OPTI* DNA/RNA Magnetic Bead Kit

English Version

Magnetic bead based nucleic acid extraction kit

IVD

For *in vitro* diagnostic use only

REF 99-58015

Version #2
06-58015-00

OPTIMedical

OPTI* DNA/RNA Magnetic Bead Kit

Name and Intended Use

The OPTI DNA/RNA Magnetic Bead Kit is designed for the isolation of DNA and RNA from respiratory samples.

General Information

The OPTI DNA/RNA Magnetic Bead Kit can be used with automated magnetic separators, such as Kingfisher™ or MagMax™ purification systems for high throughput sample processing.

Samples are initially treated with Binding Buffer (BB) and Proteinase K (PK) to release DNA/RNA and inactivate nucleases. Optional carrier RNA (poly A), can improve binding of low amounts of nucleic acids to the magnetic beads. Carrier RNA may interfere with some downstream applications, such as cDNA synthesis. Carrier RNA is not included in the kit and should be purchased separately. Binding of nucleic acids to paramagnetic beads takes place in the presence of the Binding Buffer (BB). After magnetic separation, the beads are washed to remove inhibitors, proteins, and other contaminants using two Washes (W1 and W2). After a drying step, the purified RNA/DNA is eluted with a small volume of Elution Buffer (EB).

Materials and Storage (Safety Information is on pages 5–6)

Component		99-58015 Quantity (4 x 96)	Storage	
			At receipt	After first use
PK	**Proteinase K**	3 x 7 mL	2–26°C	–25 to –15°C
BB	**Binding Buffer**	120 mL	15–26°C	
W1	**Wash 1**	132 mL		
W2	**Wash 2**	146 mL		
EB	**Elution Buffer**	60 mL		
MB	**Magnetic Beads**	8 mL		

Materials Required but Not Provided

- Absolute Ethanol, ACS grade or equivalent
- 2-propanol, ACS grade or equivalent
- Automated magnetic processor (such as Kingfisher™)
- Deep well plates for lysis, binding and wash steps (see Ordering Information section)
- Elution (U bottom) plate or strip for eluted samples (see Ordering Information section)
- Tip combs (for automated processors) (see Ordering Information section)
- Vortex mixer
- Personal protective equipment (gloves, safety glasses, lab coat)
- Nuclease-free, aerosol-resistant pipette tips (wide bore tips may be necessary for some sample types)
- Pipettes (5–1000 μL)
- Optional- Carrier RNA (for example 10–20 μg Poly (A) per sample lysis)

Laboratory Practices and Warnings

- Do not use reagents past expiration date.
- Wear powder-free gloves when working with the reagents and nucleic acids.
- To avoid cross-contamination, use nuclease-free, aerosol-resistant pipette tips for all pipetting, and physically separate the workplaces for nucleic acid extraction/handling, PCR setup and PCR.
- Buffers, BB and W1 contain chaotropic salts. Wear appropriate personal protective equipment (gloves, safety glasses, lab coat etc.) when handling.
- See additional safety information at the end of this document.

General Considerations

Handling of Magnetic Beads

- Before distributing the beads, shake or vortex the bottle to ensure that the beads are completely resuspended.

Reagent Preparation

Note: The Binding Buffer and Wash 1 contain components that may precipitate in cool temperatures (2–15°C). Before starting a preparation, visually inspect these components. If salt precipitation is observed, warm the solution to 37°C to dissolve the precipitated salts.

Reconstitute Proteinase K (PK)

Add 7.0 mL Elution Buffer to each vial prior to use. Mix well and mark the label to indicate that diluent has been added to the vial. Store reconstituted PK solution in aliquots at –25 to –15°C.

Preparation of Binding Buffer and Wash solution

Refer to the table below to prepare the Binding Buffer and Wash solutions. Once alcohol has been added to the bottles, check the box on the outer label. The expiration is the same as that listed on the component label.

Component	Starting Volume	Alcohol Addition
Binding Buffer	120 mL	100 mL 2-propanol
Wash 1	132 mL	80 mL ethanol
Wash 2	146 mL	300 mL ethanol

All other components are provided ready-to-use and should be stored at 15–26°C until expiration.

OPTI DNA/RNA Magnetic Bead Quick Reference

Lysis/Binding

1

1. Working Solution calculation:

Reagent	Volume per Sample
Binding Buffer (BB)	500 µL
Proteinase K (PK)	50 µL
Magnetic Beads (MB)	20 µL

2. 200 µL sample
3. Mix, incubate 10 minutes at 60°C
4. Separate beads

Wash Magnetic Beads

3

1. 500 µL Wash 1; separate beads
2. 500 µL Wash 2; separate beads
3. 500 µL Wash 2; separate beads
4. Dry beads 5–10 minutes at 18–26°C

Elute Nucleic Acids

4

1. 100 µL Elution Buffer
2. Mix, incubate 10 minutes at 18–26°C
3. Separate beads
4. Transfer eluate to clean plate or tube

See detailed protocol on the following page.

OPTI DNA/RNA Magnetic Bead Protocol (Automated)

Instrument Run

Contact IDEXX for assistance with obtaining and installing the correct method file for your instrument prior to performing extractions.

