



Xi'an Tianlong Science and Technology Co., Ltd.

Panall8000

All-in-one Molecular Diagnosis System



TianLong Overseas Marketing and Operation Department
& Overseas Business Department

*Bring
Technology
to Life* 

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Company Introduction

About Tianlong

**Bring
Technology
to Life**

■ Leadership



Founder

- Professor and doctoral supervisor of Xi'an
- Jiaotong University "Changjiang Scholar" of the
- Ministry of Education of China
- Chief scientist of national 863 program and major scientific instruments and equipments special project
- Leading talent of national "Ten Thousand Talents Program"



General
Manager Dr. Li
Ming

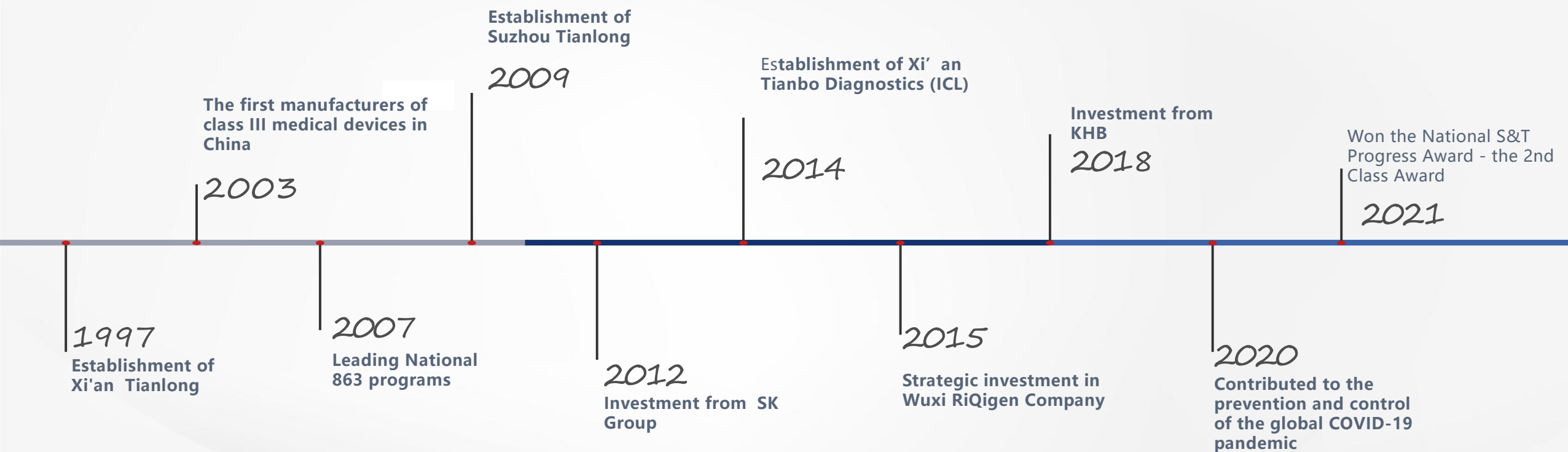


Chief Technology Officer
Dr. Miao Baogang

Prof. Peng Niancai

- National advanced individuals of the private sector in combating the COVID-19
- Winner of National Science and Technology Progress Award
- Winner of National Innovation Award
- The first batch of Three-Qin Talents of
- Shaanxi province Innovative and entrepreneurial talent of Jiangsu province

