





ITS VIETNAM INTRODUCTION

DOAN MINH NHAT | DIVISION MANAGER |



GROUP OF COMPANIES IN SEA





"Science is and will be the medium by which people and nations progress".

Rectangular Snip

ITS Vietnam is a business division under ITS GROUP which ranks regionally as a leading provider of scientific &

medical instruments, hospital infrastructure and laboratory furniture.

Company Profiles - ITS GROUP







ITS Vietnam







ITS Science Indonesia

ITS Science Philippines

Company Profiles - ITS Vietnam











Some Pharmaceutical Customers







Food, Feed, 3rd Party Labs Customers







Institutes and Life Sciences Customers

CONTRACTOR AND A CONTRACT	BK	ENGLEMENT CENTER BOOLEMENT CENTER	VIỆN DƯỢC LIỆU National Institute of Medicinal Materials (NIMM)	DOT THANH PHOTOS	OND NUC CHOA HOC TU NHIEN DHQG-HCM
	HOC VIEN QUÂN Y VIỆT NAM		DAI HOC DLY TÂN	BÁCH KHOA	EXAMPLE TON BUC THÁNG
GENE SOLUTIONS	NEEDICAL DIAG CENTER Trung tâm xét nghiện và chân đoán y khoa	oucru	GENTIS® NIÊM TIN TRỌN VẠN	R	you.





SANDBOX - Lab Infrastructure





Our Co-Sponsors



Full partifalia from R&P to RE in many inclustries





Industries we serve



Analytical Instruments	Life Sciences	Pharmaceutical	Animal Facilities & Research	Laboratory Infrastructure	Medical Instruments & Hospital Infrastructure
Materials Research	Genomics & Proteomics	Bioprocessing	Animal Housing	Lab Furniture	Medical Diagnostics
Food & Agriculture	Molecular Research	Biopharma Sterilization	Laminar Flow Solution	Lab Accessories & Fittings	Modular Operating Theatre
Petroleum & Petrochemical	Diagnostics Bio	Drug Discovery & Development	Cage Processing Solution	Chemical & Flammable Safety Cabinets	Digital OR & PACS Infection Control Solution
Research & Engineering	Cellomics	Isolator Technology	Behavioral Study	Fume Hoods	Pathology Grossing Stations
Processing	Stem Cell Research	Active Pharmaceutical	Platforms	Biosafety Cabinets	Steel Furniture
	Sequencing	Ingredient	Decontamination Solution	High Plume Fans	Beds & Furniture
	Microbiology				OT Tables, Pendants & Lights
	Lab Automation				Mortuary Freezers



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Sample Prep Automation:

KingFisher™ Instruments and Wastewater Surveillance



David D. Ng Global Product Manager KingFisher™ Automation

May 12th, 2022







The world leader in serving science



Thermo Fisher Scientific: Our Mission Statement



To enable our customers to make the world healthier, cleaner and safer



Common Steps Used to Extract Nucleic Acids and Proteins

Sample prep—the extraction, isolation, and purification of nucleic acids and proteins—includes these steps:





Why should I care about Automating Sample Prep?

Less hands-on time

- Minimizes hands-on bench time
- Fewer manual processes
- More time to spend on other areas of work, life, etc.

Reproducible

- Less inter- and intra- experiment variation
- Increases standardization of research process
- Consistent and reliable high yields

Easy and convenient

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- Process more samples with less hands-on time
- Set up the plates, insert into instrument, and walk away



KingFisher™ Automation Solutions:

Combining automation with the use of magnetic particles

History of KingFisher[™] Automated Purification Systems





We Use Magnetic Particle (Bead) Technology for Extraction

Advantages of magnetic bead extraction

- Binding efficiency—the large surface area of a magnetic bead and thorough exposure to the target during mixing enables superior binding and washing efficiency
- Improved elution—efficient elution in small volumes
- Greater sample range—efficient removal of inhibitors from a wide range of samples with different viscosities
- Versatility—suitable for low- to high-throughput applications
- Consistent yields—less variation between runs, compared to columns; more reproducible
- Faster process without centrifugation
- Less loss/greater capture—get more of your nucleic acid/protein from your sample



Magnetic particle



We Use KingFisher Instruments to Move the Magnetic Beads...

