



## MB Fit24™ Blood & Tissue DNA Kit

### Product

B6399-5-48PF

### Preps

48 preps

**Manual Date: September 2024**

**Manual Revision: v1.2**

**For Research Use Only**



Omega Bio-tek, Inc.  
400 Pinnacle Way, Suite 450  
Norcross, GA 30071



[www.omegabiotek.com](http://www.omegabiotek.com)



+1-770-931-8400



+1-770-931-0230



[info@omegabiotek.com](mailto:info@omegabiotek.com)



[omega-bio-tek](https://www.linkedin.com/company/omega-bio-tek)



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# MB Fit24™ Blood & Tissue DNA Kit

## Table of Contents

Intended Use/Intended User.....	2
Product Description.....	3
Kit Contents/Storage and Stability.....	4
Warnings/Safety Information.....	5
Precautions.....	6
Plasticware Handling and Preparation.....	9
Protocol for Blood (250 µL).....	11
Protocol for Tissue.....	13
Protocol for Cultured Cells.....	16
Protocol for Saliva.....	19
Protocol for Buccal Swabs.....	21
Troubleshooting Guide.....	23
Notices & Disclaimers.....	25
Symbols.....	26
Contact Information.....	27
Revision History.....	28

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## Intended Use

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For Professional Research use only.

The MB Fit24™ Blood & Tissue DNA Kit is intended for isolation and purification of genomic DNA from fresh or frozen cultured cells and tissue, up to 250 µL whole blood, buccal swabs, and up to 500 µL saliva using the MagBinder® Fit24 Nucleic Acid Purification System.

## Intended User

This kit is intended for professional use.

The MB Fit24™ Blood & Tissue DNA Kit is intended for professional use and to be used 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/or operating magnetic processor platforms.

# Product Description

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The MB Fit24™ Blood & Tissue DNA Kit is designed for rapid and reliable isolation of genomic DNA from a variety of samples including blood, saliva, fresh or frozen animal cultured cells and tissues using the MagBinder® Fit<sup>24</sup> Nucleic Acid Purification System. This kit is automation-ready, prefilled with reagents arrayed into a ready-to-use reagent cartridge specifically configured for the MagBinder® Fit<sup>24</sup> instrument to provide faster and consistent results. The procedure provides a semi-automated extraction workflow for processing up to 24 samples in less than 50 minutes once loaded onto the MagBinder® Fit<sup>24</sup>.

The MB Fit24™ Blood & Tissue DNA Kit enhances ease of use, convenience, and extraction accuracy and reduces hands-on time by skipping reagent preparation and buffer dispensing steps. The samples are lysed offline, and lysate is transferred to appropriate reagent well containing the binding buffer. This system combines the reversible nucleic acid binding properties of Mag-Bind® Particles PF-HDQ with the time-proven efficiency of Omega Bio-tek's buffer chemistries to provide a fast and convenient method to isolate DNA from a variety of sample types. The purification procedure provides high-quality DNA that is suitable for direct use in most downstream applications such as PCR amplification, next generation sequencing and enzymatic reactions.

The MagBinder® Fit<sup>24</sup> instrument is preprogrammed with purification protocols that are validated to work with prefilled reagent cartridges. The instrument requires the user to select the appropriate protocol depending on the kit being used. If using the MagBinder® Blood & Tissue DNA Kit for sample types other than those listed in this manual, please contact your Omega Bio-tek representative for sample-specific preprocessing instructions.

## New In this Edition

September 2024

- Addition of elution tube instructions

March 2024

- General revision

## Kit Contents

Product	B6399-5-48PF
Purifications	48
Elution Tubes (2 mL)	50
MagBinder® Tip Comb	2 x 2 combs
Prefilled Reagent Cartridge*	48
AL Buffer	20 mL
TL Buffer	15 mL
Elution Buffer	30 mL
Proteinase K Solution	1.4 mL
User Manual	✓

\*Buffers and their location in prefilled cartridges are shown on Page 10.

