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innovations in nucleic acid isolation

Product Manual

Mag-Bind® NGS Normalization Kit

M6467-00	**1x96 preps**
M6467-01	**4x96 preps**

Manual Date: April 2026
Revision Number v1.1

For Research Use Only

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Mag-Bind® NGS Normalization Kit

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Intended Use/Intended User

Intended Use

For professional research use.

The Mag-Bind® NGS Normalization Kit is intended for normalizing libraries for use in Next Generation Sequencing workflows.

The Mag-Bind® NGS Normalization Kit utilizes magnetic bead-based technology and can be processed either manually or automated on most open-ended liquid handling platforms.

Intended User

The Mag-Bind® NGS Normalization Kit is intended for professional use in a laboratory environment by or under the supervision of professional users, such as laboratory personnel, technicians, researchers, and physicians specifically instructed and trained in molecular biology techniques and familiar with magnetic bead-based purification, either manual or automated.

Product Description

The Mag-Bind® NGS Normalization Kit is designed for normalizing libraries for use in Next Generation Sequencing workflows. The Kit follows magnetic bead-based methodology to facilitate normalization of libraries or PCR amplicons over a broad range of input from 200 ng to 2000 ng and resulting in ~100 ng normalized output. The kit eliminates manual library quantification and dilution, reducing pipetting steps, time, and tip costs.

The Mag-Bind® NGS Normalization Kit follows an easy and fast workflow that is compatible with most open-ended automation platforms. Briefly, the libraries at different concentrations are bound to Mag-Bind® Particles DDB in the presence of a binding buffer. The magnetic beads have a limited binding capacity allowing only a predetermined amount of DNA to be captured and eluted to a fixed concentration after two quick ethanol washes. The output concentration can be adjusted by adjusting the elution volume used. Once normalized, the different libraries can be pooled at equal volumes so that they are evenly represented in downstream sequencing workflows.

Important:

1. If automating the procedure on a liquid handler or a magnetic processor, please contact your Omega Bio-tek representative for instrument specific instructions.

2. This kit includes enough reagents for the specified number of preparations plus at least an additional 10% overage to ensure there is sufficient volume. Please be aware that the actual number of preparations may be lower due to pre-aliquoting of reagents, processing partial plates, and automation platform used, etc. Please visit the product page at www.omegabiotek.com for more details and ordering information.

3. It is highly recommended to quantify a subset of the normalized samples to verify the actual concentration range and ensure optimal performance in subsequent steps like pooling and sequencing.

Kit Contents and Storage

Kit Contents

Product No	M6467-00	M6467-01
Purifications	1x96	4x96
CB Buffer	15 mL	50 mL
Elution Buffer	3 mL	15 mL
Mag-Bind® Particles DDB	250 µL	1 mL
User Manual	✓	✓

Storage and Stability

All of the Mag-Bind® NGS Normalization Kit components are guaranteed for at least 12 months from the date of purchase when stored as follows. Mag-Bind® Particles DDB must be stored at 2-8°C. All remaining components should be stored at room temperature. During shipment or storage in cool ambient conditions, precipitates may form in some buffers. Dissolve such deposits by warming the solution at 37°C and gently shaking.

Preparing Reagents

1. Prepare enough stock of 70% ethanol needed and store at room temperature.

2. Shake or vortex the Mag-Bind® Particles DDB to fully resuspend the particles before use. The particles must be fully suspended during use to ensure proper binding.

Warnings

This kit is for professional research use.

Please decontaminate and dispose of all potentially infectious materials in accordance with applicable local, state/provincial, and/or national regulations. For any assistance, please contact Omega Bio-tek at info@omegabiotek.com.

If you use this kit following an automated extraction workflow, the surface of the automated platform is considered a biohazard. Use appropriate decontamination and disposal methods in adherence to all applicable local state/provincial, and/or national regulations.

Safety and Handling Information

All chemicals and biological materials are potentially hazardous.

Biological samples such as plasma, serum, tissues, body fluids, blood, etc. are potentially infectious and must be treated as biohazardous materials. Use appropriate decontaminations and disposal methods in adherence to all applicable local state/provincial, and/or national regulations.

