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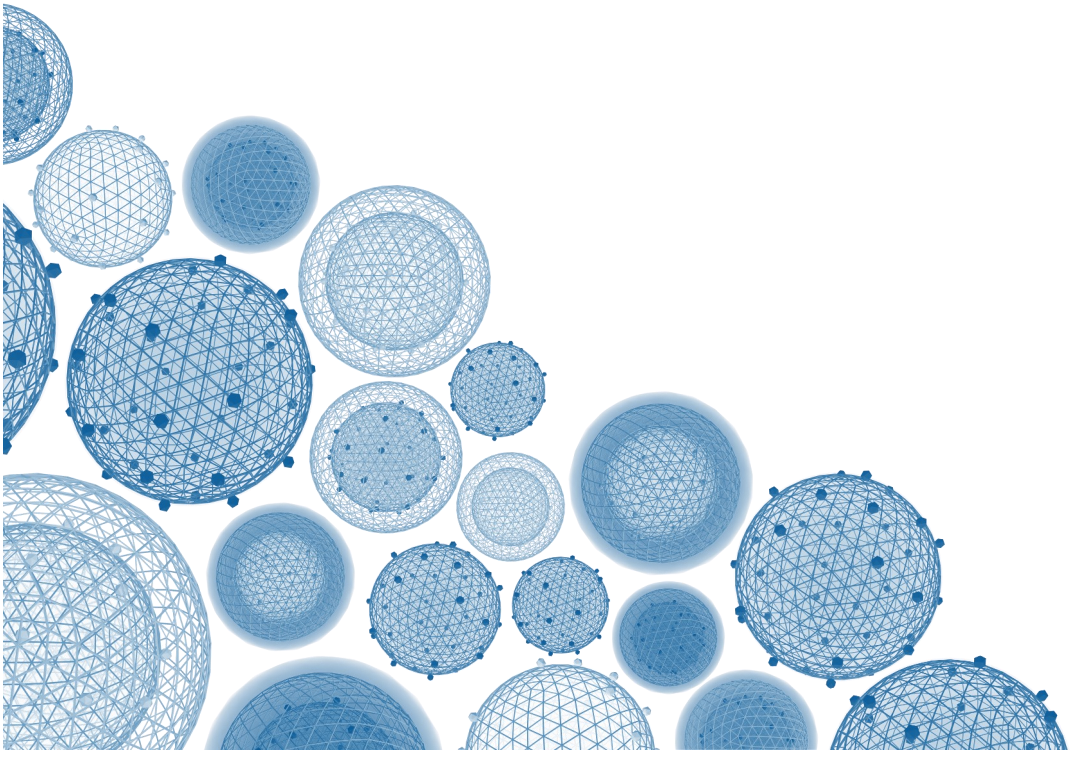
Nanotrap® Microbiome Particles

CAPTURE AND CONCENTRATE

MICROBES FROM YOUR SAMPLES



Your priorities will continue to evolve. Ours are focused on you.

Designed to deliver rapid capture and concentration of microbes, while maintaining a simple and robust workflow.

The Nanotrap® Microbiome Particles enable:

- ***Simple*** manual or automated methods that are straight forward and efficient so you can focus more on science and less on managing your tools;
- ***Efficiency*** to help you eliminate time consuming steps and learn more — faster;
- ***Compatibility*** with your nucleic acid kits and downstream analysis; and
- ***Reliability and support*** to help you obtain results that are backed by unparalleled expertise in method development and troubleshooting.

Labs around the world are using Nanotrap Microbiome Particles to capture and concentrate microbes from samples to improve detection of those analytes of interest.

Nanotrap Technology Benefits:

- Compatible with many sample matrices, including clinical swab samples, saliva, urine, wastewater, food wash, and blackwater.
- Compatible with many nucleic acid extraction kits.
- Compatible with RT-qPCR, RT-dPCR, RT-ddPCR, and sequencing-based analysis methods.
- Replaces filtration, centrifugation, and bead-beating, without sacrificing assay sensitivity.

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Technology developed to solve your problems

Common barriers to effective clinical diagnostics and research include:

- Low concentration of analytes.
- Rapid degradation of analytes.
- Presence of interfering substances.
- Invasive sample collection requirements.