## Storage and Stability

All of the MB Fit24™ Blood & Tissue DNA Kit components are guaranteed for at least 12 months from the date of purchase when stored as follows. Proteinase K Solution can be stored at room temperature for up to 12 months. For long-term storage, store Proteinase K Solution at 2-8°C. Store all other components at recommended temperatures as mentioned on the label and away from bright light. During shipment or storage in cool ambient conditions, precipitates may form in some buffers. Dissolve such deposits by warming the solution and/or reagent cartridge at 37°C and gently shaking.

# Warnings

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This kit is for professional use.

Please read all instructions carefully before using kit.

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 [www.omegabiotek.com](http://www.omegabiotek.com).

After extraction, the surface of the MagBinder® is considered a biohazard. Use appropriate decontamination and disposal methods in adherence to all applicable local state/provincial, and/or national regulations.

## Safety 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. Conduct all work in properly equipped facilities following universal precautions and using appropriate personal safety equipment such as disposable gloves, lab coats, safety glasses etc. as required by policies and procedures outlined by your facility.

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

# Precautions

Some of the buffers included in the MB Fit24™ Blood & Tissue DNA 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
AL Buffer 	<p>Contains: Guanidine hydrochloride. Warning! Causes serious eye irritation. Causes skin irritation. Harmful if swallowed. 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 several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice/attention if eye irritation persists. Take off contaminated clothing and wash before reuse. ON SKIN: Wash with plenty of water and soap. Get medical advice/attention if skin irritation or rash occurs. SWALLOWED: Rinse mouth. Call a poison center or doctor/physician if you feel unwell.</p>
TL Buffer 	<p>Contains: Anionic detergent. Warning! Causes serious eye irritation. May cause an allergic skin reaction. Avoid breathing mist/vapors/spray. Contaminated work clothing should not be allowed out of the workplace. Wear protective gloves/protective clothing/eye protection/face protection. IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice/attention if eye irritation persists. ON SKIN: Wash with plenty of water and soap. Get medical advice/attention if skin irritation or rash occurs. Wash contaminated clothing before reuse.</p>
Proteinase K Solution 	<p>Contains: Proteinase K. Danger! Causes mild skin irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Avoid breathing dust/fume/gas/mist/vapors/spray. Wear protective gloves/protective clothing/eye protection/face protection. Wear respiratory protection. If exposed or concerned: Call a poison center or doctor/physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing.</p>



# Precautions

Component	Description
eVHB Buffer	Contains: Guanidine hydrochloride and ethanol. Danger! Causes skin irritation and serious eye irritation. Highly flammable liquid and vapor. Harmful if swallowed. Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources. Use explosion-proof electrical/ventilating/lighting/intrinsically safe equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Keep container tightly closed. Wash all exposed external body areas thoroughly after handling. Do not eat, drink, or smoke when using this product. Wear protective gloves/clothing/eye/face protection. In case of fire: Use alcohol resistant foam or normal protein foam to extinguish. IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do so. Continue rinsing. Get medical attention/advice if irritation persists. SWALLOWED: Call a POISON CENTER/doctor/physician/first aider/if you feel unwell. ON SKIN (or hair): Wash with plenty of water and soap. Take off immediately all contaminated clothing. Rinse skin with water/shower. Rinse mouth. If irritation occurs, get medical attention/advice. Take off contaminated clothing and wash it before reuse.
eSPM Buffer	Contains: Ethanol. Danger! Causes serious eye irritation. Highly flammable liquid and vapor. Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources. No smoking. Keep container tightly closed. Use explosion-proof electrical/ventilating/lighting/intrinsically safe equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Wash all exposed external body areas thoroughly after handling. Wear protective gloves/clothing/eye/face protection. In case of fire: Use alcohol resistant foam or normal protein foam to extinguish. IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice/attention if eye irritation persists. ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

# Precautions

Component	Description
iHDQ Binding Buffer	Contains: Sodium perchlorate and isopropanol. Danger! Causes skin irritation and serious eye irritation. Flammable liquid and vapor. May cause fire or explosion; strong oxidizer. May cause drowsiness or dizziness. Avoid breathing mist/vapors/spray. Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources. Use explosion-proof electrical/ventilating/lighting/intrinsically safe equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Keep container tightly closed. Take any precaution to avoid mixing with combustibles/organic material. Keep/store away from clothing/organic material/combustible materials. Wear fire/flare resistant retardant clothing. Wash all exposed external body areas thoroughly after handling. Wear protective gloves/clothing/eye/face protection. In case of fire: Use alcohol resistant foam or normal protein foam to extinguish. In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion. IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do so. Continue rinsing. ON CLOTHING: Rinse immediately contaminated clothing and skin with plenty of water before removing clothes. ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash with plenty of water and soap. Get medical attention/advice if irritation persists. INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor/physician/first aider if you feel unwell.