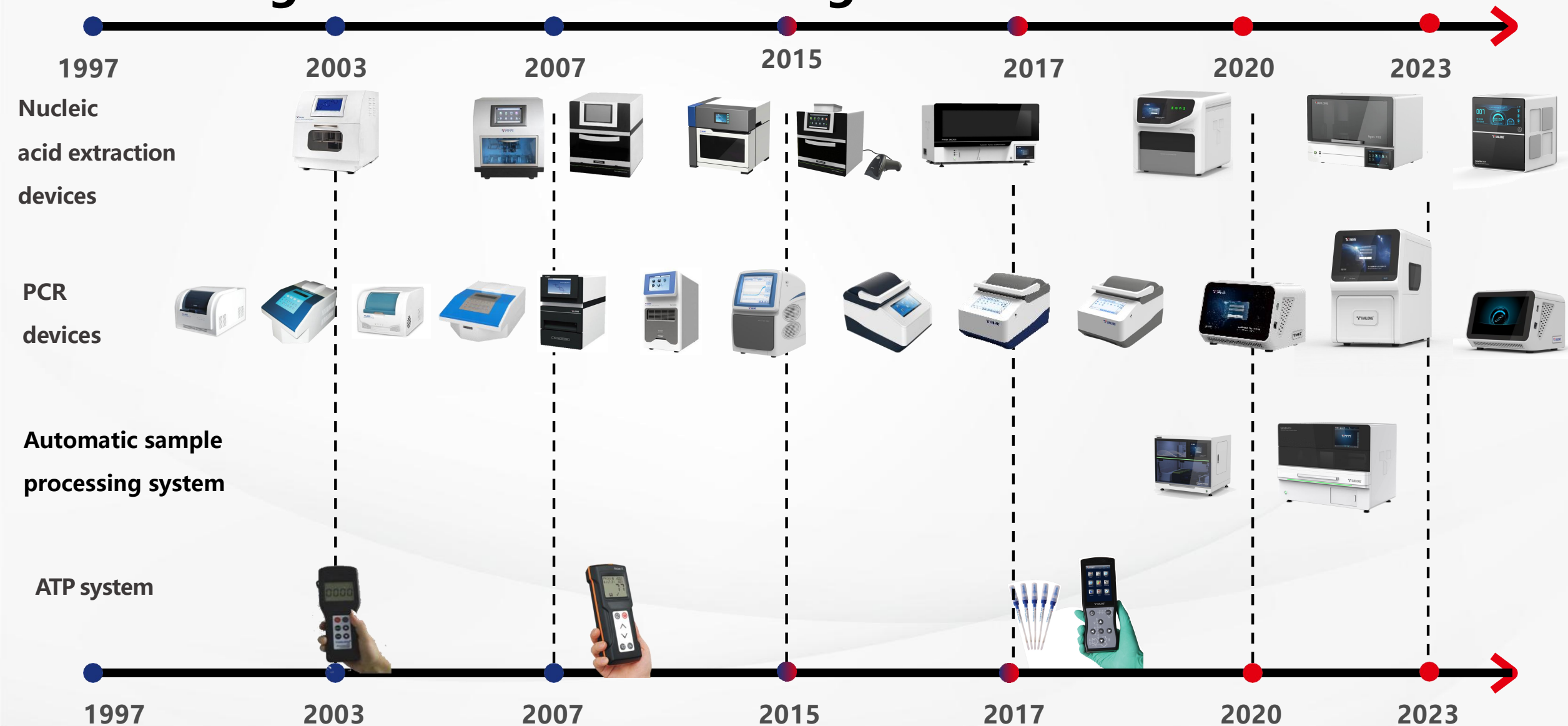
■ Company Introduction



Development Milestones

Tianlong was established in 1997 and created breakthrough products in nucleic acid testing field. We offer solutions including nucleic acid extractors, PCR thermal cyclers, real-time PCR systems, automatic nucleic acid workstations, and hundreds of compatible kits for extraction and detection. Our products have obtained more than 120 international approvals and certifications. They have been marketed in more than 100 countries and regions worldwide. Tianlong's products are now widely used in clinical diagnostics, food safety, and scientific research field.