The Nanotrap® particle technology overcomes these barriers, enabling the capture, concentration, and preservation of low abundance analytes from complex biological samples.

Nanotrap particles are highly porous hydrogel particles, functionalized with chemical affinity baits which have very high affinities for different classes of analytes, such as proteins, peptides, nucleic acids, microbes, hormones, drugs-of-abuse, and extracellular vesicles.

The hydrogel structure facilitates quick exchange with the sample for rapid binding. Nanotrap particles are magnetically functionalized, allowing for easy recovery from the sample. This process can be automated, enabling high-throughput sample processing.

Proven sample inputs: wastewater, blackwater, food wash, CSF, serum, plasma, blood, cell culture medium, transport medium, urine, oral fluid, and sweat.

Do you know what you are missing?

Do not leave important data behind at the very beginning of your sample preparation workflow. Capture and concentrate what is important for your application.

Examples of applications in transport medium or urine:

- Influenza
- SARS-CoV-2
- Respiratory Syncytial Virus
- Zika
- Dengue
- Chikungunya

Examples of applications in wastewater-based epidemiology

- *Escherichia coli*
- *Salmonella enterica*
- *Campylobacter jejuni*
- *Listeria monocytogenes*
- *Clostridioides difficile*
- crASSphage
- Hepatitis A
- SARS-CoV-2
- Monkeypox Virus
- Influenza A / B
- Respiratory syncytial virus
- Pepper mild mottle virus
- *Candida auris*
- *Cryptosporidium parvum*
- *Giardia lamblia*

Research continues to move forward at a rapid pace. Our commitment is to provide the innovative Nanotrap platform technology you need to maintain that pace—by simplifying and improving your workflows while increasing sensitivity through capture and concentration.

Workflows that enable you to do more

Nanotrap® Microbiome A & B Particles enable rapid and simple methods for sample concentration.

Use Nanotrap Microbiome Particles to capture and concentrate microbes with manual or automated methods for optimal performance, flexibility, and scalability. Nanotrap Microbiome Particles methods provide greater:

- ***Efficiency,*** so you can spend more time doing what is meaningful to you, not performing tedious filtration, centrifugation, or bead-beating steps;
- ***Accuracy,*** so you can trust the process and your data; and
- ***Reproducibility,*** so you can be confident in your results every time.

By switching virus concentration methods to Nanotrap particles, a customer[1] improved turnaround time for wastewater test results from more than 2 days to less than 1 day, while simultaneously increasing throughput to more than 100 samples per week.

Nanotrap® Microbiome A Particles

The Nanotrap Microbiome A Particles capture and concentrate a wide range of microbes, including: Influenza A, influenza B, respiratory syncytial virus, coronavirus 229E, coronavirus OC43, SARS-CoV-2, Zika virus, Chikungunya virus, dengue virus, pepper mild mottle virus, hepatitis A virus, Monkeypox virus, and other microbes.

The Nanotrap Microbiome A Particles have an extensive list of verified protocols available for use as well as many publications describing a wide range of applications.

Nanotrap® Microbiome B Particles

The Nanotrap Microbiome B Particles capture and concentrate a wide range of microbes, including *Escherichia coli, Salmonella enterica, Campylobacter jejuni, Listeria monocytogenes, Clostridioides difficile,* crASSphage, *Candida auris, Cryptosporidium parvum, and Giardia lamblia.*

Learn how bacteria, as well as pathogenic yeast and parasites can be captured from the Nanotrap Microbiome B Particles. Protocols and applications notes detailing these methods are available for use online.

See page 5 for information on the Nanotrap combined method.

Nanotrap® Enhancement Reagents

Nanotrap Microbiome Particles rapidly capture and concentrate microbes from raw sewage requiring no filtration, centrifugation, or bead-beating. Using Nanotrap Enhancement Reagents with the Nanotrap particles improves the binding of microbes to the Nanotrap Particles in these samples, further improving downstream detection of nucleic acids. Automated and manual methods are available.

