting DNA.
9. Place the column onto a new 1.5-ml centrifuge tube. Add 15-30 μ l of Elution Buffer (provided) onto the center of the membrane.
 - *Use of elution solution preheated to 60°C can increase the recovery of DNA fragments larger than 5-kb.*
 - ❏ For effective elution, make sure that the elution solution is dispensed on the center of the membrane and is completely absorbed.
 - ❏ If the solution still remains on the surface, pulse-centrifuging the tube for 1-2 seconds can drag the solution into the membrane. DO NOT over-centrifuge as the solution will run through the membrane easily.
 - ❏ Higher DNA recovery can be attained by eluting the column twice. That is, eluting twice with, e.g. 30 μ l H₂O or buffer, yields more DNA in total than eluting once with 60 μ l H₂O or buffer.
10. Stand the column for 3 minutes and then centrifuge at full speed for 1-2 minutes to elute DNA. Store DNA at -20°C.



Protocol for Vacuum Method:

1. Use a clean, sharp scalpel or razor blade to excise the gel slice containing the DNA fragment of interest.
 - ☞ *DO NOT expose the gel to UV light for extended periods of time as DNA may be nicked or denatured.*
 - ☒ Minimize the size of the gel slice by removing extra agarose.
2. Measure the weight of the gel slice (about 50 -200 mg) and place it into a sterile 1.5-ml or 2-ml centrifuge tube. Add 0.5 ml GEX Buffer to it.
 - ☞ *When agarose percentage of the gel slice is higher than 2 %, adjust the use of GEX Buffer as 5x volumes of the gel slice (100 mg gel with 0.5ml GEX buffer).*
 - ☒ Cutting the gel slice into small pieces can facilitate dissolution.
 - ☒ If more than 200 mg gel is used to harvest more DNA, increase the applied volume of GEX buffer proportionally.
3. Incubate at 60°C for 5 to 10 minutes until the gel is completely dissolved. Invert the tube every 1-2 minutes during incubation. Stop incubation when the gel has been completely dissolved.
 - ☞ *Let the gel mixture cool down slowly to room temperature.*
 - ☒ Ensure that the gel has been completely dissolved before proceeding to step 4. Gently revert the tube, and observe the contents in vial with back light, to see if there is any gel-like substance remaining.
 - ☒ If gel dissolution cannot be completed in 10 minutes, refer to the Troubleshooting Guide on page 12.
4. Insert a GP™ column into the luer-lock of a vacuum manifold (e.g. Promega's Vac-man*). Load no more than 0.7 ml of the dissolved gel mixture into the column.
 - ☒ If the volume of dissolved mixture is more than 0.7ml, load and filter 0.7ml at each time until all the mixture has been filtrated.

*Vac-man is a trademark of Promega Inc.

5. Apply the vacuum to draw all the liquid into the manifold. Load the rest of the mixture.
6. Wash the column once with 0.5 ml of WN Buffer by reapplying vacuum to draw out all the liquid.
 - ❏ Ensure that the ethanol has been added into WN and WS buffer before first use.
 - ❏ Keep the cap of the WN and WS bottle tight after each use to avoid volatilization of ethanol. Decreased ethanol content in WN or WS buffer may cause DNA loss during the wash.
7. Wash the column once with 0.5 ml of WS Buffer by reapplying the vacuum to draw out all the liquid.
8. Place the column onto a Collection Tube. Centrifuge the column at full speed for 3 minutes to remove residual ethanol.
 - ☞ *DO NOT remove ethanol by baking the column in an oven, as high temperatures may affect the intactness of the column.*
 - ❏ Residual ethanol may affect the quality of DNA and may interfere subsequent enzymatic reactions or sequencing. If necessary, stand the column at room temperature for a few minutes before eluting DNA.
9. Place the column onto a new 1.5-ml centrifuge tube. Add 15-30 μ l of Elution Buffer (provided) onto the center of the membrane.
 - ☞ *Use of elution solution preheated to 60°C can increase the recovery of DNA fragments larger than 5-kb.*
 - ❏ For effective elution, make sure that the elution solution is dispensed on the center of the membrane and is completely absorbed.
 - ❏ If the solution still remains on the surface, pulse-centrifuging the tube for 1-2 seconds can drag the solution into the membrane. DO NOT over-centrifuge as the solution will run through the membrane easily.
 - ❏ Higher DNA recovery can be attained by eluting the column twice. That is, eluting twice with, e.g. 30 μ l H₂O or buffer, yields more DNA in total than eluting once with 60 μ l H₂O or buffer.
10. Stand the column for 3 minutes and then centrifuge for 1-2 minutes to elute DNA. Store DNA at -20°C.