# Plasticware Handling and Preparation

1. Always check reagent cartridges for presence of precipitation before starting extraction. Dissolve precipitates by warming the reagent cartridge at 37°C with gentle shaking.
2. Flick downward or gently tap each reagent cartridge before removing the seal to ensure reagents are in the bottom of the wells and not clinging to the underside of the seal.
3. Carefully remove seal from cartridges and immediately place the cartridge on the tray when ready along with the Elution Tubes into the corresponding positions (Figure 1).

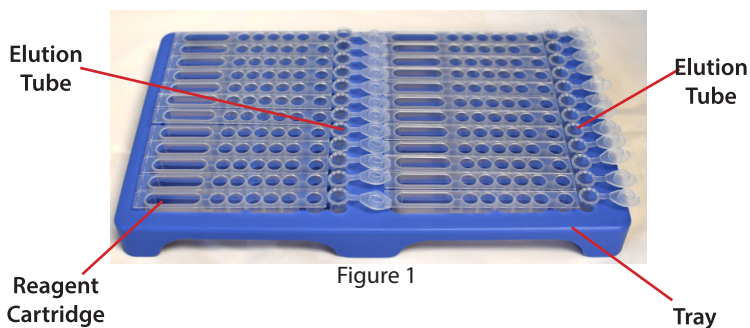


Figure 1

4. Angle the cap downwards before loading the Elution Tube onto the tray (Figure 2).



Figure 2

# Plasticware Handling and Preparation

5. Ensure the Elution Tubes are positioned open with caps oriented to the right of the tube and pressed down (Figure 3). If there is another reagent cartridge on the right side, make sure the elution tube caps are tucked under the lip of the first well as shown in Figure 1.

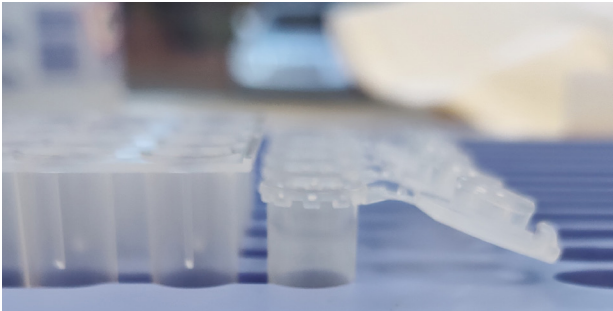
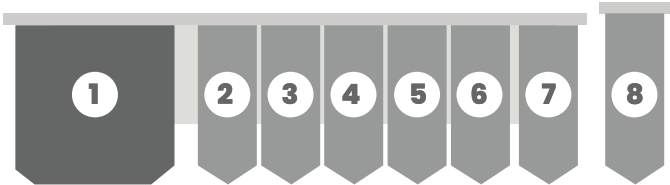


Figure 3

6. The table below details contents in the wells of reagent cartridge.



Well Position	Content	Volume per well
1	Empty	0 $\mu$ L
2	iHDQ Binding Buffer	400 $\mu$ L
3	eVHB Buffer	600 $\mu$ L
4	eVHB Buffer	600 $\mu$ L
5	eSPM Buffer	600 $\mu$ L
6	Mag-Bind® Particles PF-HDQ	100 $\mu$ L
7	Empty	0 $\mu$ L
8	Elution Buffer <sup>1</sup>	100 $\mu$ L

<sup>1</sup>Elution Buffer must be aliquoted into the Elution Tube prior to starting extraction.

# MB Fit24™ Blood & Tissue DNA Kit

## Protocol for Blood (250 µL)

The procedure below has been optimized for use with 250 µL FRESH or FROZEN blood samples. Buffy coat can also be used (up to 100 µL).

