Taiwan
Advanced
Nanotech

TOTAL SOLUTION FOR
NUCLEIC ACID EXTRACTION

Reagents Manufacturer

TANBead® Tissue Total DNA Extraction Kit (6T2 series)

1st Edition, Oct 2023

Contents

Kit description

Instrument description

Supporting Info

Kit Description

Introduction

TANBead® Nucleic Acid Extraction Kit is a nucleic acid purification kit based on magnetic bead technology by using with corresponding TANBead® Nucleic Acid Extractor, which can automatically isolate and purify total DNA from tissue. The purified DNA can be used with any downstream application which is qualitative or semi-quantitative assay. The kit is intended for use by technicians, physicians, and biologists with well-trained in molecular biological techniques, the techniques of magnetic bead purification and *in vitro* diagnostic procedures. Any diagnostic results generated by using the sample preparation procedure in conjunction with any downstream diagnostic assay should be interpreted related to other clinical or laboratory findings. The kit is not limited to any specific disorder, condition, or other additional accompanying diagnostics. It is applicable for all population.

Reagent kits and Instrument

Instrument	REF	Cat NO.		Test
		IVD	RUO	
Maelstrom 8 / Maelstrom 4800 series	M6T2A46	301132	301500	96
	M6T2S46	301133	301501	96
Maelstrom 9600 series	W6T2A46	301192	301504	96
	W6T2S66	301193	301505	72

Specification

Feature	Specification		
Downstream application	PCR, qPCR, Southern blot, etc.		
Starting material	10-50 mg tissue sample ≒2 x 10^5 – 10^6 cells		
Processing mode	Automated, magnetic processing		
Throughput (Max tests/ run)	Instrument	Auto Plate	Auto Tube
	Maelstrom 8 series	8	4
	Maelstrom 4800 series	48	24
	Maelstrom 9600 series	96	48
Nucleic acid binding technology	Magnetic beads		
Typical A260/A280	≧1.7		

Kit Contents

Maelstrom 8 / Maelstrom 4800 series

M6T2A46	96 tests	Pre-filled plate for use
Auto Plate	6 PCS	Pre-filled with reagent buffers
Proteinase K	1.0 mL x 1	Proteinase K
Incubation Buffer	25 mL x 1	Tris buffer, surfactants, pH 8.0
Elution Buffer	1.5 mL x 1	Nuclease-free water
Spin Tip	96 PCS x 1 box	Spin tip assembled box
Protocol	1	Instruction guides for user

M6T2S46	96 tests	Pre-filled tube for use
Auto Tube	8 Tray	Pre-filled with reagent buffers
Proteinase K	1.0 mL x 1	Proteinase K
Incubation Buffer	25 mL x 1	Tris buffer, surfactants, pH 8.0
Elution Buffer	1.5 mL x 1	Nuclease-free water
Base	2 PCS	A rack for 8 Auto Tubes
Spin Tip	48 PCS x 2 box	Spin tip assembled box
Protocol	1	Instruction guides for user

Maelstrom 9600 series

W6T2A46	96 tests	Pre-filled plate for use
Auto Plate	6 PCS	Pre-filled with reagent buffers
Proteinase K	1.0 mL x 1	Proteinase K
Incubation Buffer	25 mL x 1	Tris buffer, surfactants, pH 8.0
Elution Buffer	1.5 mL x 1	Nuclease-free water
Spin Tip	96 PCS x 1 box	Spin tip assembled box
Protocol	1	Instruction guides for user

W6T2S66	72 tests	Pre-filled tube for use
Auto Tube	6 Tray	Pre-filled with reagent buffers
Proteinase K	1.0 mL x 1	Proteinase K
Incubation Buffer	25 mL x 1	Tris buffer, surfactants, pH 8.0
Elution Buffer	1.5 mL x 1	Nuclease-free water
Base	2 PCS	A rack for 8 Auto Tubes
Spin Tip	48 PCS x 2 box	Spin tip assembled box
Protocol	1	Instruction guides for user