Tianlong Product Evolution Diagram



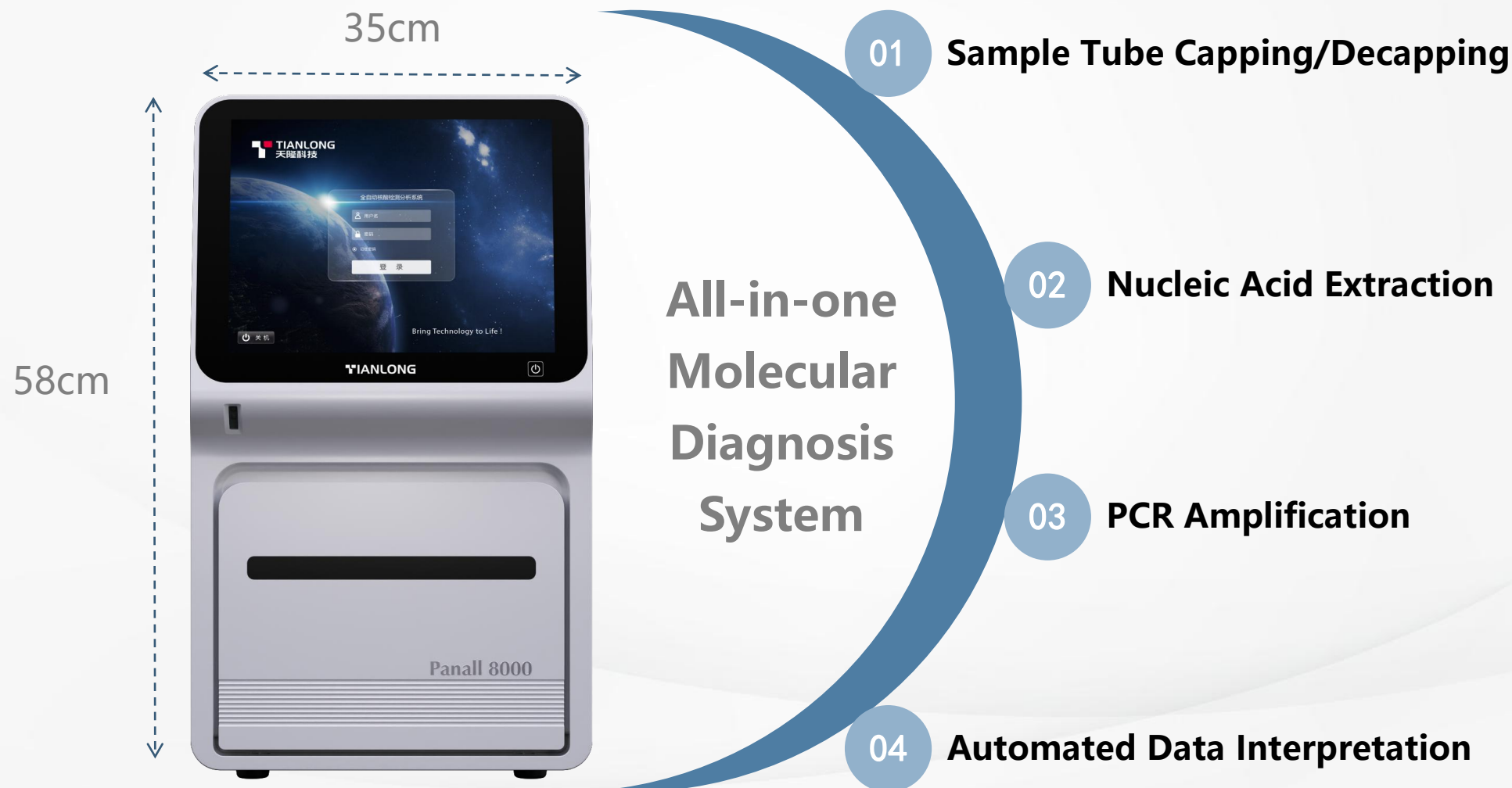
02

Product Introduction

Panall8000



We put a lab into a box.





Panall8000

A complete solution from sample in to result out



Secure and Simple Workflow



Scan

Scan sample tubes using built-in barcode scanner.



Load

Load sample tubes, extraction cartridges and PCR reaction cartridges.



Start

Start the test.