Preparation of Sample Lysis Plate

1. Calculate the amount of Working Solution required. Prepare an additional 10% to allow for pipetting loss. Lysis Working Solution calculation:

Reagent	Volume per Sample
Binding Buffer (BB)	500 µL
Proteinase K (PK)	50 µL
Magnetic Beads (MB)	20 µL

2. Prepare Working Solution by mixing reagents in the order listed above. Mix beads to ensure homogenous solution prior to pipetting. If using optional Carrier RNA, it should be added to the Working Soluton.
3. Mix Working Solution thoroughly with inversion before use to ensure that beads are in a homogenous solution. Store at 18–26°C for up to 1 hour prior to use. Longer storage time may result in diminished lysis efficiency.
4. Add 570 µL (±10 µL) Working Solution to appropriate wells of a 96-well deep well plate.
5. Add 200 µL (±5 µL) of sample material (swab eluate or respiratory fluid sample) to the wells.

Preparation of Wash and Elution Plates

Wash/Elution plates (Kingfisher FLEX):

Wash Plate 1– Add 500 µL (±20 µL) Wash 1 to wells of a deep well plate.
Wash Plate 2– Add 500 µL (±20 µL) Wash 2 to wells of a deep well plate.
Wash Plate 3– Add 500 µL (±20 µL) Wash 2 to wells of a deep well plate.
Elution Plate– Add 100 µL Elution Buffer (EB) to wells of a standard (200 µL) 96 well plate.

Wash/Elution wells for Kingfisher DUO and DUO Prime:

Use the rows of a single deep well plate for samples and wash solutions, and a separate elution strip for Elution Buffer:

Row A: Add sample and working solution to wells of row A
Row B: Place the tip comb in row B
Row C–E: Rows C, D and E are not used– remain empty
Row F: Add 500 µL (±20 µL) Wash 1 to wells of row F
Row G: Add 500 µL (±20 µL) Wash 2 to wells of row G
Row H: Add 500 µL (±20 µL) Wash 2 to wells of row H
Elution Strip: Add 100 µL Elution Buffer (EB) to wells of an elution strip

Complete the Run

Run the appropriate Method file for the instrument* and insert plates/strip as indicated on the instrument display.

1. The instrument stops after the final elution step.
2. Follow the instructions on the instrument's display and unload the plate or strip from the instrument. Cover plate or elution strip wells with foil sealer.
3. Store the purified nucleic acid at 2–8°C for use within 6 hours, at –25 to –15°C for up to 1 month, or at –80°C for long-term storage.

*Contact IDEXX Technical Service for assistance with obtaining and installing the correct method file for your instrument.

Ordering information

Product	Vendor	REF
Poly (A)	Millipore Sigma	10108626001
Wide Bore tips	Thermo Fisher Scientific	2079G (1000 µL) 2069G (200 µL)
96 deep-well plate (FLEX and DUO)	Thermo Fisher Scientific	95040450
96-well microplate (FLEX)	Thermo Fisher Scientific	97002540
Tip comb (FLEX)	Thermo Fisher Scientific	97002534
Tip comb (DUO)	Thermo Fisher Scientific	97002070
Elution strip (DUO)	Thermo Fisher Scientific	97003520
Sealing Foil (50 pieces)	IDEXX	98-56152-00 (50 pieces)

Safety Information

The following components of the Opti DNA/RNA Magnetic Bead Kit contain hazardous contents. Wear gloves and goggles and follow the safety instructions given in this section.

GHS Classification

Component	Hazardous Substances		GHS Symbol	Hazard phrases	Precaution phrases
Binding Buffer (BB)	Guanidine hydrochloride 35–50%		Warning	302, 315, 319	280, 301+312, 302+352, 305+351+338, 330, 332+313, 337+313
Wash 1 (W1)	Guanidine hydrochloride 35–50%		Warning	302, 315, 319	280, 301+312, 302+352, 305+351+338, 330, 332+313, 337+313
PK	Proteinase K (5–10%)		Danger	317	

Hazard phrases

H 302 Harmful if swallowed.
H 315 Causes skin irritation.
H 317 May cause an allergic skin reaction.
H 319 Causes serious eye irritation.

Precaution phrases

P 233 Keep container tightly closed.
P 280 Wear protective gloves and eye protection.
P 301+312 IF SWALLOWED: Call a POISON CENTER/ doctor/…/if you feel unwell.
P 302+352 IF ON SKIN: Wash with plenty of water/…
P 305+351 IF IN EYES: Rinse continuously with water for several minutes.
+338 Remove contact lenses if present and easy to do – continue rinsing.
P 330 Rinse mouth.
P 332+313 IF skin irritation occurs: Get medical advice/attention.
P 337+313 IF eye irritation persists get medical advice/attention.

For further information, please see Material Safety Data Sheets.

For In Vitro Diagnostic Use Only

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Contact your IDEXX area manager or distributor or visit our website: www.optimedical.com

Symbol Descriptions

LOT	Batch Code (Lot)
SN	Serial Number
REF	Catalog Number
EC REP	Authorized Representative in the European Community
IVD	In Vitro Diagnostic
	Use by date
	Date of manufacture
	Manufacturer
	Temperature limitation
	Consult instructions for use
	Major change in the user instructions

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