Please refer to safety data sheets (SDSs) for information on safe handling, transport, cleanup, and disposal of different reagents included in this kit. SDSs are made available in PDF format on the product page at www.omegabiotek.com. Discard all waste in accordance with the local safety regulations.

Where allowed, packaging for non-hazardous buffers, kit boxes, or other packaging materials may be recycled in accordance with local regulations. Please refer to product labelling or visit www.omegabiotek.com for more information.

Precautions

Some of the buffers included in the Mag-Bind® NGS Normalization Kit contain guanidine-based chaotropic agents which can form highly reactive compounds when combined with bleach. DO NOT add bleach or acidic solutions to guanidine containing sample-preparation waste. Please access the SDSs online for detailed information on the reagents.

Component	Description
CB Buffer 	Contains: Guanidine hydrochloride. Warning! Harmful if swallowed. Causes skin irritation. Causes serious eye irritation. Do not eat, drink, or smoke when using this product. Wash all exposed external body areas thoroughly after handling. Wear protective gloves, protective clothing, eye protection, and face protection. IN EYES: Rinse cautiously with water for serval minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice/attention if irritation persists. SWALLOWED: Rinse mouth. Call a POISON CENTER/doctor/physician/first aider/if you feel unwell. ON SKIN (or hair): Wash with plenty of water. Take off immediately all contaminated clothing. Rinse skin with water/shower. Get medical advice/attention if irritation persists. ON CLOTHING: Rinse immediately contaminated clothing and skin with plenty of water before removing clothes. Take off contaminated clothing and wash it before use.

Recommendations and Important Notes

Please take a few minutes to read this booklet in its entirety to become familiar with the procedures.

- It is recommended to perform normal QC procedures prior to normalization to ensure successful library preparation. The range of input mass for robust normalization is 200 – 2000 ng. Libraries with less than 200 ng starting mass will likely not be normalized.
- The normalized output will vary slightly between experiments depending on several factors.
- It is strongly recommended to quantify 10% of libraries (or a minimum of 3 libraries) to find the final normalized mass. A fluorescence-based dye quantification method is recommended.
- Follow the steps below to convert ng/µL to nM:
    a. Determine the mean size of the library by running on either a TapeStation or Bioanalyzer system. Mean sizes from pre-normalization library preparation QC analysis may be used.
    b. Use the following formula.

$$nM\ Concentration = \frac{\frac{ng}{\mu L} Concentration}{660 \frac{g}{mol} \times Mean\ library\ size\ in\ bp} \times 10^6$$

IMPORTANT: Protocol must be followed exactly as outlined. Do not change volumes used for input, Mag-Bind® Particles DDB, or other conditions. Elution Buffer used can be varied to alter the library output concentration.

Mag-Bind® NGS Normalization Kit Protocol

Important: If automating this procedure on a liquid handler or a magnetic processor, please contact your Omega Bio-tek representative for instrument-specific instructions. It is the responsibility of the user to validate any automated method for any particular use.

Materials and Equipment to be provided by user:

- Magnetic separation device (Recommended Alpaqua® Magnum FLX A000400)
- Vortexer
- 96-well PCR plate with a capacity ≥200 µL and compatible with the magnetic separation device used
- 70% ethanol

Before Starting:

- Bring Mag-Bind® Particles DDB to room temperature.
- Ensure Mag-Bind® Particles DDB are fully resuspended before use.
- Prepare enough 70% ethanol needed for wash steps.

1. Transfer 20 µL library to a 96-well PCR plate (capacity ≥200 µL volume; not provided).

   Note: If the library volume is less than 20 µL, bring the volume up to 20 µL with Elution Buffer.

2. Dilute Mag-Bind® Particles DDB in CB Buffer according to the chart below.

Component	Volume per Library	Total Amount per 96-well Plate*
CB Buffer	100 µL	10.6 mL
Mag-Bind® Particles DDB	2 µL	212 µL

*10% excess volume has been calculated for a 96-well plate.

Example: To normalize 5 libraries, add 10 µL of Mag-Bind® Particles DDB to 500 µL of CB Buffer.