**Important:** When starting program on the MagBinder® Fit24 instrument, make sure that the correct and current version of the protocol, **OBTRB6399**, is selected.

### Materials and Equipment to be Supplied by User:

- Incubator or heat block capable of 70°C
- Vortexer
- Nuclease-free 1.5 or 2.0 mL microcentrifuge tube
- Optional: RNase A (10 mg/mL)
- Optional: PBS

### Before Starting:

- Prepare reagent cartridges according to the “Plasticware Handling and Preparation” on Page 9.
- Set incubator or heat block to 70°C.

1. Prepare a mastermix of AL Buffer and Proteinase K Solution only for samples to be extracted according to the table below:

Component	Amount per Prep	Total Amount per 24 samples
AL Buffer	290 µL	7.65 mL*
Proteinase K Solution	20 µL	530 µL*

\*10% excess volume has been calculated for 24 samples.

**Important:** Only prepare as much AL Buffer/Proteinase K Solution mastermix that will be used within 4 hours of preparation.

2. Add up to 250 µL blood sample to a 1.5 mL microcentrifuge tube (not provided). Bring volume up to 250 µL with Elution Buffer or PBS (not provided) if volume of sample is less than 250 µL.

# MB Fit24™ Blood & Tissue DNA Kit

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3. Add 310 µL AL Buffer/Proteinase K Solution mastermix. Vortex or pipet up and down 20 times to mix. Proper mixing is crucial for good yield.

4. Incubate at 70°C for 10 minutes.

**Optional:** Add 5 µL RNase A to each sample. Vortex to mix. Let sit at room temperature for 2 minutes.

5. Remove seal from reagent cartridge and place into the MagBinder® Fit<sup>24</sup> tray. Transfer lysate from Step 4 to Well 2 of the reagent cartridge. Pipet up and down 5-10 times to mix thoroughly.

**Note:** Prepare reagent cartridge according to the "Plasticware Handling and Preparation" on Page 9.

6. Prepare the Elution Tubes by filling with 100 µL Elution Buffer.

7. Load the tip combs on the tip comb holder.

**Note:** Ensure the tip comb is pushed all the way back and completely in place.

8. Place tray containing reagent cartridges and Elution Tubes onto the instrument deck. Gently press down on the reagent cartridges and Elution Tubes so they are secure on the deck. Slide the deck into the instrument and close the door.

**Note:** Ensure the Elution Tubes are positioned open with caps oriented to the right of the tube. The orientation of the Elution Tubes is important in preventing an instrument error during the run.

9. Start the program on MagBinder® Fit<sup>24</sup> instrument.

10. Once run has completed, remove the Elution Tubes from instrument and cap tightly.

11. Store DNA at -20°C.

# MB Fit24™ Blood & Tissue DNA Kit

## Protocol for Tissue

This method allows genomic DNA isolation from up to 10 mg tissue. Yields will vary depending on the source.

**Important:** When starting program on the MagBinder® Fit24 instrument, make sure that the correct and current version of the protocol, **OBTRB6399**, is selected.

### Materials and Equipment to be Supplied by User:

- Centrifuge capable of  $\geq 10,000g$  for microcentrifuge tubes
- Incubator, water bath, or heat block capable of 55°C
- Vortexer
- Nuclease-free 1.5 or 2.0 mL microcentrifuge tube
- Optional: Liquid nitrogen and mortar pestle
- Optional: RNase A (10 mg/mL)
- Recommend: 1M Dithiothreitol (DTT)

### Before Starting:

- Prepare reagent cartridges according to the “Plasticware Handling and Preparation” on Page 9.
- Set water bath to 55°C.
- Optional: Set incubator, water bath, or heat block to 70°C.
- Recommend: Add 40  $\mu$ L 1M DTT per 1 mL TL Buffer before use.

**OPTIONAL:** Although mechanical homogenization of tissue is not necessary, pulverizing the samples in liquid nitrogen will improve lysis and reduce incubation time. Once the liquid nitrogen has evaporated, transfer the powdered tissue to a clean nuclease-free 1.5 mL or 2.0 mL microcentrifuge tube (not provided). Add 300  $\mu$ L TL Buffer and proceed to Step 3 on the next page.