...through the bind, wash, and elution steps







Overview of KingFisher Automated Purification System Components



Instruments

Semi- to fully automated instruments



Kits and reagents

Magnetic bead kits and automated protocols

KingFisher Duo Prime

KingFisher Flex/Apex

KingFisher Presto

Liquid Handler-ready

6/12 samples 30-5,000 µL

24/96 samples

24/96 samples 50-5,000 µL

20-5,000 µL





MagMAX[™] kits and reagents

Protein/IP purification



Dynabeads[™] kits and reagents

Thermo Scientific™ Pierce[™] magnetic beads



Software, plastics and accessories

Software and plastics to maximize instrument and reagent performance

Bindlt software









Deep-well plates, tip combs,



Interchangeable formats



Interchangeable heads



SCIENTIFIC







KingFisher[™] Apex

The pinnacle of automated purification for DNA, RNA, Proteins and Cells

Building on decades of product value and excellence from Thermo Scientific[™] KingFisher[™] systems, we've combined unparalleled instrument capabilities with complete touchscreen-based control to deliver unrivaled flexibility and performance, so sample prep can be simple.



Taking the best features of KingFisher instruments and improving upon them

KingFisher[™] Provides Versatility Through a Variety of Sample Types





Thermo Fisher S C I E N T I F I C

Infectious pathogen detection from wastewater samples

The world leader in serving science



What is wastewater and sludge?

Wastewater

also referred to as sewage, includes water from households and commercial buildings (i.e., toilets, showers, sinks) that can contain human fecal waste, as well as water from nonhousehold and non-commercial building sources (i.e., rainwater and industrial use)

Sludge

is the residual, semi-solid material that is produced as a by-product during treatment of wastewater ratory Tes astewater Analysis SARS-CoV-2

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Purpose of wastewater surveillance



Testing wastewater allows detection of the pathogen before outbreak of the disease occurs



Captures a broad and diverse sampling of stool from municipal wastewater treatment plants; facilities such as aged care homes, student dorms, quarantine facilities; and passenger groups on international flights and cruise ships



Allows administrations to respond before an outbreak spreads further



Depending on the frequency of testing, wastewater surveillance can be a leading indicator of changes in infection in a community



Wastewater surveillance is now being used for SARS-CoV-2 but can also be used to detect several other viral and bacterial pathogens



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Wastewater itself is a very diluted starting sample. When processing wastewater samples, it is important to use optimal volumes to account for low abundance of viral particles. This often requires a **concentration step** prior to viral nucleic acid extraction.

Methods for wastewater concentration:

- Magnetic bead technology
- Filtration
- Precipitation
- Ultracentrifugation



Technical features of MagMAX Wastewater Ultra Nucleic Acid Isolation Kit



Key features

- Flexible protocols enable different up-front concentration methods and input volumes
- Optional virus enrichment workflow
- Full workflow from collection to analysis is available

Sample types	Wastewater and sludge			
Concentration and virus enrichment methods	 Compatible with precipitation, ultracentrifugation, and filtration Virus enrichment of 10 mL wastewater 			
Sample input volume	 200 µL – 500 mL depending on concentration method 200 mg of sludge 			
Compatibility	Real-time PCR (qPCR), digital PCR, NGS			
Total processing time	 45 minutes for nucleic acid isolation including hands-on time 75 minutes for virus enrichment + nucleic acid isolation 			
Format	20–100 preps depending on input volume			
Price per prep	Depends on input volume			
Product	 MagMAX Wastewater Ultra Nucleic Acid Isolation Kit MagMAX Wastewater Ultra Nucleic Acid Isolation Kit, with Virus Enrichment 			



Protocols available with the kit

Different volumes of wastewater require different processing approaches:



2

(3)

- 10 mL samples with Dynabeads Wastewater Virus Enrichment method for concentration
- 200 µL samples pre-concentrated via preferred method, e.g., ultracentrifugation
- 1 mL samples pre-concentrated via preferred method, e.g., ultracentrifugation or precipitation, or direct purification of non-concentrated sample
- 50-500 mL samples using filtration methods for concentration
- Sludge (200 mg)



Results for 10 mL wastewater samples

SARS-CoV-2 nucleic acid extraction from 10 mL wastewater samples after automated pre-processing with magnetic beads

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Viral load detected with spike-in of inactivated SARS-CoV-2 from 10 mL wastewater samples using Dynabeads Wastewater Virus Enrichment beads

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10 mL Workflow testing on KingFisher Flex, Apex, Duo Prime instruments and manual process

10 mL Wastewater input with respiratory panel (RP) control spike-ins (ZeptoMetrix™)

Applied Biosystems[™] TaqMan[®] Assays for other viral and pathogen targets





Applied Biosystems[™] TaqMan® Fast Virus 1-Step Master Mix

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Result:

Equivalent performance of all scripts and manual processing also for 10 mL wastewater input

1

How to order kits:

MagMAX Wastewater Ultra Nucleic Acid Isolation Kit



MagMAX Wastewater Ultra Nucleic Acid Isolation Kit, with Virus Enrichment



How to order KingFisher[™] Instruments:







Thank You

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