Secure and Simple Workflow

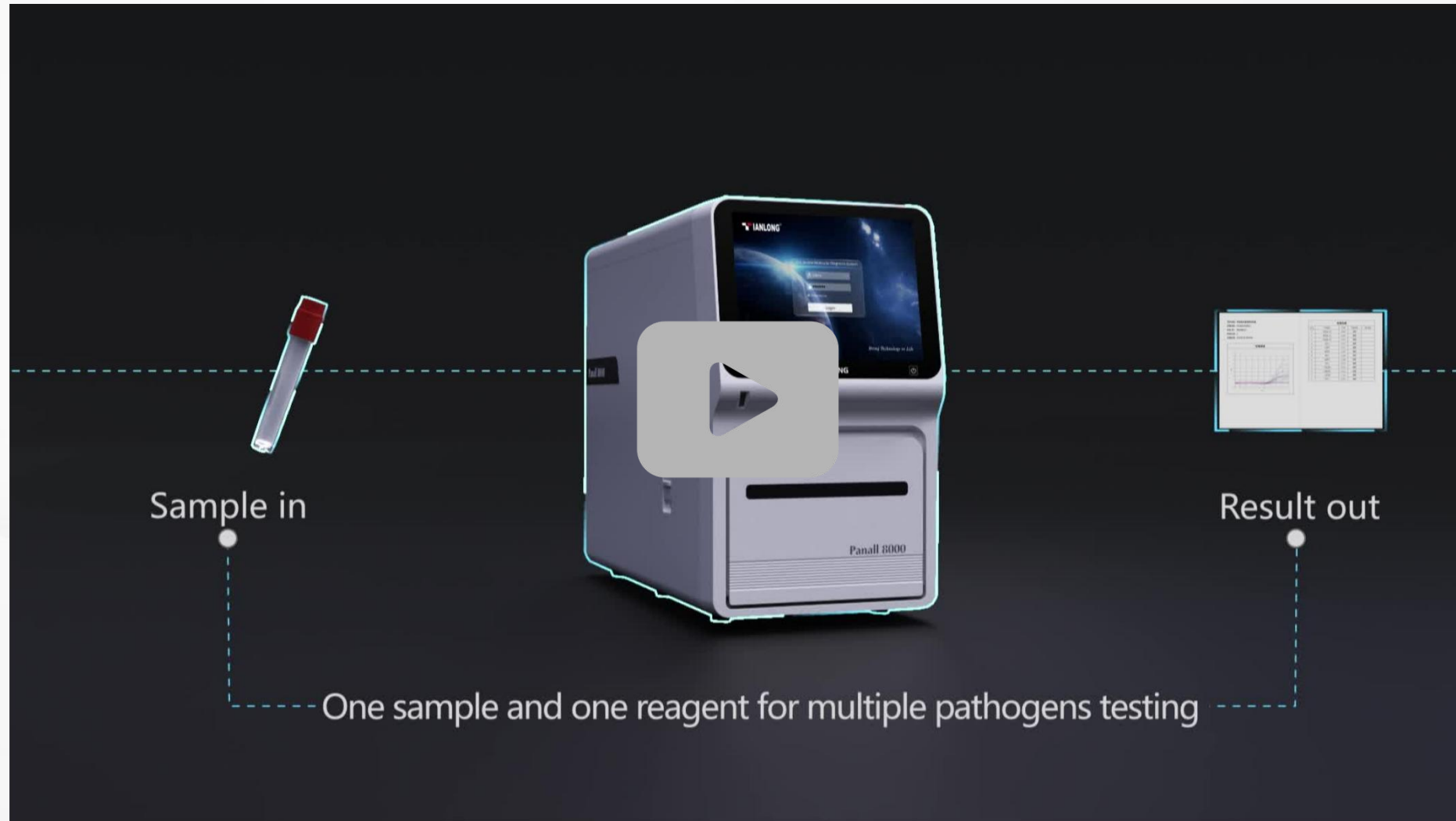
Panall8000





Panall8000

Secure and Simple Workflow





All-in-one Molecular Diagnosis System

**Intuitive
Touchscreen Display**

Laser Barcode Scanner

Front Door

Power Switch

USB Port

Side Buckle

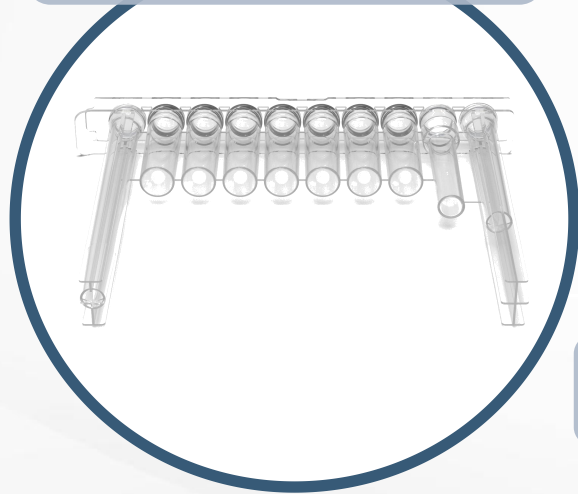




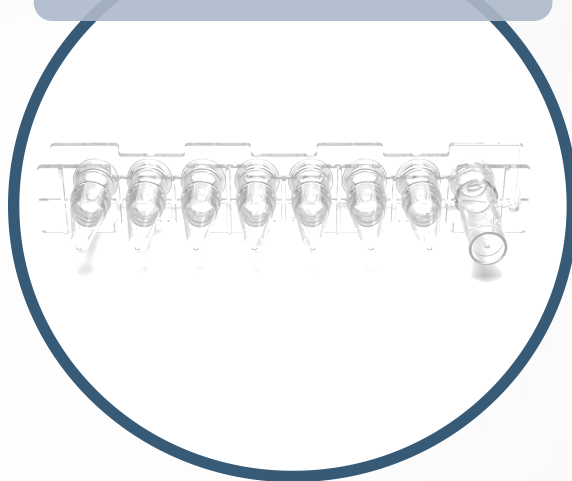
Panall8000

All-in-one Molecular Diagnosis System

Extraction 8 Strip Tube



PCR 8 Strip Tube



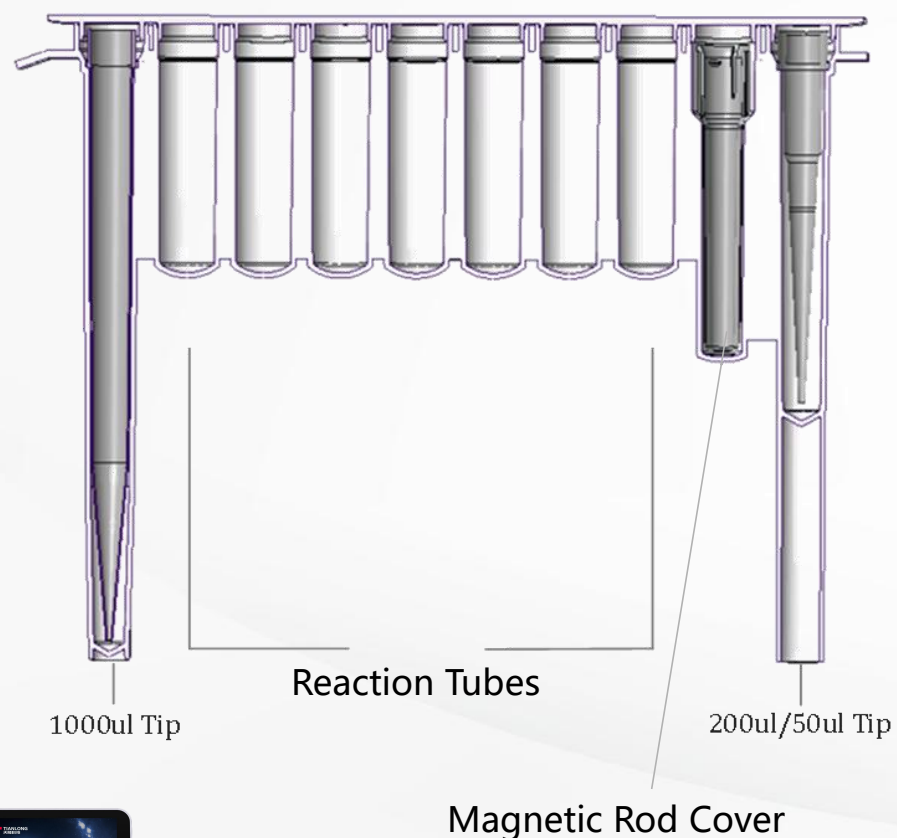
Sample Tube



- 👑 Prepacked reagents
- 👑 Magnetic-bead based nucleic acid extraction
- 👑 Completely closed system
- 👑 High quality results