3. Vortex or pipet up and down to mix thoroughly.

4. Add 102 µL CB Buffer and Mag-Bind® Particle DDB mix to each library. Pipet up and down 5 times to mix.

5. Pipet up and down 20 times to mix. Let sit at room temperature for 10 minutes.

6. Place the 96-well PCR plate on a magnetic separation device to magnetize the Mag-Bind® Particles DDB.

7. Let sit at room temperature until Mag-Bind® Particles DDB are completely cleared from solution (approximately 3 minutes).

8. With the plate on the magnetic separation device, slowly aspirate and discard the cleared supernatant. Do not disturb the Mag-Bind® Particles DDB.

9. Add 150 µL 70% ethanol (not provided).

   Note: Do not resuspend the Mag-Bind® Particles DDB or remove the plate from the magnetic separation device.

10. Let sit at room temperature for 1 minute to magnetize the Mag-Bind® Particles DDB.

11. Repeat steps 8-10 for a second 70% ethanol wash step.

12. Slowly aspirate and discard the cleared supernatant. Do not disturb the Mag-Bind® Particles DDB.

13. Leave the plate on the magnetic separation device for 5 minutes to air dry the Mag-Bind® Particles DDB. Remove any residual liquid with a pipettor.

    Note: It is important to dry the Mag-Bind® Particles DDB completely before elution. Residual ethanol may interfere with downstream applications.

14. Remove the 96-well PCR plate from the magnetic separation device.

15. Add 25 µL Elution Buffer. Pipet up and down until Mag-Bind® Particles DDB are completely resuspended.

    Note: Elution Buffer volume can be changed to alter concentration of output library.

16. Let sit at room temperature for 5 minutes.

17. Place the 96-well PCR plate on a magnetic separation device to magnetize the Mag-Bind® Particles DDB.

18. Let sit at room temperature until Mag-Bind® Particles DDB are completely cleared from solution.

19. Transfer the cleared supernatant containing normalized libraries to a new 96-well PCR plate.

20. Store the libraries at -20°C.

Troubleshooting Guide

Please use this guide to solve any problems that may arise. We hope that it will aid in clearing up any questions for you. If you need further assistance, please contact our technical support staff at our Toll-Free Number, 1-800-832-8896.

Possible Problems and Suggestions

Problem	Cause	Solution
DNA not normalized	Low input DNA	Use at least 200 ng library as input
	Incorrect input volume	Use 20 µL as input volume
	Loss of magnetic particles during operation	• Ensure the solution is completely clear before aspirating. • Observe pipette tips when liquid is aspirated to ensure there are no magnetic beads present. If magnetic beads are observed, return solution to original well, and wait for solution to clear before aspirating.
	Library fragment size distribution too wide	Perform double-sided size selection prior to normalization to achieve libraries with a narrow fragment size distribution

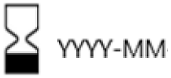
Contact Information

To reorder supplies, report a device failure, or complaint, please contact:

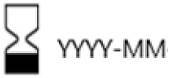
	**Manufacturer** Omega Bio-tek, Inc. 400 Pinnacle Way Suite #450 Norcross, GA 30097 Website: www.omegabiotek.com Email: info@omegabiotek.com SRN: US-MF-000024148

Symbols

The following symbols may appear in the instructions for use or on the packaging and labeling:

Picture	Description
	Use-by date
	Check components for storage conditions
	Lot number
	Manufacturer
	No additional hazards or not classified as hazardous according to GHS. Also see hazardous symbols as defined in the Precautions Section
	Recycling Information visit www.omegabiotek.com/company/recycling

Symbols

Picture	Description
	Use-by date
	Check components for storage conditions
	Lot number
	Manufacturer
	No additional hazards or not classified as hazardous according to GHS. Also see hazardous symbols as defined in the Precautions Section
	Website
	Telephone
	Fax
	Email
	LinkedIn
	Twitter
	Facebook

Document Revision History

Revision	Description
v1.1	Protocol has been updated to remove plate vortexing steps.
v1.0	Initial release.

Notices and Disclaimers

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PCR is a patented process of Hoffman-La Roche. Use of the PCR process requires a license.

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