Troubleshooting Guide

Problem	Possible Reason	Solution
Low recovery of DNA fragment	Incomplete dissolution of the gel slice	Check the dissolution mixture with a back light to see if there is any gel-like substance remained.
	Ineffective DNA elution	DNA elution does not take place well in acidic conditions. Make sure that the ddH ₂ O used has a pH between 7.0 - 8.5
	Incomplete DNA elution	Complete DNA elution only takes place when elution solution is in full contact with the membrane. Make sure that no less than 15 µl of Elution buffer is dispensed onto the center of the membrane and is completely absorbed into it before centrifugation.
	TAE or TBE buffer is repeatedly used for many times or of incorrect pH	pH of repeatedly used TAE or TBE buffer usually increases. Use fresh TAE or TBE buffer each time.
	Overload the column with too much agarose solution	Higher recovery is attained when lower amount of agarose gel is used. Minimize the size of the gel slice by removing extra gel. When gel slice is more than 200 mg, use separated column to proceed the extraction.
	Size of DNA fragment is more than 5-kb	Preheated the elution solution to 60°C before the elution step.
Poor OD ₂₆₀ /OD ₂₈₀ ratio	Use of H ₂ O of acidic pH to dilute the eluted DNA	Make sure the H ₂ O has the pH value between 7.0~8.5

Gel slice hard to dissolve	Use high percentage agarose gel	When the agarose percentage is > 2.0%, add GEX Buffer at 5 times the volume of the gel slice (100 mg= 0.5 ml). When the agarose percentage of the gel is > 2.5%, add GEX Buffer at 6 times the volume of the gel slice (100 mg = 0.6 ml). Mix every 1-2 minutes during the incubation until complete dissolution.
	Gel slice is too big (more than 200mg)	Use more than one column for gel slice larger than 200 mg.
Poor performance in downstream applications	Eluted DNA carries salt residue	Wash the column twice with 0.5 ml WS buffer.
	Eluted DNA carries ethanol residue	After washing with WS buffer, discard and centrifuge the column for another 3 minutes. If necessary, stand the column at room temperature for a few minutes before eluting DNA. However, do not remove ethanol by baking the column in an oven as the high temperature may affect the intactness of the column.
	DNA fragment is denatured and becomes single-stranded.	To re-anneal the single-stranded DNA, incubate the tube at 95°C for 2 minutes and let it cool down slowly to room temperature. Re-annealed DNA fragments are applicable for all downstream applications.

- If there remains any problem unable to be solved according to the troubleshooting guide, please contact your local distributor for immediate technical support. E-mailing to us directly at service@viogene.com.tw will also ensure quick response from the dedicated Technical Services Team.



PCR *Advanced*[™] PCR Clean Up System

Description

Purification of small-scale DNA using phenol/chloroform extraction and ethanol precipitation is laborious and time-consuming. Viogene PCR *Advanced*[™] PCR Clean Up System provides a simple and fast method to purify and clean up PCR products or DNA fragments from components of enzymatic reactions such as enzymes, dNTPs, salts and primers without phenol/chloroform extraction. The system is based on binding of up to 20µg DNA to silica-based membranes in chaotropic salts with average recoveries from 60 to 95% of 100-bp to 10-kb DNA fragments.