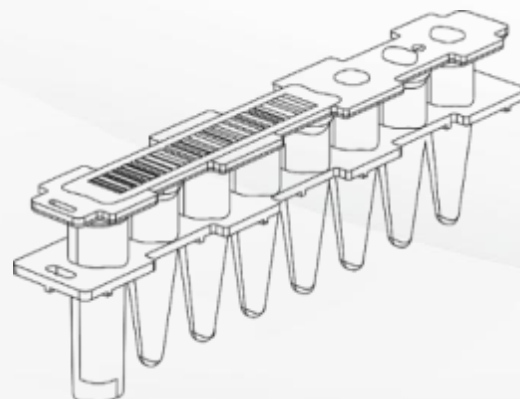
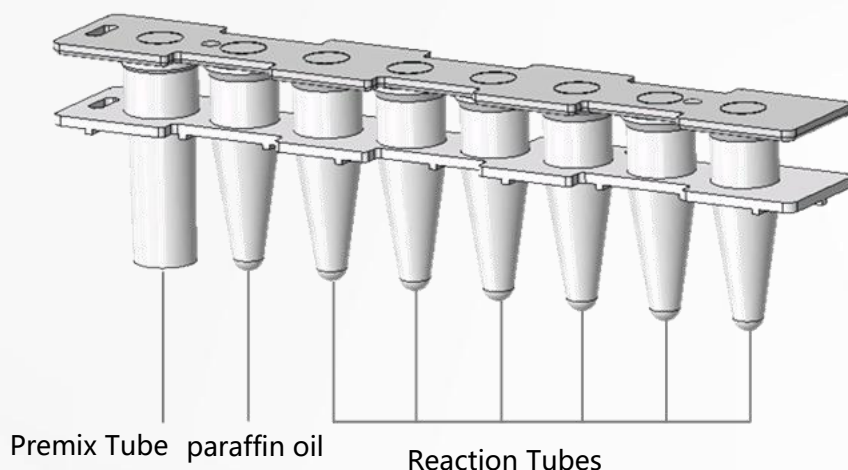


Unique Design of Extraction Cartridge



Pre-filled Extraction Cartridge	
Kit Capacity	24T/kit
Units Per Kit	1T/Strip Tube x 24
Technology	Magnetic Bead Technology
Storage Condition	Room Temperature
Sample Volume	500-600 μ L
Features	<ul style="list-style-type: none">• Prepackaged consumable + reagents in one unit.• Automatically cap and decap.• Closed tube in and closed tube out.• The barcode scanner scans the reagent barcode, identifies the reagent information and calls the corresponding program file.

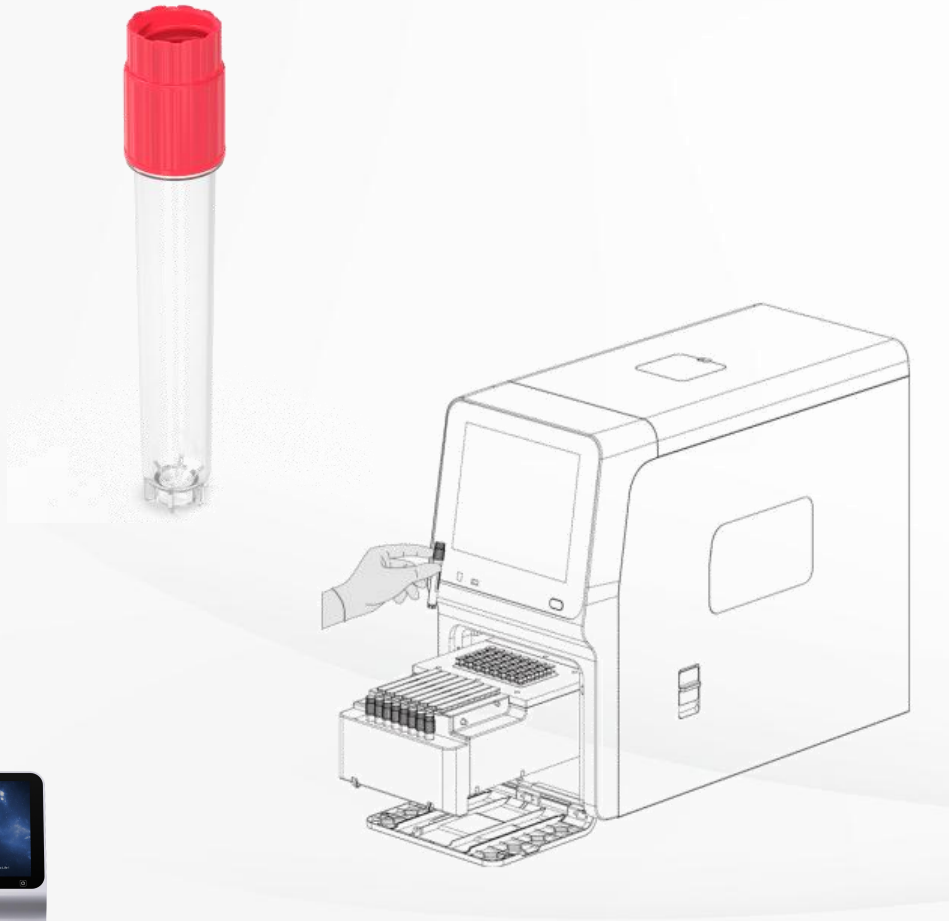
Unique Design of PCR Cartridge



Pre-filled PCR Reagent	
Kit Capacity	24T/kit
Units Per Kit	1T/Strip Tube x 24
Technology	Fluorescence PCR
Storage Condition	Room Temperature
LoD	200 copies/mL
Features	<ul style="list-style-type: none"> • Prepackaged 8-tube strip + reagents are in one unit. • Automatically cap and decap. • Closed tube in and closed tube out. • Contamination-proof: Automatic cap + paraffin oil seal for double protection. • 1-18 targets can be detected simultaneously in one run. • The barcode scanner scans the reagent barcode, identifies the reagent information and calls the corresponding program file.



