MAGBIO

"WE MAKE NGS BETTER"

MagQuant™ Plus DNA V2

Catalog Nos. MQP-50010, MQP-50096, MQP-50384, MQP-51920, MQP-55000

Manual Revision 3

DNA and Library Normalization Kit

- Magnetic beads based chemistry
- No centrifugation or filtration

PROTOCOL

Contents

For Research Use Only. Not for use in diagnostic procedures.

Information in this document is subject to change without notice.

Product Description

The MagQuant™ Plus DNA Normalization V2 is a paramagnetic bead-based kit. It is engineered to release the same output of DNA regardless of initial input DNA concentration without the need for fluorescent measurement or other adjustment to obtain the desired uniform DNA concentration from samples of various sources; therefore, saving time and operation costs. The MagQuant™ Plus DNA Normalization V2 is based on binding of DNA to proprietary beads with limited binding capacity; excess DNA is washed off and normalized amounts of DNA are eluted. The protocol requires no centrifugation step; it can be used in manual procedure and well as automatic workflow.

Benefits:

- Equalizing input genomic DNA concentration for DNA libraries construction to help produce consistent and reliable NGS data without tedious initial input DNA quantitation
- No centrifugation or filtration
- Reduce library construction time, reagents usage and overall costs

Applications:

- PCR
- Cloning
- Genotyping
- Target enrichment
- Library Construction
- Next generation sequencing

Process

The workflow of normalization using MagQuant™ Plus DNA V2 consists of 3 simple steps: Bind, Wash, and Elute; that allows the user to obtain equal amounts of DNA output regardless of DNA input. Thus, similar sized PCR DNA fragments (unpurified or purified), purified/unpurified plasmid DNA, as well as DNA from PCR reactions (amplicons) and plasmid lysates can be normalized for various downstream applications such as library preparation, NGS or any other molecular application.

Safety Information

When working with chemicals, always wear a suitable lab coat, disposable gloves, and protective goggles. For more information, please consult the appropriate material safety data sheets (MSDSs). MSDS can be downloaded from the "Product Resource" tab when viewing the product kit.

Stability

All components of MagQuant™ Plus DNA Normalization V2 are guaranteed for at least 14 months from the date of manufacture when stored as follows: MAG-C7 Particles should be stored at 2-8°C. All other components should be stored at room temperature (15-25°C). Check buffers for precipitates before use. Re-dissolve any precipitates by warming to 37˚C.

Kit Content and Storage

Magquant™ Plus DNA V2 Catalog No.	MQP-50010	MQP-50096	MQP-50384	MQP-51920	MQP-55000	STORAGE
Number of Preps	10	96	384	1920	5000	
MAG-C7 Particles	110 uL	1 mL	4 mL	20 mL	52 mL	2-8°C
Binding Buffer	675 uL	4.5 mL	18 mL	90 mL	230 mL	15-25°C
MB Elution Buffer	1.5 mL	10 mL	40 mL	200 mL	510 mL	15-25°C

Preparation of Reagents

Catalog No.	Component	Add 100% Isopropanol	STORAGE
MQP-50010	Binding Buffer	75 µL*	15-25°C

Catalog No.	Component	Add 100% Isopropanol	STORAGE
MQP-50096	Binding Buffer	500 µL*	15-25°C

Catalog No.	Component	Add 100% Isopropanol	STORAGE
MQP-50384	Binding Buffer	2 mL*	15-25°C

Catalog No.	Component	Add 100% Isopropanol	STORAGE
MQP-51920	Binding Buffer	10 mL*	15-25°C

Catalog No.	Component	Add 100% Isopropanol	STORAGE
MQP-55000	Binding Buffer	25.6 mL*	15-25°C

**Ensure bottle/tube lid Is closed tightly when preparing and storing reagents.*

Specifications and Recommendations

The binding capacity of the bead varies with the size and source of DNA. The amount of DNA that will bind to the beads depends on the efficiency of the extraction protocol, size of the DNA, quality and quantity of the starting material. Minimum DNA input for genomic DNA normalization is 800 ng and maximum input is 2000 ng. For amplicon normalization purified amplicons are recommended because unpurified amplicons show higher co-efficient of variation, meaning the results may be inconsistent. Minimum input DNA for amplicon normalization is 300 ng and the maximum input is 2000 ng. The volume of MAG-C7 Particles cannot be altered to effect the DNA output. For samples to have consistent normalization output, A260/A230 should be 1.7 or above. Anything below A260/A230 of 1.7 will lead to inconsistent results and low output yield of normalization.

MagQuant™ Plus DNA V2 Protocol
for Genomic DNA

Equipment and Reagents to Be Supplied by User:

- 100% Ethanol
- Magnetic separation device for 1.5 mL tube format or 96 plate format
  For 1.5 mL tube format: MagBio Genomics Cat# MBMS-12
  For 96 plate format: MagBio Genomics Cat# MYMAG-96X
- 1.5 mL tubes or 96-well cycling plate

Protocol

IMPORTANT: Bring MAG-C7 Particles to room temperature for at least 30 min before use.

1. Transfer 50 µL of genomic DNA to a 96 well plate. If the DNA amount is less than 50 µL adjust the DNA volume to 50 µL with MB Elution Buffer or Nuclease-Free Water.

2. Add 50 µL of Binding Buffer and 10 µL of MAG-C7 Particles (shake or vortex the MAG-C7 Particles thoroughly to fully resuspend the magnetic beads before pipetting). Mix the DNA sample with the Binding Buffer and the beads thoroughly by pipetting or vortexing. Incubate at RT for 5 min.