1. Mince up to 10 mg tissue and transfer to a nuclease-free 1.5 mL or 2.0 microcentrifuge tube.

**Note:** Cutting the tissue into small pieces can speed up lysis.

# MB Fit24™ Blood & Tissue DNA Kit

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2. Add 250  $\mu$ L TL Buffer

**Optional:** For lysis of hair or other tough-to-lysis tissues, a mastermix of TL Buffer and DTT is recommended.

- Add 40  $\mu$ L 1M DTT per 1 mL TL Buffer before use.
- Only prepare as much TL Buffer/DTT mastermix that will be used immediately.

3. Add 20  $\mu$ L Proteinase K Solution. Vortex to mix.

4. Incubate at 55°C in a shaking water bath for 3 hours.

**Note:** If a shaking water bath is not available, vortex the sample every 20-30 minutes. Lysis time depends on amount and type of tissue, but is usually under 3 hours. The lysis can proceed overnight.

**Optional:** Add 5  $\mu$ L RNase A (not provided) and pipet up and down several times to mix thoroughly. Let sit at room temperature for 2 minutes.

5. Centrifuge at  $\geq 10,000g$  for 5 minutes to pellet undigested tissue debris.

6. Carefully transfer 200  $\mu$ L of the supernatant to a new nuclease-free 1.5 mL or 2.0 mL microcentrifuge tube without disturbing the undigested pellet.

7. Add 230  $\mu$ L AL Buffer. Vortex for 10 minutes to mix. Proper mixing is crucial for good yield.

**Note:** If constant vortexing for 10 minutes is not possible, vortex for 30 seconds every 2 minutes for 10 minutes.

8. Remove seal from reagent cartridge and place into the MagBinder® Fit<sup>24</sup> tray. Transfer lysate from Step 7 to Well 2 of the reagent cartridge. Pipet up and down 5-10 times to mix thoroughly.

**Note:** Prepare reagent cartridge according to the "Plasticware Handling and Preparation" on Page 9.



## MB Fit24™ Blood & Tissue DNA Kit

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9. Prepare the Elution Tubes by filling with 100 µL Elution Buffer.

10. Load the tip combs on the tip comb holder.

**Note:** Ensure the tip comb is pushed all the way back and completely in place.

11. Place the tray, with reagent cartridges and Elution Tubes, onto the instrument deck. Gently press down on the reagent cartridges and Elution Tubes so they are secure on the deck. Push the deck into the instrument and close the door.

**Note:** Ensure the Elution Tubes are positioned open with caps oriented to the right of the tube. The orientation of the Elution Tubes is important in preventing an instrument error during the run.

12. Start the program on the MagBinder® Fit<sup>24</sup> instrument.

13. Once run has completed, remove the Elution Tubes from instrument and cap tightly.

14. Store DNA at -20°C.

# MB Fit24™ Blood & Tissue DNA Kit

## Protocol for Cultured Cells

This protocol is designed for rapid isolation of genomic DNA from up to  $5 \times 10^6$  cultured cells.

**Important:** When starting program on the MagBinder® Fit24 instrument, make sure that the correct and current version of the protocol, **OBTRB6399**, is selected.

### Materials and Equipment to be Supplied by User:

- Centrifuge capable of  $\geq 10,000g$  for microcentrifuge tubes
- Incubator, water bath, or heat block capable of 55°C
- Vortexer
- Nuclease-free 1.5 or 2.0 mL microcentrifuge tube
- Cold PBS
- Optional: Liquid nitrogen and mortar pestle
- Optional: RNase A (10 mg/mL)

### Before Starting:

- Prepare reagent cartridges according to the “Plasticware Handling and Preparation” on Page 9.
- Set water bath to 55°C.
- Optional: Set incubator, water bath, or heat block to 70°C.

### 1. Prepare the cell suspension.

- 1a. Frozen cell samples should be thawed before starting this protocol. Pellet cells by centrifugation. Wash the cells with cold PBS (4°C) and resuspend cells in 250  $\mu$ L cold PBS. Proceed with Step 2 of this protocol.
- 1b. For cells grown in suspension, pellet  $5 \times 10^6$  cells at 1,200g in a centrifuge tube. Discard the supernatant, wash the cells once with cold PBS (4°C), and resuspend cells in 250  $\mu$ L cold PBS. Proceed with Step 2 of this protocol.
- 1c. For cells grown in monolayer, harvest the cells by either using a trypsin treatment or cell scraper. Wash cells twice in cold PBS (4°C) and resuspend the cells with 250  $\mu$ L cold PBS. Proceed with Step 2 of this protocol.

