MAGBIO

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HighPrep Viral DNA & RNA Kit - DX

Efficient Isolation of Nucleic Acids from Viruses

Catalog Nos. HPV-DR20E, HPV-DR96E, HPV-DR96x4E, HPV-DR3840E
Manual Revision 1
WI-72-66

- Viral nucleic acid isolation from whole blood serum, plasma, saliva, and other bodily fluids
- Magnetic bead-based chemistry

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 HighPrep Viral DNA & RNA Kit - DX is designed for rapid and reliable isolation of viral nucleic acids from whole blood, serum, plasma, saliva, and other bodily fluids. The kit extracts high quality DNA and RNA that is suitable for direct use in most downstream applications such as amplification and enzymatic reactions. This protocol 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.

Process

Samples are lysed in a specially formulated lysis buffer. Nucleic acids are bound to the surface of MAG-S1 Particles under proper conditions. Proteins and cellular debris are efficiently washed with few wash steps. Pure RNA and DNA are then eluted in nuclease-free water or low ionic strength buffer. Purified RNA or DNA can be directly used in downstream applications without the need for further purification.

Kit Contents and Storage

HighPrep Viral DNA & RNA Kit - DX Catalog No.*	HPV-DR20E	HPV-DR96E	HPV-DR96x4E	HPV-DR3840E	Storage
Number of Preps	20	96	384	3840	
Viral Lysis Buffer	6 mL	30 mL	120 mL	120 mL x 10	15-25°C
RDW Buffer[1]	6 mL	30 mL	120 mL	120 mL x 10	15-25°C
Nuclease-Free Water	8 mL	35 mL	140 mL	140 mL x 10	15-25°C
Pro K Solution[2]	230 µL	1.1 mL	4.4 mL	4.4 mL x 10	2-8°C
NBE[3]	180 µL	2 mL	8 mL	8 mL x 10	2-8°C
MAG-S1 Particles[4]	230 µL	1.1 mL	4.4 mL	4.4 mL x 10	2-8°C

[1]Ethanol must be added prior to use. See preparation of reagents section.
*Reagent volumes are based on a 200 µL sample size. 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.

Shipping and Storage

- [2] Pro K Solution comes in a ready to use solution. Ships at room temperature. Store at 2-8°C.
- [3]NBE ships at room temperature. Store at 2-8°C.
- [4]MAG-S1 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 this product at www.magbiogenomics.com.

Preparation of Reagents

Prepare the following components for each kit before use.

Equipment and Reagents to Be Supplied by the User

☐ Ethanol (100%)

Catalog No.	Component	Add 100% Ethanol*	Storage
HPV-DR20E	RDW Buffer	4 mL	Room Temp 15-25°C

Catalog No.	Component	Add 100% Ethanol*	Storage
HPV-DR96E	RDW Buffer	20 mL	Room Temp 15-25°C

Catalog No.	Component	Add 100% Ethanol*	Storage
HPV-DR96x4E	RDW Buffer	80 mL	Room Temp 15-25°C

Catalog No.	Component	Add 100% Ethanol*	Storage
HPV-DR3840E	RDW Buffer	80 mL	Room Temp 15-25°C

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

Protocol : 50 µL sample volume (96 well format)

Equipment and Reagents to Be Supplied by the User

- ☐ Ethanol (70%)
- ☐ Isopropanol (100%)
- ☐ Magnetic separation device for 96-well plate
- ☐ 96-well microplates (U or V bottom)

Things to do Before Starting

- ☐ Prepare all reagents according to the instructions on page 2

Protocol

⚠ Bring the **MAG-S1 Particles** to room temperature for at least 30 min before use.

1. Add 50 µL of bodily fluid or cell culture lysate to each sample well.
   Note: If sample volume is less than 50 µL, bring volume up to 50 µL with **Nuclease-Free Water.**

2. To 50 µL of sample add 60 µL of **Viral Lysis Buffer** and 5 µL of **Pro K Solution**. Mix very well.

3. Incubate at 56-60°C for 10 min. A thermoshaker may be used during incubation. If a thermoshaker is not used, shake the samples once or twice during the incubation period.

