



Sep 25, 2020

# Pooled sample testing (VTM/UTM) for SARS-CoV-2 using Magnetic Nanotrap® particles for direct RNA extraction.

Anurag Patnaik<sup>1</sup>, Ben Lepene<sup>1</sup>, Robert Barclay<sup>1</sup><sup>1</sup>Ceres Nanosciences, inc.

In Development

This protocol is published without a DOI.

Coronavirus Method Development Community

Nanotrap Applications

Anurag Patnaik

## ABSTRACT

This protocol provides a method for detection of SARS-CoV-2 from pooled Viral transport media and Universal transport media samples using Magnetic Nanotrap® particles.

## PROTOCOL CITATION

Anurag Patnaik, Ben Lepene, Robert Barclay 2020. Pooled sample testing (VTM/UTM) for SARS-CoV-2 using Magnetic Nanotrap® particles for direct RNA extraction... **protocols.io**  
<https://protocols.io/view/pooled-sample-testing-vtm-utm-for-sars-cov-2-using-bkyqkxvw>

## KEYWORDS

pooled testing, sample pooling, COVID pooled testing, SARS-CoV-2, Respiratory viruses, Nanotrap, Direct RNA extraction, Magnetic particles, Virus capture, virus concentration, virus detection, viral RNA extraction

## LICENSE

This is an open access protocol distributed under the terms of the [Creative Commons Attribution License](#), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited

## CREATED

Sep 07, 2020

## LAST MODIFIED

Sep 25, 2020

## PROTOCOL INTEGER ID

41712

## MATERIALS

NAME	CATALOG #	VENDOR
Microcentrifuge Tubes		
Triton(R) X-100 100ml	H5142	Promega
PBS 1x without calcium & magnesium	Cat# 21-040-CVR	VWR International
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)		
Universal Transport Media (UTM)		
RT-PCR Kit		
DynaMag™-2 Magnet	12321D	

## SAFETY WARNINGS

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

Follow required Biosafety level requirements.

## Sample preparation

20m

1 

Pool 8 clinical VTM / UTM samples. Combine **500 µl** from each sample into a **5 mL** or **15 mL** tube.

2 

Add **300 µl** of Magnetic Nanotrap<sup>®</sup> particles to the sample.

3 Incubate samples with Magnetic Nanotrap<sup>®</sup> particles at **Room temperature** for **00:10:00**

4 Use a magnetic rack to separate the Magnetic Nanotrap<sup>®</sup> particles from the sample. **00:01:00**

5 Discard the supernatant carefully without disturbing the pellet.

6 

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

7 Use a magnetic rack to separate the Magnetic Nanotrap<sup>®</sup> particles from the sample. **00:01:00**

8 

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

9 

Resuspend particle pellet in **50 µl** of extraction buffer (Quick vortex if required).

10  

Transfer the resuspension mix to a **0.5 mL** OR **1.5 mL** microcentrifuge tube.



Do not heat samples in a **5 mL** or larger tube. The heat distribution required for lysis is not adequate in larger tube sizes.

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



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

12 Use a magnetic rack to separate the Magnetic Nanotrap<sup>®</sup> particles from the sample. **00:01:00**

13 Collect the supernatant. The sample is ready for analysis.

#### RT-PCR detection

14 

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