3. Place the plate on the magnetic separation device to magnetize the MAG-C7 Particles. Let the plate sit at room temperature until the MAG-C7 Particles are completely cleared from the solution.

4. Remove and discard the supernatant. Do not disturb the MAG-C7 Particles while discarding the supernatant.

5. Keep the sample plate on the magnetic separation device and add 150 µL of 80% Ethanol to each well and incubate for 1 minute at room temperature.

6. With the sample plate still on the magnetic separation device, remove and discard the cleared supernatant. Do not disturb the MAG-C7 Particles while discarding the supernatant.

7. Repeat steps 4-5 for a second 80% Ethanol wash step.

8. Leave the sample plate on the magnetic separation device for 5 minutes to air dry the MAG-C7 Particles. Remove any residual liquid with a pipette. Do not disturb the MAG-C7 Particles.

Note: *It is crucial to completely remove all traces of alcohol but take caution in not over drying the beads as this will reduce the yield.*

9. Remove the sample plate from the magnetic separation device. Add 25-50 µL of MB Elution Buffer to each sample and mix thoroughly to resuspend the beads.

10. Seal the plate and incubate for 5 min at 65°C.

11. Place the plate on the magnetic separation device to magnetize the MAG-C7 Particles. Let the plate sit at room temperature until the MAG-C7 Particles are completely cleared from the solution.

12. Transfer the supernatant containing the normalized DNA to a new plate.

13. Store the DNA at -20°C.

MagQuant™ Plus DNA V2 Protocol
for PCR Product (amplicons)

Equipment and Reagents to Be Supplied by User:

- 100% Ethanol
- Magnetic separation device for 1.5 mL tube format or 96 plate format
  For 1.5 mL tube format: MagBio Genomics Cat# MBMS-12
  For 96 plate format: MagBio Genomics Cat# MYMAG-96X
- 1.5 mL tubes or 96-well cycling plate

Protocol

IMPORTANT: Bring MAG-C7 Particles to room temperature for at least 30 min before use.

1. Transfer 25 µL of purified PCR amplicon to a 96 well plate. Add 25 µL of Binding Buffer and 10 µL of MAG-C7 Particles (shake or vortex the MAG-C7 Particles thoroughly to fully resuspend the magnetic beads before pipetting). Mix the PCR amplicon with Binding Buffer and the beads thoroughly by pipetting or vortexing. Incubate at RT for 10 min. If the amplicon amount is less than 25 µL adjust the volume to 25 µL with MB Elution Buffer or Nuclease-Free Water

2. Place the plate on the magnetic separation device to magnetize the MAG-C7 Particles. Let the plate sit at room temperature until the MAG-C7 Particles are completely cleared from the solution.

3. Remove and discard the supernatant. Do not disturb the MAG-C7 Particles while discarding the supernatant.

4. Keep the sample plate on the magnetic separation device and add 150 µL of 80% Ethanol to each well and incubate for 1 minute at room temperature

5. With the sample plate still on the magnetic separation device, remove and discard the cleared supernatant. Do not disturb the MAG-C7 Particles while discarding the supernatant.

6. Repeat steps 4-5 for a second 80% Ethanol wash step.

7. Leave the sample plate on the magnetic separation device for 5 minutes to air dry the MAG-C7 Particles. Remove any residual liquid with a pipette. Do not disturb the MAG-C7 Particles.

Note: *It is crucial to completely remove all traces of alcohol but take caution in not over drying the beads as this will reduce the yield.*

8. Remove the sample plate from the magnetic separation device. Add 25-50 µL of MB Elution Buffer to each sample and mix thoroughly to resuspend the beads.

9. Seal the plate and incubate for 5 min at 65°C.

10. Place the plate on the magnetic separation device to magnetize the MAG-C7 Particles. Let the plate sit at room temperature until the MAG-C7 Particles are completely cleared from the solution

11. Transfer the supernatant containing the normalized amplicons to a new plate.

12. Store amplicons at -20°C.

Ordering and Related Product Information

DNA and Library Normalization

Catalog No.	Product
MQP-50010	MagQuant™ Plus DNA Normalization (10 preps)
MQP-50096	MagQuant™ Plus DNA Normalization (96 preps)
MQP-50384	MagQuant™ Plus DNA Normalization (384 preps)
MQP-51920	MagQuant™ Plus DNA Normalization (1920 preps)
MQP-55000	MagQuant™ Plus DNA Normalization (5000 preps)

Post PCR and Next Gen library prep clean up system

Catalog No.	Product
AC-60005	HighPrep PCR (5 mL)
AC-60050	HighPrep PCR (50 mL)
AC-60250	HighPrep PCR (250 mL)
AC-60500	HighPrep PCR (500 mL)

BigDye Sanger Sequencing Cleanup

Catalog No.	Product
DT-70005	HighPrep DTR (5 mL)
DT-70050	HighPrep DTR (50 mL)
DT-70250	HighPrep DTR (250 mL)
DT-70500	HighPrep DTR (500 mL)

RNA or cDNA for in vitro applications clean up system

Catalog No.	Product
RC-90005	HighPrep RNA Elite (5 mL)
RC-90050	HighPrep RNA Elite (50 mL)
RC-90500	HighPrep RNA Elite (500 mL)

Magnetic Separation Devices

Catalog No.	Description
MYMAG-96	Handheld Magnetic Separation Device (96 well microplate format)
MBMS-10	MagStip magnetic stand (1.5 mL x 10)
MBMS-31550	15ml and 50ml magnetic stand combo. (3x15ml and 3x50ml)

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