Parameter	Value
Average preparation time	5~10 minutes
Workable length of fragment	100-bp ~ 10-kb
Maximal recovery	~95%
Minimal elution volume	15 µl
Maximal capacity	Up to 20 µg
Regular sample volume	10~100 mg

Downstream Applications

- Restriction enzyme digestion
- Modifying enzymatic reaction
- Radioactive and fluorescent labeling & sequencing
- Sequencing & PCR
- Ligation
- Labeling & hybridization

Product Contents:

Please check if the contents enclosed match the checklist. Record the date when the first open of each component. It is not recommended to pool together columns or solutions from different lots.

Cat. No.	PF2001 (50 preps) (amount)	PF2002 (250 preps) (amount)	Check
PX Buffer	30 ml	150 ml	<input type="checkbox"/>
WN Buffer	6 ml*	30 ml**	<input type="checkbox"/>
WS Buffer	6 ml*	30 ml**	<input type="checkbox"/>
Elution Buffer	0.5 ml	25 ml	<input type="checkbox"/>
GP™ Column	50 pieces	250 pieces	<input type="checkbox"/>
Collection Tube	50 pieces	250 pieces	<input type="checkbox"/>
Protocol	1	1	<input type="checkbox"/>

* For PF2001

- Add 24 ml of 98-100% ethanol into WN and WS Buffer before first use. Please be sure to tighten the cap after each use when the ethanol has been added.

** For PF2002

- Add 120 ml of 98-100% ethanol into WN and WS Buffer before first use. Please be sure to tighten the cap after each use when the ethanol has been added.

Columns and buffers are available for separated purchase. Please contact us for ordering information.



Protocol for Spin Method:

1. Pipet 10-100 μ l PCR product or DNA solution after enzymatic reaction to a new 1.5-ml centrifuge tube. Add 0.5 ml PX Buffer and mix well.
 - ☞ *Make sure that NO MINERAL OIL is taken. Any mineral oil will adversely interfere with the following protocol.*
 2. Insert a GP™ column onto a Collection Tube. Add all the mixture from step 1 into the column.
 3. Centrifuge for 30-60 seconds. Discard the flow-through.
 4. Wash the column once with 0.5 ml WN Buffer by centrifuging for 30-60 seconds. Discard the flow-through.
 5. Wash the column once with 0.5 ml WS Buffer by centrifuging for 30-60 seconds. Discard the flow-through.
- ☞ If more than 100 μ l is used in order to harvest more DNA, increase the applied volume of PX buffer proportionally.
 - ☞ If the volume of mixture is more than 0.7 ml, load and filter 0.7 ml at each time until all the mixture has been filtrated.
 - ☞ Ensure that the ethanol has been added into WN and WS buffer before first use.
 - ☞ Keep the cap of the WN and WS bottle tight after each use to avoid volatilization of ethanol. Decreased ethanol content in WN or WS buffer may cause DNA loss during the wash.

6. Centrifuge the column at full speed for another 3 minutes to remove residual ethanol.

- ☞ *DO NOT remove ethanol by baking the column in an oven, as high temperatures may affect the intactness of the column.*

7. Place the column onto a new 1.5-ml centrifuge tube. Add 15-30 µl of Elution Buffer (provided) onto the center of the membrane.

- ☞ *Use of elution solution preheated to 60°C can increase the recovery of DNA fragment larger than 5-kb.*

8. Stand the column for 3 minutes and then centrifuge for 1-2 minutes to elute DNA. Store DNA at -20°C.

- ☞ Residual ethanol may affect the quality of DNA and may interfere subsequent enzymatic reactions or sequencing. If necessary, stand the column at room temperature for a few minutes before eluting DNA.

- ☞ For effective elution, make sure that the elution solution is dispensed on the center of the membrane and is completely absorbed.

- ☞ If the solution still remains on the surface, pulse-centrifuging the tube for 1-2 seconds can drag the solution into the membrane. DO NOT over-centrifuge as the solution will run through the membrane easily.

- ☞ Higher DNA recovery can be attained by eluting the column twice. That is, eluting twice with, e.g. 30 µl H₂O or buffer, yields more DNA in total than eluting once with 60 µl H₂O or buffer.