Pre-filled Plate or Tube Contents

M6T2A46, M6T2S46		
Well	Buffer	Volume (μL)
1/7	Lysis Buffer	700
2/8	Washing Buffer 1	800
3/9	Magnetic Beads	800
4/10	Washing Buffer 2	800
5/11	Washing Buffer 2	800
6/12	Elution Buffer	130

W6T2A46, W6T2S66		
Position	Plate	Volume (μL)
1	Lysis Buffer	700
2	Washing Buffer 1	800
3	Magnetic Beads	800
4	Washing Buffer 2	800
5	Washing Buffer 2	800
6	Elution Buffer	130
7	-	-
8	Spin Tip	-

Precautions

1. Avoid using expired reagents.
2. When the temperature is below 20°C, place the Auto Plates / Auto Tubes in an oven (preheated 42~60°C) 5 to 10 minutes.
3. Avoid vigorous shaking, to avoid excessive formation of foam.
4. Carefully remove aluminum foil to avoid splashing.
5. Do not expose the opened reagents or Auto Plates / Auto

Tubes to air. The evaporation may cause pH change and affect the extraction effectiveness.

6. Please check the integrity of the Auto Plates / Auto Tubes and remember to insert the strips or spin tip into the appropriate position of the suitable instrument before operating them.
7. Please wear a mask and disposable gloves when handling.
8. Use sterile consumables to avoid nuclease contamination.
9. Reagent solution contains guanidine salt, avoid using bleach containing detergent.
10. Avoid eyes, skin, and clothing contact with reagents. In case of any contact, flush with flowing water.
11. If any serious incident occurs, please report to the manufacturer and the competent authority of the member state in which the user and / or the patient is established.

Materials Required but not Provided

1. TANBead® Nucleic Acid Extraction System (non-sterile)
   Maelstrom 8/ Maelstrom 4800 series
   Maelstrom 9600 series
2. Disposable gloves
3. Scissors, utility knives
4. Micropipette, disposable tips (10 µL / 200 µL / 1000 µL)
5. 1.5 mL microcentrifuge tube
6. 15 mL / 50 mL conical tube

Kit Storage

1. TANBead® Tissue Total DNA extraction kit could be stored at 15-35°C for 18 months and please find the expiration date labeled on the box of each reagent kit.
2. The proteinase K would be transported at room temperature. Upon received the reagent kit, please keep the proteinase K at 2-8°C for long-tern storage. The room temperature delivery of proteinase K has been validated that does not affect its performance.
3. The pre-filled plate, tube, and solution provided with the reagent kit can be stored at room temperature and are stable for at least 18 months after production.

Safety Information

When you are working with chemicals, must wear a suitable lab coat, disposable gloves, and safety goggles. For more information, please consult TANBead Inc. for the appropriate safety data sheets (SDSs).

Quality Control

In accordance with TANBead Inc. certificated Quality Management System (QMS and ISO13485), the product must be tested against intended specifications to ensure the consistence of product performance and quality.

Sample Storage

1. The transportation of animal tissue specimen should follow specific infectious biological materials transportation related law.
2. The storage and transportation condition, such as temperature, time and container may cause the variation of yield and quality of purified nucleic acids. In general, fresh prepared animal tissue samples are recommended.
3. For short-term storage (up to 7 days), animal tissue sample should be collected in tubes containing anticoagulant and store at 2 – 8°C. For long-term storage, please store samples at -20°C or even -80°C.

Procedure and Description

TANBead® Tissue Total DNA extraction procedure containing following steps:

1. For tissue samples:
   a. Soaking or grinding method
      - Soaking method: Mince the 10–50 mg tissue sample in a 1.5 mL tube, and then add **200 µL Incubation Buffer** and **10 µL Proteinase K**.
      - Grinding method: Grind 10–50 mg tissue sample with **200 µL Incubation Buffer** to homogenize mixture. Transfer all mixture to a 1.5 mL tube, and then add **10 µL**

Proteinase K.

b. Mix the mixture with vortex thoroughly and incubate at 56°C for approximately at least 1 hour depending on the different type samples. Vortex 1–2 times during the incubation.

c. Centrifuge the mixture at 10,000 x *g* for 3 minutes and take the **200 µL supernatant** as the sample for the following automatic process.