Sample Tube



Tianlong Swab Tubes

Sample Type	Plasma, Serum, Whole blood, Swab Tube Media
Features	<ul style="list-style-type: none">• Automated decapping and capping design• The Barcode scanner Automatically scans the sample information and matches the corresponding testing results.• The software automatically identifies the sample tube loading position and prompts the reagent loading position on the interface, with wrong position alert design.

Functions and Specifications

Pipetting

- **Pipetting Range:** 10uL~250uL
- **Pipetting Repeatability:**
20 μ L~40 μ L, CV \leq 3.0%
40 μ L~100 μ L, CV \leq 1.5%
Above 100 μ L, CV \leq 1.0%
- **Pipetting Accuracy:**
20 μ L~40 μ L, A \leq 5.0%
40 μ L~100 μ L, A \leq 3.0%
Above 100 μ L, A \leq 1.0%
- **Liquid Level Detection:**
Liquid level detection to ensure high precision pipetting

Extraction

- **Extraction Temperature Control Range:** Room temperature~120°C;
- **Extraction Temperature Ramp Rate:** $\geq 2.0^{\circ}\text{C/s}$
- **Temperature Uniformity:** $\pm 1^{\circ}\text{C}$
- **Temperature accuracy:** $\pm 0.5^{\circ}\text{C}$
- **Lysis:**
Dual-Lysis Heating (for large-scale sample system);
With presetting time and preheating design

PCR

- **Fluorescence:** Four-color fluorescence; bottom scanning
- **PCR Maximum Heating Rate:**
 $\geq 6.1^{\circ}\text{C/s}$
- **Maximum Cooling Rate:** $\geq 5^{\circ}\text{C/s}$
- **Average Heating Rate:** $\geq 5.0^{\circ}\text{C/s}$
- **Average Cooling Rate:** $\geq 2.8^{\circ}\text{C/s}$
- **Temperature Uniformity:** $\pm 0.2^{\circ}\text{C}$
- **Temperature Precision:** $\leq 0.1^{\circ}\text{C}$
- **Temperature Accuracy:** $\leq 0.1^{\circ}\text{C}$

Instrument Performance:

1. Sample Detection Repeatability: The variable coefficient CV of the detection result Ct value \leq 0.5%.
2. The linear regression coefficient $|r| \geq 0.998$.

Note: the final product specifications may slightly differ from the product specifications listed above

Assay Menu

Respiratory

- Influenza A (Flu A)
- Influenza A/ H1
- Influenza A/ H3
- Influenza B (Flu B)
- Respiratory Syncytial Virus (RSV)
- Human Rhinovirus (HRV)
- Adenovirus (ADV)
- Human Parainfluenza Virus 1 (HPIV1)
- Human Parainfluenza Virus 2/4 (HPIV2/4)
- Human Parainfluenza Virus 3 (HPIV3)
- Mycoplasma Pneumoniae (MP)
- Human Metapneumovirus (HMPV)
- Chlamydophila Pneumoniae (CP)
- Humana Bocavirus (HBoV)
- Coronavirus HKU1/OC43
- Coronavirus NL63/229E
- Coronavirus 2 (SARS-CoV-2)

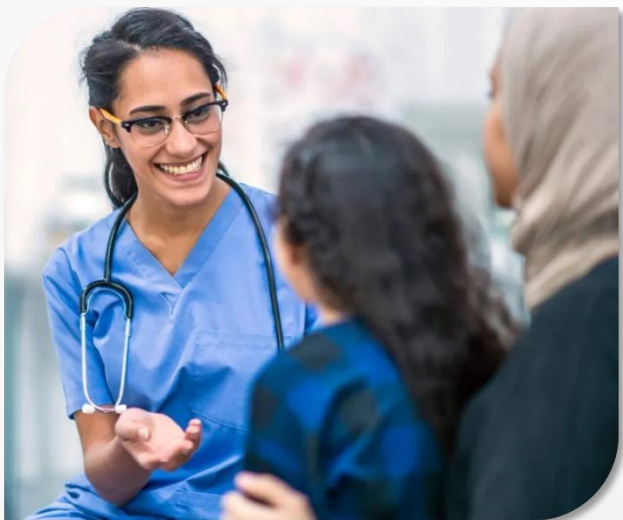
Enteropathogen*

- Vibrio Cholerae
- Vibrio Cholerae Virulence Gene
- Vibrio cholerae O1
- Vibrio choleraee O139
- Salmonella
- Salmonella Typhimurium
- Salmonella Enteritidis
- Salmonella Typhi
- Vibrio Parahaemolyticu/Virulence Gene
- Campylobacter Fetus
- Campylobacter Jejuni
- Campylobacter Coli
- Yersinia Enterocolitica
- Shigella/Enteroinvasive E. Coli & Virulence Gene
- Enterotoxigenic Escherichia Coli/Enteropathogenic Escherichia coli/Enterohemorrhagic Escherichia Coli/Enteroaggregative Escherichia Coli Species-Specific Gene/Virulence Gene

*Assays which are going to be launched



Diagnosis Application



Panall8000 can be widely used in clinical diagnostics, centers for disease control, hospital emergency and research institute.