4. Let the samples cool to room temperature and add 4 µL of **NBE**, 70 µL of 100% Isopropanol, and 5 µL of **MAG-S1 Particles**. Pipette mix 15 times.

   ⚠ *Shake well to resuspend the **MAG-S1 Particles** before use.*

5. Let the samples sit at room temperature for 10 min.

6. Place the sample plate on the magnetic separation device for 5 min to magnetize the **MAG-S1 Particles** or until the magnetic beads clear from the solution.

7. With the plate on the magnetic separation device, remove and discard the supernatant by pipetting.

   ⚠ *Do not disturb the attracted beads while aspirating the supernatant.*

8. Remove the plate from the magnetic separation device.

9. Add 200 µL of **RDW Buffer** to each sample and pipette mix 15 times to resuspend the **MAG-S1 Particles.**

10. Place the sample plate back on the magnetic separation device and wait for 5 min or until the magnetic beads clear from the solution.

11. With the plate on the magnetic separation device, remove and discard the supernatant.

    ⚠ *Do not disturb the attracted beads while aspirating the supernatant.*

12. Remove the plate from the magnetic separation device.

13. Add 250 µL of 70% Ethanol to the sample and pipette mix 15 times to resuspend the **MAG-S1 Particles.**

    ⚠ *Complete resuspension of the **MAG-S1 Particles** is crucial for obtaining quality DNA or RNA.*

14. Place the sample plate back on the magnetic separation device and wait for 5 min or until the magnetic beads clear from the solution.

15. With the plate on the magnetic separation device, remove and discard the supernatant.

    ⚠ *Do not disturb the attracted beads while aspirating the supernatant.*

16. Repeat steps 12-15 for a second wash.

17. Dry the beads by incubating for 7 min at room temperature with the plate still on the magnetic separation device.

    ⚠ *It is critical to completely remove any residual liquid from each well.*

18. Remove the plate from the magnetic separation device. Add 20-50 µL of **Nuclease-Free Water** (pre-warmed to 60-65°C) to each well and pipette mix 25 times to completely resuspend the **MAG-S1 Particles.**

    ⚠ *Complete resuspension of the **MAG-S1 Particles** is crucial for obtaining purity.*

19. Incubate at room temperature for 10 min.

    ⚠ *Incubation at 65°C for 5 min may increase DNA yield, but may affect the quality of RNA.*

20. Place the sample plate back on the magnetic separation device and wait for 5 min or until the magnetic beads clear from the solution.

21. Transfer the eluate (cleared supernatant containing the DNA or RNA) to a new microplate for storage. Store DNA at -20°C and RNA at -80°C.

Protocol : 200 µL sample volume (96 well format)

Equipment and Reagents to Be Supplied by the User

- ☐ Ethanol (70%)
- ☐ Isopropanol (100%)
- ☐ Magnetic separation device for 96-well plate
- ☐ 96-well microplates (U or V bottom)

Things to do Before Starting

- ☐ Prepare all reagents according to the instructions on page 2

Protocol

⚠ Bring the **MAG-S1 Particles** to room temperature for at least 30 min before use.

1. Add 200 µL of bodily fluid or cell culture lysate to each sample well.
   Note: If sample volume is less than 200 µL, bring volume up to 200 µL with **Nuclease-Free Water**.

2. To 200 µL of sample add 240 µL of **Viral Lysis Buffer** and 10 µL of **Pro K Solution**. Mix very well.

3. Incubate at 56-60°C for 10 min. A thermoshaker may be used during incubation. If a thermoshaker is not used, shake the samples once or twice during the incubation period.

4. Let the samples cool to room temperature and add 8 µL of **NBE**, 280 µL of 100% Isopropanol, and 10 µL of **MAG-S1 Particles**. Pipette mix 15 times.