Protocol for Vacuum Method:

1. Pipet 10-100 µl PCR product or DNA solution after enzymatic reaction to a new 1.5-ml centrifuge tube. Add 0.5 ml PX Buffer and mix well.

⚠ *Make sure that NO MINERAL OIL is taken. Any mineral oil will adversely interfere with the following protocol.*

2. Insert a GP™ column into the luer-lock of a vacuum manifold (e.g. Promega's Vac-man*). Add all the mixture from step 1 into the column.

*Vac-man is a trademark of Promega Inc.

⚠ If the volume of mixture is more than 0.7 ml, load and filter 0.7 ml at each time until all the mixture has been filtrated.

3. Apply the vacuum to draw all the liquid into the manifold.

4. Wash the column once with 0.5ml of WN Buffer by re-applying the vacuum to draw out all the liquid.

⚠ Ensure that the ethanol has been added into WN and WS buffer before first use.

5. Wash the column once with 0.5ml of WS Buffer by re-applying the vacuum to draw out all the liquid.

⚠ Keep the cap of the WN and WS bottle tight after each use to avoid volatilization of ethanol. Decreased ethanol content in WN or WS buffer may cause DNA loss during the wash.

6. Place the column onto a Collection Tube. Centrifuge the column at full speed for 3 minutes to remove residual ethanol.

☞ *DO NOT remove ethanol by baking the column in an oven, as high temperatures may affect the intactness of the column.*

7. Place the column onto a new 1.5-ml centrifuge tube. Add 15-30 μ l of Elution Buffer (provided) onto the center of the membrane.

☞ *Use of elution solution preheated to 60°C can increase the recovery of DNA fragments larger than 5-kb.*

8. Stand the column for 3 minutes and then centrifuge for 1-2 minutes to elute DNA. Store DNA at -20°C.

☞ Residual ethanol may affect the quality of DNA and may interfere subsequent enzymatic reactions or sequencing. If necessary, stand the column at room temperature for a few minutes before eluting DNA.

☞ For effective elution, make sure that the elution solution is dispensed on the center of the membrane and is completely absorbed.

☞ If the solution still remains on the surface, pulse-centrifuging the tube for 1-2 seconds can drag the solution into the membrane. DO NOT over-centrifuge as the solution will run through the membrane easily.

☞ Higher DNA recovery can be attained by eluting the column twice. That is, eluting twice with, e.g. 30 μ l H₂O or buffer, yields more DNA in total than eluting once with 60 μ l H₂O or buffer.



Troubleshooting Guide

Problem	Possible Reason	Solution
Low recovery of DNA fragment	DNA solution used is more than 100 μ l	Aliquot the sample into two or more columns. If DNA to be cleaned up is relatively diluted, more than 100 μ l solution can be used per column. Add 5 times PX Buffer for each 1 μ l extra DNA solution (e.g. add 600 μ l PX Buffer to 120 μ l DNA solution).
	Ineffective DNA elution	DNA elution does not take place well at acidic conditions. Make sure that water or buffer is of pH between 7.0 and 8.5
	Size of DNA product is more than 5-kb	Use elution solution preheated to 60°C.
	Eluted DNA carries salt residue	Wash the column twice with 0.5ml WS buffer.

Low recovery of DNA fragment	Incomplete DNA elution	Complete DNA elution only takes place when elution solution is in full contact with membrane. Make sure that at least 15 μ l of solution is dispensed onto the center of the membrane and is completely absorbed before elution.
Poor performance in downstream applications	Eluted DNA carries ethanol residue	After washing with WS buffer, discard and centrifuge the column for another 3 minutes. If necessary, stand the column at room temperature for a few minutes before eluting DNA. However, do not remove ethanol by baking the column in an oven as the high temperature may affect the intactness of the column.
Poor OD₂₆₀/OD₂₈₀ ratio	Use of H ₂ O of acidic pH to dilute the eluted DNA	Make sure the H ₂ O has the pH value between 7.0~8.5

- If there remains any problem unable to be solved according to the troubleshooting guide, please contact your local distributor for immediate technical support. E-mailing to us directly at service@viogene.com.tw will also ensure quick response from the dedicated Technical Services Team.