Technical Specifications

Manufacturer	Tianlong	Roche	Cepheid	Abbott
Model	Panall8000	cobas® Liat® Analyzer	GeneXpert® IV	ID NOW
Throughput	8	1	4	1
Technology	Fluorescence PCR	real-time PCR	real-time PCR	isothermal nucleic acid technology
Test Menu of Respiratory	17	5	5	5
Reagent Storage Condition	Room Temperature	2-8°C	2-28 °C	Room Temperature
Time to result	within 1h-2h depending on the compatible reagents	~20 minutes	20-25 minutes	<13 minutes
Data Exporting	Archive or Export via USB	Archive or Export via USB	Linked with desktop computer/laptop	Archive or Export via USB
Sample Scanner	√	√	√	√
Price		\$25,000	\$28,134	\$60,000

Limit of Detection

The verified LOD concentration for the pathogens is summarized as below:

Pathogens	LOD Concentration	Pathogens	LOD Concentration	Pathogens	LOD Concentration
FluA	200copies/mL	HPIV2	200 copies/mL	CP	200copies/mL
FluB	200copies/mL	HPIV3	200 copies/mL	HBoV	200copies/mL
RSV	200copies/mL	HPIV4	200 copies/mL	HMPV	200copies/mL
MP	200copies/mL	Cor229E	200 copies/mL	FluA/H1	200copies/mL
HRV	200copies/mL	CorNL63	200 copies/mL	FluA/H3	200copies/mL
ADV	200copies/mL	CorOC43	200 copies/mL	SARS-CoV-2	200copies/mL
HPIV1	200copies/mL	CorHKU1	200copies/ mL		

Specificity

To determine the analytical specificity of the kit, 31 on-panel pathogens and 15 off-panel pathogens were tested for any potential cross reactivity. All the viral targets were tested at concentrations of $\geq 1 \times 10^5$ TCID₅₀/mL, all the bacterial targets were tested at concentration $\geq 1 \times 10^6$ CFU/mL. All the pathogen targets were tested in triplicate using three different lots of kits, and **no cross reactivity was observed in the series of studies**. All the on-panel and off-panel pathogens used in this study are summarized as below:

On-Panel Pathogens for Analytical Specificity

Pathogen	Pathogen	Pathogen	Pathogen
InfluenzaAH1N1	InfluenzaB(Yamagata)	ParainfluenzaVirus3	Adenovirus2
InfluenzaAH1N1(09)	RespiratorySyncytialVirusA	ParainfluenzaVirus4	Adenovirus3
InfluenzaAH3N2	RespiratorySyncytialVirusB	RhinovirusA	Adenovirus4
InfluenzaAH5N1	MycoplasmaPneumoniae	RhinovirusB	Adenovirus5
InfluenzaAH7N9	ParainfluenzaVirus1	RhinovirusC	Adenovirus7
InfluenzaB(Victoria)	ParainfluenzaVirus2	Adenovirus1	Adenovirus55
Coronavirus229E	ChlamydophilaPneumoniae	CoronavirusHKU1	HumanMetapneumovirus
CoronavirusOC43	CoronavirusNL63	Bocavirus	



Off-Panel Pathogens for Analytical Specificity

Bacterial	Virus	Fungi
BordetellaPertussis	Cytomegalovirus	CandidaAlbicans
LegionellaPneumophila	HerpesSimplexVirus I	
StaphylococcusAureus	Epstein-Barrvirus	
StaphylococcusEpidermidis	Varicella-ZosterVirus	
StreptococcusPneumonia		
StreptococcusPyogenes		
HaemophilusInfluenzae		
KlebsiellaPneumoniae		
MoraxellaCatarrhalis		
MycobacteriumTuberculosis		

Clinical Studies

Compared to a CFDA-cleared assay, the clinical performance of the TianLong Respiratory Pathogen Multiplex Nucleic Acid Detection Kit for oropharyngeal swabs is presented below:

Performance Compared to CFDA-cleared Comparator

Pathogen	NumberofSpecimens	TP	FP	TN	FN	PPA	NPA
InfluenzaA	1019	59	0	957	3	95.20%	100%
InfluenzaA/H1	1019	20	0	998	1	95.20%	100%
InfluenzaA/H3	1019	39	0	978	2	95.1%	100%
InfluenzaB	1019	63	8	946	2	96.90%	99.20%
RespiratorySyncytialVirus	1019	69	0	948	2	97.20%	100%
Mycoplasmapneumoniae	1019	21	8	991	1	95.40%	99.20%
Adenovirus	1019	46	9	963	1	97.90%	99.10%
Rhinovirus	1019	114	8	894	3	97.40%	99.10%
ParainfluenzaVirus1	1019	20	4	994	1	95.20%	99.60%
ParainfluenzaVirus2/4	1019	11	3	1004	1	91.70%	99.70%
ParainfluenzaVirus3	1019	5	2	1011	1	83.30%	99.80%
CoronavirusHKU1/OC43	1019	27	5	985	2	93.10%	99.50%
CoronavirusNL63/229E	1019	32	7	977	3	91.40%	99.30%
HumanMetapneumovirus	1019	15	3	1000	1	93.80%	99.70%
HumanBocavirus	1019	13	3	1002	1	92.90%	99.70%

03

Application Cases

Application Cases

Global Application

Denmark PentaBase

The Panall8000 All-in-one Molecular Diagnosis System is a user-friendly instrument.