2. For cultured cells (≒2 x 10^5 – 10^6 cells)

   a. Centrifuge the cell suspension at **10,000 x g** for **1 minute** and discard the supernatant.

   b. Add **200 µL Incubation Buffer** and **10 µL Proteinase K**, and then vortex well. Incubate at **56°C** for **10 minutes**.

   c. Take the **200 µL mixture** as the sample for the following automatic process.

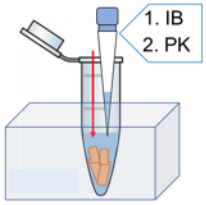
3. Transfer sample: Use micropipette to transfer the supernatant into Auto Plate / Tube well.

4. Automation: Set up spin tips, select the program, then put Auto Plate/Tube well into the extractor, residues washing and elution step for DNA purification.

For tissue sample

STEP 1

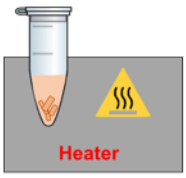
Place 10-50 mg mince / grind tissue sample into 1.5 mL tube then add 200 µL incubation buffer (IB) and 10 µL Proteinase K then mix well.



Vortex

STEP 2

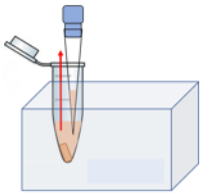
Mix the mixture with vortex thoroughly and incubate at 56˚C for approximately at least 1 hour depending on the different type samples.



Centrifuge at 10,000 x g for 3 mins

STEP 3

Take the 200 µL supernatant as the sample for the following automatic process.



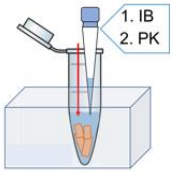
For cultured cells

STEP 1

Centrifuge the cell suspension at 10,000 x g for 1 minute and discard the supernatant.

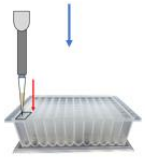
STEP 2

Add 200 µ L Incubation Buffer and 10 µL Proteinase K and then vortex well. Incubate at 56˚C for 10 minutes .



STEP 3

Take the 200 µL mixture as the sample for the following automatic process.



Instrument Description

Automatic Nucleic Acid Extraction System

Maelstrom 8 (up to 8 tests per run)

Feature	Specification
REF	Maelstrom 8 handler
Weight (NW)	600 g
Dimensions	11.2(W)x6.3(L)x32.7(H) cm
Power rating	5 Vac, 2A
Battery	3.7 Vac, 2,850 mAh
Max. Throughput	8 samples per run
Process. volume	50 - 1,500 µL
Spin speed	up to 3,000 rpm
Magnetic rod	> 3,000 gauss
Display	2.4” LCD, 240 x 320 pixels

Maelstrom 8 handler is a magnetic bead handling device with high-speed stirring function, which can spin up to 3000 rpm. With eight magnetic rods, intuitive interface, and simple operation, it can accomplish any nucleic acid extraction application. It works alone or with Autostage to form an automated solution, called Maelstrom 8 Autostage.

Maelstrom 4810 (up to 48 tests per run)

Feature	Specification
REF	Maelstrom 4810
Weight (NW)	Approx. 45 kg
Dimensions	58(W) x43(L) x47(H) cm
Power rating	AC 100-AC 240 V 50/60 Hz, 5-2.5 A
Fuse	250 V, 5A
Max. Throughput	48 samples per run
Process. volume	50 - 1,600 µL
Spin speed	up to 3,000 rpm
Heater	12 independent heating blocks
Magnetic rod	> 3,900 gauss
Display	7-inch touchscreen
UV	UV-C type, 8 W
HEPA	E 10 class

Maelstrom 4810 is a 48-throughput instrument, combined with our patented technology, the entire run can be completed in about 15-60 minutes, depending on the reagent kit. Maelstrom 4810 can operate 1 to 48 samples, which offers great flexibility to customers.