Viogene Products

Category	Product	Cat. No	Package size	Sample	Expected Yield																																																								
Mini-prep Plasmid DNA Extraction System	Mini <i>Plus</i> TM	GF2001	50	1-5 ml culture	up to 40 µg																																																								
		GF2002	250			Ultrapure Plasmid DNA Extraction System	Midi <i>Plus</i> TM	GDV2001	25	25-100 ml culture	more than 100 µg	GDV2002	50	Maxi <i>Plus</i> TM	GMV2001	10	100-250 ml culture	more than 500 µg	GMV2002	25	Genomic DNA Extraction System	Blood & Tissue Genomic DNA Mini	GG1001	50	200 µl whole blood 15-30 mg tissue	up to 10 µg	GG1002	250	Blood & Tissue Genomic DNA Midi	GGD1001	20	1 ml whole blood	up to 50 µg	GGD1002	100	Blood & Tissue Genomic DNA Maxi	GGM1001	10	5 ml whole blood	up to 300 µg	GGM1002	50	DNA fragment Recovery System	Gel <i>Advanced</i> TM Gel Extraction	EG2001	50	50-200 mg agarose gel	60-90% recovery (100-bp to 10-kb), up to 20 µg	EG2002	250	PCR <i>Advanced</i> TM PCR Clean Up	PF2001	50	10-100 µl DNA mixture	up to 20 µg	PF2002	250	Plant Genomic DNA Extraction System	Plant Genomic DNA Mini	GPG1001	50
Ultrapure Plasmid DNA Extraction System	Midi <i>Plus</i> TM	GDV2001	25	25-100 ml culture	more than 100 µg																																																								
		GDV2002	50				Maxi <i>Plus</i> TM	GMV2001	10	100-250 ml culture	more than 500 µg	GMV2002	25	Genomic DNA Extraction System	Blood & Tissue Genomic DNA Mini	GG1001	50	200 µl whole blood 15-30 mg tissue	up to 10 µg	GG1002		250	Blood & Tissue Genomic DNA Midi	GGD1001	20	1 ml whole blood	up to 50 µg	GGD1002	100	Blood & Tissue Genomic DNA Maxi	GGM1001	10	5 ml whole blood	up to 300 µg	GGM1002	50	DNA fragment Recovery System	Gel <i>Advanced</i> TM Gel Extraction	EG2001	50	50-200 mg agarose gel	60-90% recovery (100-bp to 10-kb), up to 20 µg		EG2002	250	PCR <i>Advanced</i> TM PCR Clean Up	PF2001	50	10-100 µl DNA mixture	up to 20 µg	PF2002	250	Plant Genomic DNA Extraction System	Plant Genomic DNA Mini	GPG1001	50	100 mg tissue	up to 40 µg	GPG1002	250	
	Maxi <i>Plus</i> TM	GMV2001	10	100-250 ml culture	more than 500 µg																																																								
		GMV2002	25			Genomic DNA Extraction System	Blood & Tissue Genomic DNA Mini	GG1001	50	200 µl whole blood 15-30 mg tissue	up to 10 µg	GG1002	250		Blood & Tissue Genomic DNA Midi	GGD1001	20	1 ml whole blood	up to 50 µg	GGD1002		100	Blood & Tissue Genomic DNA Maxi	GGM1001	10	5 ml whole blood	up to 300 µg	GGM1002	50	DNA fragment Recovery System	Gel <i>Advanced</i> TM Gel Extraction	EG2001	50	50-200 mg agarose gel	60-90% recovery (100-bp to 10-kb), up to 20 µg	EG2002		250	PCR <i>Advanced</i> TM PCR Clean Up	PF2001	50	10-100 µl DNA mixture	up to 20 µg	PF2002	250	Plant Genomic DNA Extraction System	Plant Genomic DNA Mini	GPG1001	50	100 mg tissue	up to 40 µg	GPG1002	250								
Genomic DNA Extraction System	Blood & Tissue Genomic DNA Mini	GG1001	50	200 µl whole blood 15-30 mg tissue	up to 10 µg																																																								