   ⚠ *Shake well to resuspend the **MAG-S1 Particles** before use.*

5. Let the samples sit at room temperature for 10 min.

6. Place the sample plate on the magnetic separation device for 5 min to magnetize the **MAG-S1 Particles** or until the magnetic beads clear from the solution.

7. With the plate on the magnetic separation device, remove and discard the supernatant by pipetting.

   ⚠ *Do not disturb the attracted beads while aspirating the supernatant.*

8. Remove the plate from the magnetic separation device.

9. Add 400 µL of **RDW Buffer** to each sample and pipette mix 15 times to resuspend the **MAG-S1 Particles.**

10. Place the sample plate back on the magnetic separation device and wait for 5 min or until the magnetic beads clear from the solution.

11. With the plate on the magnetic separation device, remove and discard the supernatant.

    ⚠ *Do not disturb the attracted beads while aspirating the supernatant.*

12. Remove the plate from the magnetic separation device.

13. Add 500 µL of 70% Ethanol to the sample and pipette mix 15 times to resuspend the **MAG-S1 Particles.**

    ⚠ *Complete resuspension of the **MAG-S1 Particles** is crucial for obtaining quality DNA or RNA.*

14. Place the sample plate back on the magnetic separation device and wait for 5 min or until the magnetic beads clear from the solution.

15. With the plate on the magnetic separation device, remove and discard the supernatant.

    ⚠ *Do not disturb the attracted beads while aspirating the supernatant.*

16. Repeat steps 12-15 for a second wash.

17. Dry the beads by incubating for 10 min at room temperature with the plate still on the magnetic separation device.

    ⚠ *It is critical to completely remove any residual liquid from each well.*

18. Remove the plate from the magnetic separation device. Add 50-100 µL of **Nuclease-Free Water** (pre-warmed to 60-65°C) to each well and pipette mix 25 times to completely resuspend the **MAG-S1 Particles.**

    ⚠ *Complete resuspension of the **MAG-S1 Particles** is crucial for obtaining purity.*

19. Incubate at room temperature for 10 min.

    ⚠ *Incubation at 65°C for 5 min may increase DNA yield, but may affect the quality of RNA.*

20. Place the sample plate back on the magnetic separation device and wait for 5 min or until the magnetic beads clear from the solution.

21. Transfer the eluate (cleared supernatant containing the DNA or RNA) to a new microplate for storage. Store DNA at -20°C and RNA at -80°C.

Protocol : 500 µL sample volume (96 well format)

Equipment and Reagents to Be Supplied by the User

- ☐ Ethanol (70%)
- ☐ Isopropanol (100%)
- ☐ Magnetic separation device for 96-well plate
- ☐ 96-well deep plate

Things to do Before Starting

- ☐ Prepare all reagents according to the instructions on page 2

Protocol

⚠ Bring the **MAG-S1 Particles** to room temperature for at least 30 min before use.

1. Add 500 µL of bodily fluid or cell culture lysate to each sample well.
   Note: If sample volume is less than 500 µL, bring volume up to 500 µL with **Nuclease-Free Water**.

2. To 500 µL of sample add 500 µL of **Viral Lysis Buffer** and 20 µL of **Pro K Solution**. Mix very well.

3. Incubate at 56-60°C for 10 min. A thermoshaker may be used during incubation. If a thermoshaker is not used, shake the samples once or twice during the incubation period.

4. Let the samples cool to room temperature and add 16 µL of **NBE**, 500 µL of 100% Isopropanol, and 10 µL of **MAG-S1 Particles**. Pipette mix 15 times.

   ⚠ *Shake well to resuspend the **MAG-S1 Particles** before use.*

5. Let the samples sit at room temperature for 10 min.

6. Place the sample plate on the magnetic separation device for 10 min to magnetize the **MAG-S1 Particles** or until the magnetic beads clear from the solution.

7. With the plate on the magnetic separation device, remove and discard the supernatant by pipetting.

   ⚠ *Do not disturb the attracted beads while aspirating the supernatant.*

8. Remove the plate from the magnetic separation device.

9. Add 500 µL of **RDW Buffer** to each sample and pipette mix 15 times to resuspend the **MAG-S1 Particles.**

10. Place the sample plate back on the magnetic separation device and wait for 5 min or until the magnetic beads clear from the solution.

