MAGBIO

"WE MAKE NGS BETTER"

MagQuant Plus DNA Kit V2 - DX

DNA and Library Normalization Kit

Catalog Nos. MQP-50010E, MQP-50096E, MQP-50384E, MQP-51920E
Manual Revision 0
WI-72-71

- Magnetic bead-based chemistry
- No centrifugation or filtration

Instructions For Use

Contents

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CE IVD MHRA

For *in vitro* diagnostic procedures.

Information in this document is subject to change without notice.

Product Description

The MagQuant Plus DNA Kit V2 - DX is a paramagnetic bead-based kit. It's 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 Kit V2 - DX 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 procedures as well as a guideline for adapting the kit to automated instruments.

This product is intended to be used by qualified and trained laboratory professionals only.

Benefits:

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

Applications:

- PCR
- Cloning
- Genotyping
- Target enrichment

Process

The workflow of normalization using the MagQuant Plus DNA Kit V2 - DX consists of 3 simple steps: Bind, Wash, and Elute; which allows the user to obtain equal amounts of DNA output regardless of DNA input.

Shipping and Storage

- MAG-C7 Particles ship at room temperature. Store at 2-8°C.

Safety Information

Any consumables, including plates, tubes, etc., used to process samples with infectious or microbial hazards should be disposed of in an appropriate biohazard waste bin. When working with chemicals, always wear a suitable lab coat, disposable gloves, and protective goggles. For more information, please consult the appropriate safety data sheets (SDSs). The SDS can be downloaded from the "Product Documents" tab when viewing the product at www.magbiogenomics.com.

Kit Contents and Storage

MagQuant Plus DNA Kit V2 - DX Catalog No.*	MQP-50010E	MQP-50096E	MQP-50384E	MQP-51920E	Storage
Number of Preps	10	96	384	1920	
MAG-C7 Particles	110 uL	1 mL	4 mL	20 mL	2-8°C
Binding Buffer[1]	675 uL	4.5 mL	18 mL	90 mL	15-25°C
MB Elution Buffer	1.5 mL	10 mL	40 mL	200 mL	15-25°C

[1]Isopropanol must be added prior to use. See preparation of reagents section.
*Once opened, reagents are usable until the expiration date on the product label. Be sure to close the lid firmly before storing reagents for later use.

Preparation of Reagents

Prepare the following components for each kit before use.

Equipment and Reagents to Be Supplied by the User

☐ Isopropanol (100%)

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

Catalog No.	Component	Add 100% Isopropanol*	Storage
MQP-50096E	Binding Buffer	500 µ	15-25°C

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

Catalog No.	Component	Add 100% Isopropanol*	Storage
MQP-51920E	Binding Buffer	10 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 that 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. Attempts to normalize samples with A260/A230 readings below 1.7 will lead to inconsistent results and low output yield of normalization.

Protocol: Genomic DNA Normalization

Equipment and Reagents to Be Supplied by the User

- ☐ Ethanol (80%)
- ☐ 1.5 mL tubes or 96-well cycling plate
- ☐ Magnetic separation device for 1.5 mL tube format or 96-well plate format (see page 7)

Things to do Before Starting

- ☐ Prepare all reagents according to the instructions on page 2
- ☐ Check buffers for precipitates before use. Re-dissolve any precipitates by warming to 37˚C

Protocol

⚠ Bring the **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 volume 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 **MAG-C7 Particles** thoroughly by pipetting or vortexing. Incubate at room temperature 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, 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 5-6 for a second 80% Ethanol wash.

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

   ⚠ *It is critical 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.

Protocol: PCR Product (Amplicons) Normalization

Equipment and Reagents to Be Supplied by the User

- ☐ Ethanol (80%)
- ☐ 1.5 mL tubes or 96-well cycling plate
- ☐ Magnetic separation device for 1.5 mL tube format or 96-well plate format (see page 7)

Things to do Before Starting

- ☐ Prepare all reagents according to the instructions on page 2
- ☐ Check buffers for precipitates before use. Re-dissolve any precipitates by warming to 37˚C

Protocol

⚠ Bring the **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. If the amplicon volume is less than 25 µL, adjust the amplicon volume to 25 µL with **MB Elution Buffer** or nuclease-free water.

2. 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 **MAG-C7 Particles** thoroughly by pipetting or vortexing. Incubate at room temperature for 10 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, 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 5-6 for a second 80% Ethanol wash.

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

   ⚠ *It is critical 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 amplicons to a new plate.

13. Store the amplicons at -20°C.

Troubleshooting Guide

Please use this guide to troubleshoot any problems that may arise. For further assistance, please contact technical support via:
Phone: US/Canada, +1 301-302-0144. Europe, +49 7250 33 13 403
Email: US/Canada, support@magbiogenomics.com. Europe, Info.europe@magbiogenomics.com

Symptoms	Possible Causes	Comments
Low DNA or RNA yield	Incomplete resuspension of MAG-C7 Particles	Resuspend the MAG-C7 Particles by vortexing vigorously before use
	Loss of MAG-C7 Particles during operation	Avoid disturbing the MAG-C7 Particles during aspiration of supernatant
MAG-C7 Particles do not completely clear from the solution	Magnetizing time too short	Increase collection time on the magnet
Problems in downstream applications	Ethanol carry-over	Dry the MAG-C7 Particles completely before elution
Carryover of MAG-C7 Particles	The eluate has particles and is not fully clear	Increase magnetization time. If there's a small amount of carryover, place the eluted sample on a magnetic separation device and perform an additional 5 min magnetization

Ordering Information

MagQuant Plus DNA Kit V2 - DX

Catalog No.	Product	Description	Preps
MQP-50096E	MagQuant Plus DNA Kit V2 - DX (96 Preps)	Magnetic bead-based kit for gDNA and amplicon normalization prior to library preparation.	96
MQP-50384E	MagQuant Plus DNA Kit V2 - DX (384 Preps)	Magnetic bead-based kit for gDNA and amplicon normalization prior to library preparation.	384
MQP-51920E	MagQuant Plus DNA Kit V2 - DX (1920 Preps)	Magnetic bead-based kit for gDNA and amplicon normalization prior to library preparation.	1920

Related Products

HighPrep PCR - DX

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

Magnetic Separation Devices

Catalog No.	Product
MYMAG-96	Handheld Magnetic Separation Device (96 well microplate format)
MYMAG-96X	Magnetic Separation Device (96 well ring format)
MBMS-12	MagStrip Magnet Stand (1.5 mL x 12)
MBMS-31550	15 mL and 50 mL Magnetic Stand Combo (3 x 15 mL and 3 x 50 mL)

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