## MB Fit24™ Blood & Tissue DNA Kit

2. Prepare a mastermix of AL Buffer and Proteinase K Solution only for samples to be extracted according to the table below:

Component	Amount per Prep	Total Amount per 24 samples
AL Buffer	230 µL	6.07 mL*
Proteinase K Solution	20 µL	530 µL*

\*10% excess volume has been calculated for 24 samples.

**Important:** Only prepare as much AL Buffer/Proteinase K Solution mastermix that will be used within 4 hours of preparation.

3. Add 250 µL AL Buffer/Proteinase K Solution mastermix to the cells prepared in Step 1.
4. Pipet up and down to mix thoroughly or vortex for 10 minutes. Proper mixing is crucial for good yield.
5. Incubate at 55°C in a shaking water bath for 10 minutes.

**Note:** If a shaking water bath is not available, vortex the samples every 2-3 minutes.

**Optional:** Add 5 µL RNase A. Pipet up and down several times to mix thoroughly. Let sit at room temperature for 2 minutes.

6. Remove seal from reagent cartridge and place into the MagBinder® Fit<sup>24</sup> tray. Transfer lysate from Step 5 to Well 2 of the reagent cartridge. Pipet up and down 5-10 times to mix thoroughly.

**Note:** Prepare reagent cartridge according to the “Plasticware Handling and Preparation” on Page 9.

7. Prepare the Elution Tubes by filling with 100 µL Elution Buffer.

## MB Fit24™ Blood & Tissue DNA Kit

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8. Load the tip combs on the tip comb holder.

**Note:** Ensure the tip comb is pushed all the way back and completely in place.

9. Place the tray, with reagent cartridges and Elution Tubes, onto the instrument deck. Gently press down on the reagent cartridges and Elution Tubes so they are secure on the deck. Push the deck into the instrument and close the door.

**Note:** Ensure the Elution Tubes are positioned open with caps oriented to the right of the tube. The orientation of the Elution Tubes is important in preventing an instrument error during the run.

10. Start the program on the MagBinder® Fit<sup>24</sup> instrument.
11. Once run has completed, remove the Elution Tubes from instrument and cap tightly.
12. Store DNA at -20°C.

# MB Fit24™ Blood & Tissue DNA Kit

## Protocol for Saliva

**Important:** When starting program on the MagBinder® Fit24 instrument, make sure that the correct and current version of the protocol, **OBTRB6399**, is selected.

### Materials and Equipment to be Supplied by User:

- Shaking water bath capable of 55°C
- Vortexer
- Nuclease-free 1.5 or 2.0 mL microcentrifuge tube
- Optional: RNase A (10 mg/mL)
- Optional: PBS

### Before Starting:

- Prepare reagent cartridges according to the “Plasticware Handling and Preparation” on Page 9.
  - Set incubator or heat block to 70°C.
1. Centrifuge the saliva tube at 2,000g for 5 minutes.
  2. Transfer 500 µL stabilized saliva samples (e.g., DNA Genotek Oragene®, Mawi iSWAB™, Biomatrica® DNAgard® Saliva) to a 1.5 mL microcentrifuge tube (not provided).
  3. Prepare a mastermix of AL Buffer and Proteinase K Solution only for samples to be extracted according to the table below:

Component	Amount per Prep	Total Amount per 24 samples
AL Buffer	200 µL	5.28 mL*
Proteinase K Solution	20 µL	530 µL*

\*10% excess volume has been calculated for 24 samples.

**Important:** Only prepare as much AL Buffer/Proteinase K Solution mastermix that will be used within 4 hours of preparation.

# MB Fit24™ Blood & Tissue DNA Kit

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4. Add up 220 µL AL Buffer/Proteinase K Solution mastermix. Vortex for 10 minutes to mix. Proper mixing is crucial for good yield.