Product Description

- Improve microbe detection in wastewater samples by at least 1-2 Ct values using Nanotrap Enhancement Reagents with Nanotrap Microbiome Particles.
- No negative impact on recovery of controls.
- Automation friendly when paired with Nanotrap Microbiome Particles.
- Convenient workflow: add to your wastewater sample at the same time as Nanotrap Particles or add to your wastewater samples up to 18 hours before you add Nanotrap Particles.
- Non-hazardous, non-perishable reagents, with room temperature storage.

Compatibility across different nucleic acid extractions kits is listed in the table below.

			Particles		
			Nanotrap Microbiome A		*Nanotrap Microbiome B*
Vendor	**Extraction Kit**	**SKU**	**ER1**	**ER2**	**ER3**
MACHEREY-NAGEL	NucleoMag DNA/RNA Water Kit	744220.1	X		X
Applied Biosystems™	MagMAX™ Viral/Pathogen Nucleic Acid Extraction Kit	A42352	X		X
Applied Biosystems™	MagMAX™ Viral/Pathogen II (MVP II) Nucleic Acid Extraction Kit	A48383	X		X
Applied Biosystems™	MagMAX™ Microbiome Ultra Nucleic Acid Kit	A42357	X		X
QIAGEN	MagAttract® Viral RNA Kit (960)	955538		X	X
QIAGEN	QIAamp® Viral RNA Mini Kit (250)	52906		X	X
QIAGEN	AllPrep® PowerViral® DNA/RNA Kit (50)	28000-50		X	X
Zymo Research	ZymoBIOMICS ™ MagBead DNA/RNA Kit	R2135		X	
Promega	Maxwell® HT Environmental TNA Kit, Custom	AX9190		X	
IDEXX	Water DNA/RNA Magnetic Bead Kit	98-0014719-00		X	

Make the most of the Nanotrap® method

As wastewater-based epidemiology continues to evolve and target lists grow, you need a method that enables you to get the most out of your samples. Through our combined method utilizing the Nanotrap Microbiome A Particles, Nanotrap Microbiome B Particles, and Nanotrap Enhancement Reagent 3, you can ensure your workflow is optimized for an expansive testing menu.

By combining the Nanotrap Microbiome A and Microbiome B Particles in a single workflow, a customer reduced sample processing time by 5-fold vs. a filtration method for detection of multiple pathogens from wastewater samples in Bangladesh.

[1]The Value of Wastewater Surveillance to Support COVID-19 Response in a Community with Large-scale Asymptomatic Testing. https://www.nemc.us/meeting/2021/load_abstract.php?id=295

Nanotrap® Buffer 2

Ensure that your lab gets the best performance out of your manual workflow.

Nanotrap Buffer 2 was created to improve user experience with the Nanotrap Microbiome Particles when using a manual method. The addition of Nanotrap Buffer 2 allows your lab to overcome the most common challenges in your testing.

Product Description

- Provides easier experience of moving the Nanotrap particles between tubes.
- Acts as a dilution buffer for viscous samples.
- Homogenizes solids to improve the binding of the Nanotrap particles to the microbes in the sample.
- Enables a more efficient sample processing experience.
- Incorporates seamlessly into the manual protocols available on our website.

To access protocols for sludge and solid sample types, reach out to our team via email at sales@ceresnano.com for technical support and draft methods that use Nanotrap Buffer 2 to capture and concentrate microbes from these samples.

Our Commitment

Our dedicated applications team takes a collaborative approach with our customers. We deliver high quality and innovative solutions through a consultative support approach, and we can think out-of-the-box, when necessary. Together, we can solve your sample preparation challenges.

Quality You Can Count On

Ceres delivers the highest caliber products and solutions to its customers. With a Quality Management System built to ISO 9001 standards and with products that have been incorporated successfully into multiple diagnostic tests with FDA Emergency Use Authorization, we have the experience to meet your regulatory and quality requirements.

Contact

Connect with the Ceres Nanosciences Team to learn more

sales@ceresnano.com 1.800.615.0418 EXT. 1

Nanotrap® Microbiome A Particles (SKU# 44202)
Nanotrap® Microbiome B Particles (SKU# 65202)
Nanotrap® Enhancement Reagent 1 (SKU# 10111)
Nanotrap® Enhancement Reagent 2 (SKU# 10112)
Nanotrap® Enhancement Reagent 3 (SKU# 10113)
Nanotrap® Buffer 2 (SKU# 10102)

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