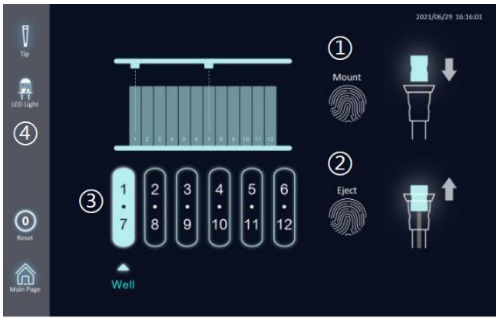
Maelstrom 9610 (up to 96 tests per run)

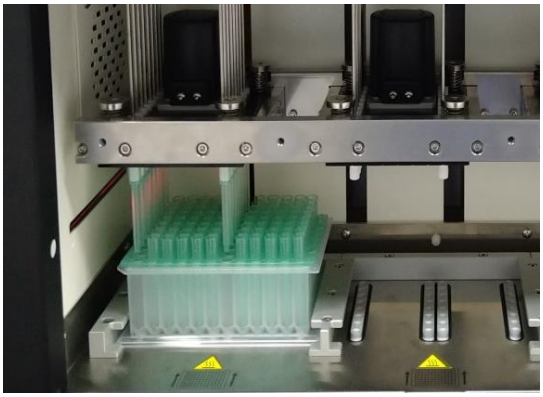
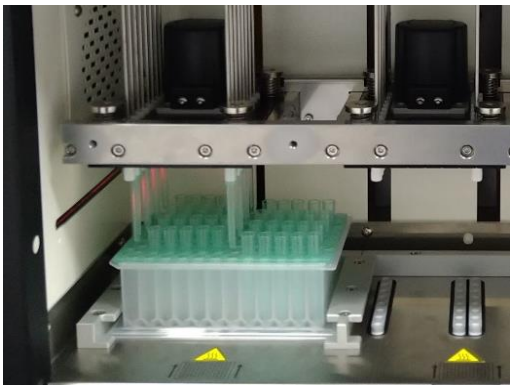
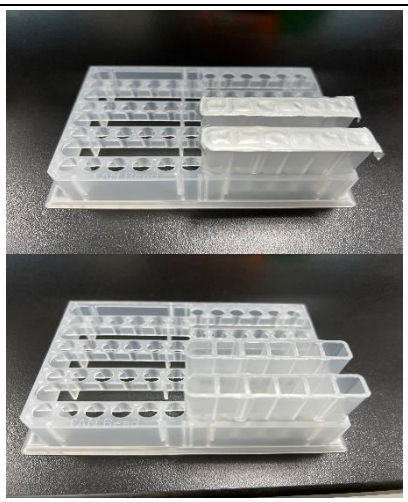
Feature	Specification
REF	Maelstrom 9610
Weight (NW)	Approx. 95 kg
Dimensions	87(W)x57.5(L)70(H) cm
Power rating	AC 220-240 V, 50/60 Hz, 3.5 A AC 100-120 V, 50/60 Hz, 8 A
Fuse	250 V, 5 A
Max. Throughput	96 samples per run
Process. volume	50 - 1,600 µL
Spin speed	up to 3,000 rpm
Heater	4 independent heating blocks
Magnetic rod	> 3,900 gauss
Display	7-inch touchscreen
UV	UV-C type, 4 W
HEPA	E 10 class

Maelstrom 9610 is a 96-throughput instrument, With the patented technology which can improve the mixing efficiency of magnetic beads and increase the processing sample volume, M9610 has become one of the most competitive automated DNA/RNA extraction instruments. Combined with TANBead extraction reagents, our system is highly affirmed by many medical institutions as it can contribute to large scale sample screening request.