5. Incubate at 55°C in a shaking water bath for 10 minutes.

**Note:** If a shaking water bath is not available, vortex the microcentrifuge tube every 2-3 minutes. If DNA Genotek Oragene® tube was used and incubation step was already performed, skip to Step 6.

6. Remove seal from reagent cartridge and place into the MagBinder® Fit<sup>24</sup> tray. Transfer lysate from Step 5 to Well 2 of the reagent cartridge. Pipet up and down 5-10 times to mix thoroughly.

**Note:** Prepare reagent cartridge according to the “Plasticware Handling and Preparation” on Page 9.

7. Prepare the Elution Tubes by filling with 100 µL Elution Buffer.

8. Load the tip combs on the tip comb holder.

**Note:** Ensure the tip comb is pushed all the way back and completely in place.

9. Place the tray, with reagent cartridges and Elution Tubes, onto the instrument deck. Gently press down on the reagent cartridges and Elution Tubes so they are secure on the deck. Push the deck into the instrument and close the door.

**Note:** Ensure the Elution Tubes are positioned open with caps oriented to the right of the tube. The orientation of the Elution Tubes is important in preventing an instrument error during the run.

10. Start the program on the MagBinder® Fit<sup>24</sup> instrument.

11. Once run has completed, remove the Elution Tube from instrument and cap tightly.

12. Store DNA at -20°C.

# MB Fit24™ Blood & Tissue DNA Kit

## Protocol for Buccal Swabs

**Important:** When starting program on the MagBinder® Fit24 instrument, make sure that the correct and current version of the protocol, **OBTRB6399**, is selected.

### Materials and Equipment to be Supplied by User:

- Centrifuge capable of 10,000g
- Shaking water bath capable of 55°C
- Vortexer
- Nuclease-free 1.5 or 2.0 mL microcentrifuge tube
- Optional: RNase A (10 mg/mL)
- Optional: PBS

### Before Starting:

- Prepare reagent cartridges according to the “Plasticware Handling and Preparation” on Page 9.
- Set shaking water bath to 55°C.

1. Cut off the buccal brush or swab head and place each swab into a 1.5 mL or 2.0 mL microcentrifuge tube (not provided).
2. Prepare a mastermix of AL Buffer, Proteinase K Solution, and Elution Buffer only for samples to be extracted according to the table below:

Component	Amount per Prep	Total Amount per 24 samples
AL Buffer	290 µL	7.65 mL*
Proteinase K Solution	20 µL	530 µL*
Elution Buffer	250 µL	6.6 mL*

\*10% excess volume has been calculated for 24 samples.

**Important:** Only prepare as much AL Buffer/Proteinase K Solution/Elution Buffer mastermix that will be used within 4 hours of preparation.

3. Add 560 µL AL Buffer/Proteinase K Solution/Elution Buffer mastermix to each sample. Vortex or pipet up and down 20 times to mix.

# MB Fit24™ Blood & Tissue DNA Kit

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4. Incubate at 55°C in a shaking water bath for 10 minutes.

**Note:** If a shaking water bath is not available, vortex the samples every 2-3 minutes.

5. Centrifuge at 10,000g for 2 minutes.

**Optional:** Add 5 µL RNase A. Pipet up and down several times to mix thoroughly. Let sit at room temperature for 2 minutes.

6. Remove seal from reagent cartridge and place into the MagBinder® Fit<sup>24</sup> loading tray. Transfer 500 µL lysate to Well 2 of the reagent cartridge. Pipet up and down 5-10 times to mix thoroughly.

**Note:** Prepare reagent cartridge according to the “Plasticware Handling and Preparation” on Page 9.

7. Prepare the Elution Tubes by filling with 100 µL Elution Buffer.

8. Load the tip combs on the tip comb holder.

**Note:** Ensure the tip comb is pushed all the way back and completely in place.

9. Place loading tray, with reagent cartridges and Elution Tubes, into the loading tray and place into instrument deck. Gently press down on the reagent cartridges and Elution Tubes so they are secure on the deck. Push the deck into the instrument and close the door.

**Note:** Ensure the Elution Tubes are positioned open with caps oriented to the right of the tube. The orientation of the Elution Tubes is important in preventing an instrument error during the run.