11. With the plate on the magnetic separation device, remove and discard the supernatant.

    ⚠ *Do not disturb the attracted beads while aspirating the supernatant.*

12. Remove the plate from the magnetic separation device.

13. Add 500 µL of 70% Ethanol to the sample and pipette mix 15 times to resuspend the **MAG-S1 Particles.**

    ⚠ *Complete resuspension of the **MAG-S1 Particles** is crucial for obtaining quality DNA or RNA.*

14. Place the sample plate back on the magnetic separation device and wait for 5 min or until the magnetic beads clear from the solution.

15. With the plate on the magnetic separation device, remove and discard the supernatant.

    ⚠ *Do not disturb the attracted beads while aspirating the supernatant.*

16. Repeat steps 12-15 for a second wash.

17. Dry the beads by incubating for 10 min at room temperature with the plate still on the magnetic separation device.

    ⚠ *It is critical to completely remove any residual liquid from each well.*

18. Remove the plate from the magnetic separation device. Add 50-100 µL of **Nuclease-Free Water** (pre-warmed to 60-65°C) to each well and pipette mix 25 times to completely resuspend the **MAG-S1 Particles**.

    ⚠ *Complete resuspension of the **MAG-S1 Particles** is crucial for obtaining purity.*

19. Incubate at room temperature for 10 min.

    ⚠ *Incubation at 65°C for 5 min may increase DNA yield, but may affect the quality of RNA.*

20. Place the sample plate back on the magnetic separation device and wait for 5 min or until the magnetic beads clear from the solution.

21. Transfer the eluate (cleared supernatant containing the DNA or RNA) to a new microplate for storage. Store DNA at -20°C and RNA at -80°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-S1 Particles	Resuspend MAG-S1 Particles by vortexing vigorously before use
	Loss of MAG-S1 Particles during operation	Avoid disturbing the MAG-S1 Particles during aspiration of supernatant
	Ethanol is not added into RDW Buffer	Add absolute 100% Ethanol to RDW Buffer (see page 2 for instructions)
	Inefficient cell lysis	Double the volume of Pro K Solution and incubate longer
Low sample purity	Inefficient sample wash	Perform an additional wash step with RDW Buffer
MAG-S1 Particles do not completely clear from the solution	Magnetizing time too short	Increase collection time on the magnet
Problems in downstream applications	Insufficient DNA/RNA in starting material	Use more starting material.
	Ethanol carry-over	Dry the MAG-S1 Particles completely before elution
Carryover of MAG-S1 Particles	The eluate has particles and is not fully clear	Increase magnetization time. If small amount of carryover, place eluted sample on a magnetic separation device and perform an additional 5 min magnetization

Ordering Information

HighPrep Viral DNA & RNA Kit - DX

Catalog No.	Product	Description	Preps
HPV-DR96E	HighPrep Viral DNA & RNA Kit - DX (96 Preps)	Magnetic bead-based kit for rapid and reliable isolation of viral nucleic acids from whole blood, serum, plasma, saliva, and other bodily fluids.	96
HPV-DR96x4E	HighPrep Viral DNA & RNA Kit - DX (384 Preps)	Magnetic bead-based kit for rapid and reliable isolation of viral nucleic acids from whole blood, serum, plasma, saliva, and other bodily fluids.	384
HPV-DR3840E	HighPrep Viral DNA & RNA Kit - DX (3840 Preps)	Magnetic bead-based kit for rapid and reliable isolation of viral nucleic acids from whole blood, serum, plasma, saliva, and other bodily fluids.	3840

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)

HighPrep RNA Elite - DX

Catalog No.	Product
RC-90005E	HighPrep RNA Elite - DX (5 mL)
RC-90050E	HighPrep RNA Elite - DX (50 mL)
RC-90250E	HighPrep RNA Elite - DX (250 mL)
RC-90500E	HighPrep RNA Elite - 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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