		GG1002	250				Blood & Tissue Genomic DNA Midi	GGD1001	20	1 ml whole blood	up to 50 µg	GGD1002	100		Blood & Tissue Genomic DNA Maxi	GGM1001	10	5 ml whole blood	up to 300 µg	GGM1002	50	DNA fragment Recovery System	Gel <i>Advanced</i> TM Gel Extraction	EG2001	50	50-200 mg agarose gel	60-90% recovery (100-bp to 10-kb), up to 20 µg	EG2002	250		PCR <i>Advanced</i> TM PCR Clean Up	PF2001	50	10-100 µl DNA mixture	up to 20 µg	PF2002	250	Plant Genomic DNA Extraction System	Plant Genomic DNA Mini	GPG1001	50	100 mg tissue	up to 40 µg	GPG1002	250																
	Blood & Tissue Genomic DNA Midi	GGD1001	20	1 ml whole blood	up to 50 µg																																																								
		GGD1002	100				Blood & Tissue Genomic DNA Maxi	GGM1001	10	5 ml whole blood	up to 300 µg	GGM1002	50	DNA fragment Recovery System	Gel <i>Advanced</i> TM Gel Extraction	EG2001	50	50-200 mg agarose gel	60-90% recovery (100-bp to 10-kb), up to 20 µg	EG2002	250		PCR <i>Advanced</i> TM PCR Clean Up	PF2001	50	10-100 µl DNA mixture	up to 20 µg	PF2002	250	Plant Genomic DNA Extraction System	Plant Genomic DNA Mini	GPG1001	50	100 mg tissue	up to 40 µg	GPG1002	250																								
	Blood & Tissue Genomic DNA Maxi	GGM1001	10	5 ml whole blood	up to 300 µg																																																								
		GGM1002	50			DNA fragment Recovery System	Gel <i>Advanced</i> TM Gel Extraction	EG2001	50	50-200 mg agarose gel	60-90% recovery (100-bp to 10-kb), up to 20 µg	EG2002	250		PCR <i>Advanced</i> TM PCR Clean Up	PF2001	50	10-100 µl DNA mixture	up to 20 µg	PF2002	250	Plant Genomic DNA Extraction System	Plant Genomic DNA Mini	GPG1001	50	100 mg tissue	up to 40 µg	GPG1002	250																																
DNA fragment Recovery System	Gel <i>Advanced</i> TM Gel Extraction	EG2001	50	50-200 mg agarose gel	60-90% recovery (100-bp to 10-kb), up to 20 µg																																																								
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	Plant Genomic DNA Maxi	GPGM1001	20	1 g tissue	up to 1 mg
Total RNA Extraction System	Total RNA Mini	GR1001	50	10-20 mg tissue	10-45 µg up to 30 µg
		GR1002	250	1x10 ⁷ cells	
	Total RNA Midi	GRD1001	10	0.1-0.2 g tissue	200-450 µg up to 300 µg
		GRD1002	50	3-7x10 ⁷ cells	
	Total RNA Maxi	GRM1001	6	0.5-1 g tissue	1-5 mg up to 6 mg
		GRM1002	24	2-10 x 10 ⁸ cells	
Plant Total RNA Extraction System	Plant Total RNA Mini	GPR1001	50	100 mg tissue	up to 100 µg
		GPR1002	250		
	Plant Total RNA Maxi	GPRM1001	10	1 g tissue	up to 1 mg
Viral RNA Extraction System	Viral RNA Mini	GVR1001	50	150 µl serum, plasma, cell culture sup.	up to 90% recovery
		GVR1002	250		
Taq DNA polymerase set	VioTaq [®] DNA polymerase	VT1001		500U (5 U / µl) 10X PCR buffer containing 20 mM MgCl ₂	
	VioTwinPack [®] Kit	VTP1001		500U (5 U / µl) 10X PCR buffer containing 20 mM MgCl ₂ 40 mM of dNTP mix (10 mM each)	
Agarose	LE Agarose	LE0005	5 g		
		LE0100	100 g		
		LE0500	500 g		

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