10. Start the program on the MagBinder® Fit<sup>24</sup> instrument.

11. Once run has completed, remove the Elution Tube from instrument and cap tightly.

12. Store DNA at -20°C.



# Troubleshooting Guide

Please use this guide to troubleshoot any problems that may arise. For further assistance, please contact the technical support staff, toll free, at 1-800-832-8896.

Problem	Cause	Solution
Low DNA yield	Frozen blood samples not mixed properly after thawing	Thaw the frozen blood at room temperature and mix the blood by gently inverting the tube.
	Inefficient cell lysis due to inefficient mixing of AL Buffer/Proteinase K Solution mastermix and sample	Make sure the sample is thoroughly mixed with AL Buffer/Proteinase K Solution mastermix within 4 hours of mastermix preparation.
	Loss of Mag-Bind® Particles PF-HDQ during operation	Contact Omega Bio-tek product support.
	Incorrect plasticware used during operation	Make sure to use plasticware approved for MagBinder® Fit <sup>24</sup> . Contact Omega Bio-tek product support.
	Incorrect reagent cartridge storage	Store reagent cartridges in an upright position at room temperature.
		Flick downward or gently tap each reagent cartridge before removing the seal to ensure reagents are in the bottom of the wells and not clinging to the underside of the seal.
Mag-Bind® Particles PF-HDQ do not completely clear from solution	Magnetization time too short	Increase collection time on the magnet.
	Magnetic particles present in eluate	Place Elution Tube on magnetic stand, wait for particles to pellet and then transfer sample to another tube.

HiBind®, E.Z.N.A.®, MicroElute®, MagBinder®, and MB Fit24™ are registered trademarks of Omega Bio-tek, Inc.  
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 PCR is a patented process of Hoffman-La Roche. Use of the PCR process requires a license.

# Troubleshooting Guide

Problem	Cause	Solution
Problems in downstream applications	Ethanol carryover	Dry the Mag-Bind® Particles PF-HDQ before elution.
Problems with instrument operation	Wrong method run on the MagBinder® Instrument	Check that the correct method was run.
	Instrument errors at start of operation	Make sure the reagent cartridges are nested securely on the deck and tip combs are secured in tip holder.
		Refer to the MagBinder® instrument manual for error code description.
	Instrument errors during operation	Refer to the MagBinder® instrument manual for error code description. Check Elution tube orientation. Refer to "Plasticware Handling and Preparation on page 9.

# Notices & Disclaimers

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For European Union Use.

AL Buffer contains Triton X-100, 2-[4-(2,4,4-trimethylpentan-2-yl)phenoxy]ethanol (CAS 9002-93-1), a substance included in the European Authorization list (Annex XIV) of REACH Regulation (EC) No 1907/2006. Substances and mixtures used for the purpose of Scientific Research and Development (SR&D) are exempt from authorization requirements if used below 1 tonne per year in volume.

Scientific Research and Development includes experimental research or analytical activities at a laboratory scale such as synthesis and testing of applications of chemicals, release tests, etc. as well as the use of the substance in monitoring and routine quality control or in vitro diagnostics.

# Symbols


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

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

## Contact Information

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

	<p><b>Manufacturer</b> Omega Bio-tek, Inc. 400 Pinnacle Way Suite #450 Norcross, GA 30071, USA Website: <a href="http://www.omegabiotek.com">www.omegabiotek.com</a> Email: <a href="mailto:info@omegabiotek.com">info@omegabiotek.com</a></p>
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# Revision History

Revision	Description
v1.0, December 2023	Initial release
v1.1 March 2024	General revision
v1.2 September 2024	Elution tube instructions update



For more purification solutions, visit [www.omegabiotek.com](http://www.omegabiotek.com)

## AVAILABLE FORMATS



Spin Columns



96-Well  
Silica Plates



Mag Beads

## SAMPLE TYPES



Blood / Plasma



Plasmid



Cultured Cells



Plant & Soil



NGS Clean Up



Tissue



FFPE



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Omega Bio-tek, Inc.  
400 Pinnacle Way, Suite 450  
Norcross, GA 30071



[www.omegabiotek.com](http://www.omegabiotek.com)



770-931-8400



770-931-0230



[info@omegabiotek.com](mailto:info@omegabiotek.com)



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