Instrument Operation Guide

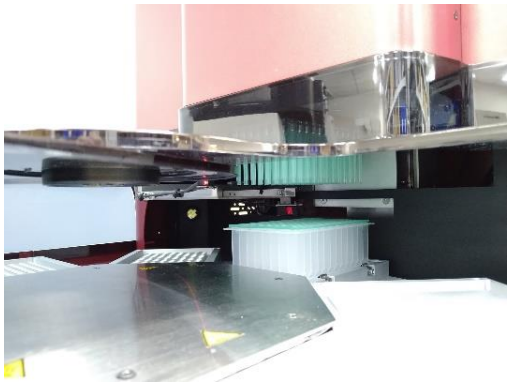
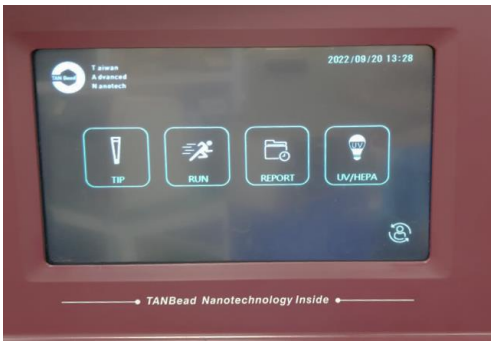
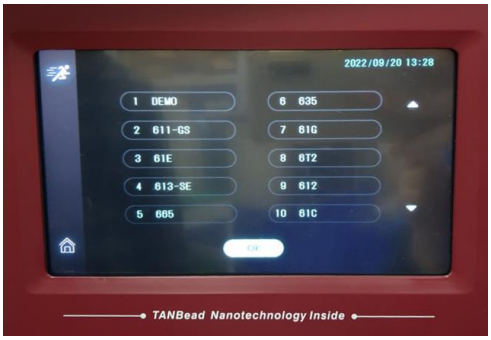
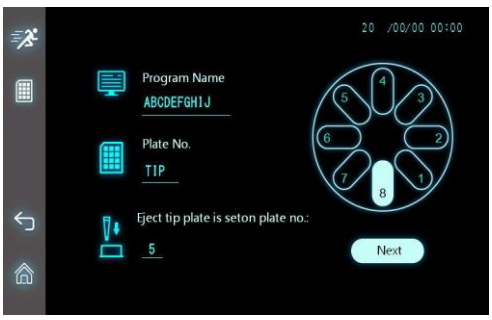
Maelstrom 4800 series

Operation	
(1) Press the power button in the back of Maelstrom 4800 series instrument	(2.1) Assemble the spin tip assemble box and select the “Tip” on the panel. (2.2) Choose the intended position, such as 1/7, 2/8, 3/9, 4/10, 5/11, 6/12 and press “Mount”.
	  

Mounting tips (Auto Plate)	Mounting tips (Auto Tube)
	
(3) Carefully remove the aluminum foil on the Auto Plates/Tubes.	
	
(4) Add samples to wells of Auto Plate/ Tube, then put it into the extractor.	
(5) Back to the homepage and choose “Run”	(6) Select the corresponding program (program name: 6T2)
	

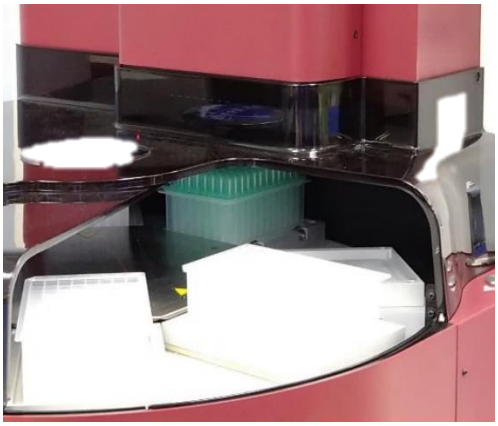
(7) Press “Run” to start the automatic extraction process

Maelstrom 9600 series

Operation	
(1) Press the power button in the front of Maelstrom 9600 series instrument	(2) Press “Run” and choose the corresponding program (program name: 6T2)
	   

(3) Carefully remove the aluminum foil on the Auto Plates/Tubes.

