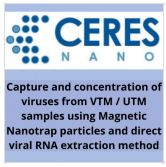

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Capture and concentration of SARS-CoV-2 and other respiratory viruses from VTM / UTM samples using Magnetic Nanotrap® particles for direct RNA extraction

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1 *Works for me* This protocol is published without a DOI.

Coronavirus Method Development Community | Nanotrap Applications

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ABSTRACT

This protocol provides a method for Magnetic Nanotrap® particle-based capture and concentration of viruses from Viral transport media and Universal transport media samples.

PROTOCOL CITATION

Ben Lepene, Anurag Patnaik, Robert Barclay 2020. Capture and concentration of SARS-CoV-2 and other respiratory viruses from VTM / UTM samples using Magnetic Nanotrap® particles for direct RNA extraction. **protocols.io** https://protocols.io/view/capture-and-concentration-of-sars-cov-2-and-other-bh2rj8d6

KEYWORDS

virus , capture, extraction, concentration, VTM, UTM, Nanotrap, viral, Nanoscience, Ceres, SARS-CoV-2, COVID-19

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OWNERSHIP HISTORY

Jun 29, 2020 Liz Brydon Protocols.io

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MATERIALS

NAME	CATALOG #	VENDOR
Triton(R) X-100 100ml	H5142	Promega
DynaMag™-2 Magnet	12321D	Life Technologies
MicroAmp™ Optical 96-Well Reaction Plate with Barcode & Optical Adhesive Films	4314320	Thermo Fisher
RT-PCR Grade Water	AM9935	Thermo Fisher
Mini Vortex Mixer	M10101001	
Nanotrap Magnetic Virus Particles (10)	44202	Ceres Nano
Viral Transport Media (VTM)		

NAME	CATALOG #	VENDOR
Universal Transport Media (UTM)		
Microcentrifuge Tubes		
RT-PCR Kit		
1x PBS without Calcium & Magnesium	17-516Q	Lonza

MATERIALS TEXT

Materials and equipment:
Magnetic Nanotrap® particles
Magnetic separator
Extraction buffer - 0.5% Triton X-100 in PCR grade water
Vortex
Roche Lightcycler 96*
Optical Adhesive Film
96 Well PCR plate
Alternative PCR kits, real-time PCR machines, and positive controls can be utilized with this protocol

SAFETY WARNINGS

Please refer to Safety Data Sheets (SDS) for health and environmental hazards.

Virus Capture and RNA Extraction 20m

1 Add **1 mL Viral transport media (VTM) or Universal transport media (UTM) sample** to a microcentrifuge tube. 30s

500 µL of the sample can be used if 1 mL is not available.

2  30s

Add **100 µl of Magnetic Nanotrap® particles** to the sample.

3  10m

Incubate samples with Magnetic Nanotrap® particles at **Room temperature** for **00:10:00** .

4 Use a magnetic rack to separate the Magnetic Nanotrap® particles from the sample. **00:01:00** 1m

5 Discard the supernatant carefully without disturbing the pellet. 30s

6  1m

Add **500 µl of 1X PBS** to the pellet and resuspend to wash.

7 Use a magnetic rack to separate the Magnetic Nanotrap® particles from the sample. **00:01:00** 1m

8 30s

Discard the supernatant carefully without disturbing the pellet. If required - use a smaller pipette to remove any residual PBS.

9 30s

Resuspend particle pellet in **50 µl of extraction buffer** .

10 5m

Heat samples at **95 °C** for **00:05:00** .

This step can be performed on a heat block or thermocycler.

11 45s

Use a magnetic rack to separate the Magnetic Nanotrap® particles from the sample. **00:00:30**

12 30s

Collect the supernatant. The sample is ready for analysis.

RT-PCR Reaction

13

Use any SARS-CoV-2 RT-PCR detection kit. Follow manufacturer instructions to set up the RT- PCR