(4.1) Add samples to wells of Auto Plate/ Tube.
(4.2) Follow the guide on the screen and assemble the required Auto Plate/ Auto Tubes and the assembled spin tip assembled box (NO.8 plate position) to intended plate position.

Auto Plate	Auto Tube
	

(5) After placing all plates at right positions, press “Run” to start the automatic extraction process

Instrument Maintenance

It is important to clean the device after every use If samples or reagents have been spilled, it is important to clean the device immediately to avoid damage or contamination of samples

1. Wear gloves and appropriate personal protective equipment.
2. If the device is used with biohazardous materials, dispose of any cleaning materials used in accordance with your institutional guidelines.
3. The device may go through a run with the magnetic rods unprotected If this happens, the magnetic rod needs to be cleaned immediately.
4. To clean the magnetic rods, wipe with a soft cloth dampened with pure water. Do not use alcohol solvent.

Supporting Info

Service Information

Technical Support

1. Taiwan Advance Nanotech Inc. provides post sales service and technical support in case of any questions, please try to contact our authorized distributor nearest to you or our company for more help.
2. If there is a need to contact us, you can call our rep number at +886-3-3167568 or email us at service@tanbead.com for further assistance.
3. To efficiently solve the problems and answer your questions, please provide us at least the serial number (for instruments), REF and lot number (for reagent kits) when you talk to our technician personnel.

Troubleshooting

Less or no nucleic acid yield in the elute	
Insufficient sample lysis	Generally, after the 56°C incubation step, most of tissue samples should be lysed thoroughly. If not, please check the incubation buffer is not expired, or reduce the sample input.
Improper pretreatment	Please operate the reagent kit according to the workflow shown as page 12.
Improper program	Please make sure the extraction program shown on the instrument panel is the same with that shown in IFU, especially in vapor time before the elution step.

Sample type and status	The long storage time of sample would have negative effect on its nucleic acid yield, length, and quality.
Poor purity, ratio of A260/A280 or A260/A230 is lower	
Insufficient sample washing	Please make sure the extraction program shown on the instrument panel is the same with that shown in IFU, especially in mixing time and mixing speed of washing steps (WB1 and WB2). If this issue caused in certain samples, please check the magnetic rods is function well (like spinning speed and position during the automatic extraction process) at corresponding wells.
Improper measurement calibration	Please calibrate spectrophotometer with the elution buffer supplied with reagent kits. If necessary, you could dilute sample with the same solution and do the quantification.
Magnetic beads remain on the column wall	
Improper delivery	This phenomenon is usually caused by transportation and the extraction performance is unaffected. If required, you could centrifuge the plate/tube at 3000 rpm for 1 min or wash them by using the pipetman to make magnetic beads return to the storage buffer.
Less magnetic beads remain in the elute	
Elution contamination	Once magnetic beads remain in all elutes, it may be due to the contaminants in elution buffers, such as microorganism. Please contact our field application engineer (FAE) by phone (**+886-3-3167568**) or email (**service@tanbead.com**) for further assistance

	immediately.
Improper sample input	If this issue appeared in certain samples, please initiate a new extraction again and check whether the issue is still occurred. In most cases of few magnetic beads found in elutes, you could still use the elute for downstream molecular analyses with unaffected extraction performance.
Amplification failure or unexpected results are found by PCR analysis	
Long amplicon size	Mostly, the extracts contain large gDNA fragments from our electrophresis analysis results.
Cross-contamination between samples	This issue may be caused by sample overloading. Make sure that the amount of sample and elution buffer keeps within the processing volume.
Other questions	
How long is the incubation time for tissue sample when using 6T2 series?	Suggest incubating the sample for more than 1 hour.
What kind of tissue samples have been validated?	TANBead have verified the extraction performance among most of mouse organs, such as lung, liver, spleen and etc.

Ordering Information

Maelstrom 8 / Maelstrom 4800 series

Sample	Description	Test	REF	Cat No.
Blood	Blood DNA Auto Plate	96	M611A46	301126
	Blood DNA Auto Tube	96	M611S46	301127
	OptiPure Blood DNA Auto Plate	96	M61EA46	301128
	OptiPure Blood DNA Bulk Plate	960	M61EA10	301307
	OptiPure Blood DNA Auto Tube	96	M61ES46	301129
	Blood RNA Auto Plate	96	M621A46	301400
	Blood RNA Auto Tube	96	M621S46	301401
Plant	Plant DNA Auto Plate	96	M613A46*	301134
		96	M613A46-SE*	301371
	Plant DNA Auto Tube	96	M613S46*	301135
		96	M613S46-SE*	301372
	Plant RNA Auto Plate	96	M6K3A46*	301383
	Plant RNA Auto Tube	96	M6K3S46*	301384
cfDNA	OptiPure cfDNA Auto Plate	96	M61CA46	301385
	OptiPure cfDNA Auto Tube	96	M61CS46	301389
FFPE	OptiPure FFPE DNA Auto Plate	96	M61PA46	301152
	OptiPure FFPE DNA Auto Tube	96	M61PS46	301153
Virus	OptiPure Viral Auto Plate	96	M665A46	301148
	OptiPure Viral Auto Tube	96	M665S46	301149
	OptiPure Viral Bulk Plate	960	M665A10	301346
	Virapid Virus Auto Plate	96	M685A46	301572
	Virapid Virus Auto Tube	96	M685S46	301573
HPV	HPV Auto Plate	96	M61HA46	301589
	HPV Auto Tube	96	M61HS46	301590
Tissue	Tissue DNA Auto Plate	96	M612A46	301130
	Tissue DNA Auto Tube	96	M612S46	301131
	Tissue Total DNA Auto Plate	96	M6T2A46	301132
	Tissue Total DNA Bulk Plate	960	M6T2A10	301306
	Tissue Total DNA Auto Tube	96	M6T2S46	301133
	Tissue Total DNA Auto Kit	96	M6T2046	301260
	Tissue RNA Auto Plate	96	M6K2A46	301366
	Tissue RNA Auto Tube	96	M6K2S46	301367

Sample	Description	Test	REF	Cat No.
Fungi	Fungi DNA Auto Plate	96	M61FA46	301585
	Fungi DNA Auto Tube	96	M61FS46	301586
Forensic	Forensic DNA Auto Plate	96	M6TFA46	301424
	Forensic DNA Auto Tube	96	M6TFS46	301425
Bacteria	Gram Bacteria DNA Auto Kit	96	M61G046	301257
	Gram Bacteria DNA Auto Plate	96	M61GA46	301138
		96	M61GA46-SE	301294
	Gram Bacteria DNA Auto Tube	96	M61GS46	301139
		96	M61GS46-SE	301295
Plasmid	Plasmid Extraction Auto Plate	96	M6PEA46*	301578
	Plasmid Extraction Auto Tube	96	M6PES46*	301579
Food Feed	Food and Feed DNA Auto Plate	96	M6GMA46*	301635
	Food and Feed DNA Auto Tube	96	M6GMS46*	301636
Environmental Microbiome	Environmental Microbiome DNA Auto Plate	96	M6EMA46*	301641
	Environmental Microbiome DNA Auto Tube	96	M6EMS46*	301642
Stool	Stool Cell DNA Auto Plate	96	M6SCA46	301387
	Stool Cell DNA Auto Tube	96	M6SCS46	301388

Note: black font = IVD and RUO available, blue font = RUO available

Maelstrom 9600 series

Sample	Description	Test	REF	Cat No.
Blood	Blood DNA Auto Plate	96	W611A46	301186
	Blood DNA Auto Tube	72	W611S66	301187
	OptiPure Blood DNA Auto Plate	96	W61EA46	301188
	OptiPure Blood DNA Auto Tube	72	W61ES66	301189
	Blood RNA Auto Plate	96	W621A46	301402
	Blood RNA Auto Tube	72	W621S66	301403
Plant	Plant DNA Auto Plate	96	W613A46*	301194
		96	W613A46-SE*	301379
	Plant DNA Auto Tube	72	W613S66*	301259
		72	W613S66-SE*	301378
	Plant RNA Auto Plate	96	W6K3A46*	301406
	Plant RNA Auto Tube	72	W6K3S66*	301407
cfDNA	OptiPure cfDNA Auto Plate	96	W61CA46	301377
	OptiPure cfDNA Auto Tube	72	W61CS66	301386
FFPE	OptiPure FFPE DNA Auto Plate	96	W61PA46	301629
	OptiPure FFPE DNA Auto Tube	72	W61PS66	301630
Virus	OptiPure Viral Auto Plate	96	W665A46	301224
	OptiPure Viral Bulk Plate	960	W665A10	301345
	OptiPure Viral Auto Tube	72	W665S66	301209
	Virapid Virus Auto Plate	96	W685A46	301574
	Virapid Virus Auto Tube	72	W685S66	301575
HPV	HPV DNA Auto Plate	96	W61HA46	301591
	HPV DNA Auto Tube	72	W61HS66	301592
Tissue	Tissue DNA Auto Plate	96	W612A46	301190
	Tissue DNA Auto Tube	72	W612S66	301191
	Tissue Total DNA Auto Plate	96	W6T2A46	301192
	Tissue Total DNA Auto Tube	72	W6T2S66	301193
	Tissue RNA Auto Plate	96	W6K2A46	301404
	Tissue RNA Auto Tube	72	W6K2S66	301405
Forensic	Forensic DNA Auto Plate	96	W6TFA46	301291
	Forensic DNA Auto Tube	72	W6TFS66	301426
Bacteria	Gram Bacteria DNA Auto Plate	96	W61GA46	301198
	Gram Bacteria DNA Auto Tube	72	W61GS66	301199

Sample	Description	Test	REF	Cat No.
Plasmid	Plasmid Extraction Auto Plate	96	W6PEA46*	301580
	Plasmid Extraction Auto Tube	72	W6PES66*	301581
Food Feed	Food and Feed DNA Auto Plate	96	W6GMA46*	301637
	Food and Feed DNA Auto Tube	72	W6GMS66*	301638
Environmental Microbiome	Environmental Microbiome DNA Auto Plate	96	W6EMA46*	301643
	Environmental Microbiome DNA Auto Tube	72	W6EMS66*	301644
Stool	Stool Cell DNA Auto Plate	96	W6SCA46	301392
	Stool Cell DNA Auto Tube	72	W6SCS66	301391

Note: black font = IVD and RUO available, blue font = RUO available

Consumables

Product Name		Format	Description	Cat No.
	96 deep well plate	Auto Plate	● 100 pcs/carton ● Processing volume 50-1,600 µL ● For molecular diagnostics	083.MWP01.20X
	96 deep well plate (Unique hook design)	Auto Plate	● 100 pcs/carton ● Processing volume 50 - 1,600 µL ● For molecular diagnostics	083.MWP02.20X
	Spin Tips Assembled Box (Unique hook design)	Auto Plate	● 80 pcs/carton ● 96 pcs of spin tips in one box	083.MSP09.10X
	Spin Tips Assembled Box (Unique hook design)	Auto Tube	● 80 pcs/carton ● 48 pcs of spin tips in one box	083.MSP10.10X
	6 tube B	Auto Tube	● 96 pcs/bag, 16 bags/ carton ● Minimal consumable waste	104143
	16-Base B	Auto Tube	● 300 pcs/carton ● Integrate with 6 tube B for small number of tests	104026
	Spin tips	Auto Plate Auto Tube	● 2,000 pcs/bag, 10 bags /carton ● A unique design for maximum mixing efficiency	056.CSM03.111