Italy Technogenetics

Thank you very much for the detailed organization of this project, and I'd like to let you know that we're really appreciated the strong support of the Tianlong Team.

Thailand

Panall8000 had been newly installed.

Vietnam An Binh Medical & Science

It has beautiful design, quiet operation, easy to operate and analysis result, and the analysis results are good.

Korean aiGene

Panall8000 had been newly installed. Customer's experiments are in progress

Domestic Application

Beijing

National Institute for Viral Disease Control and Prevention, China CDC

Shaanxi

The First Affiliated Hospital of Air Force Medical University

Zhejiang

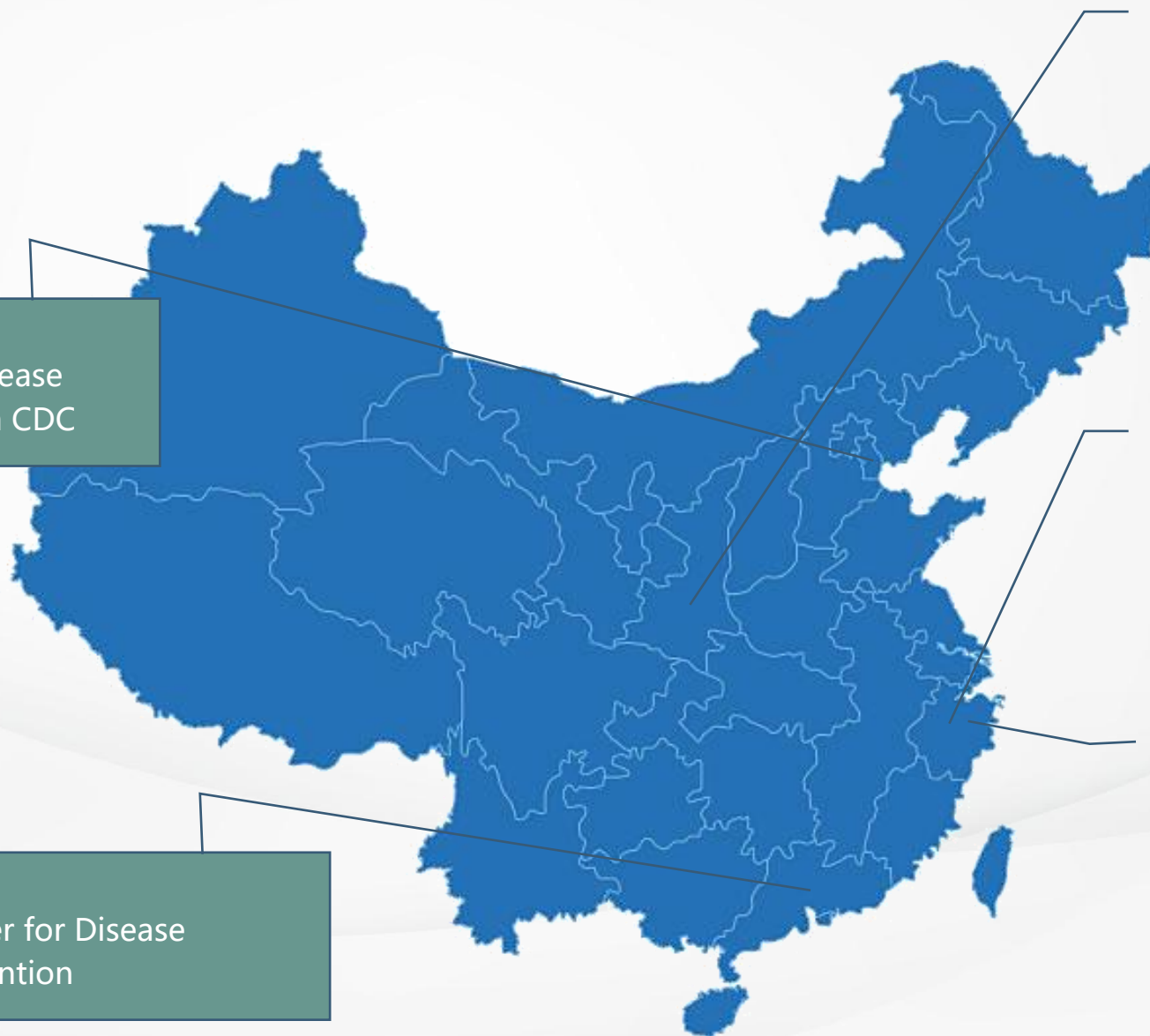
The First Affiliated Hospital of Zhejiang Medical University

Zhejiang Ningbo

The Ningbo Huamei Hospital of Chinese Academy of Science University.

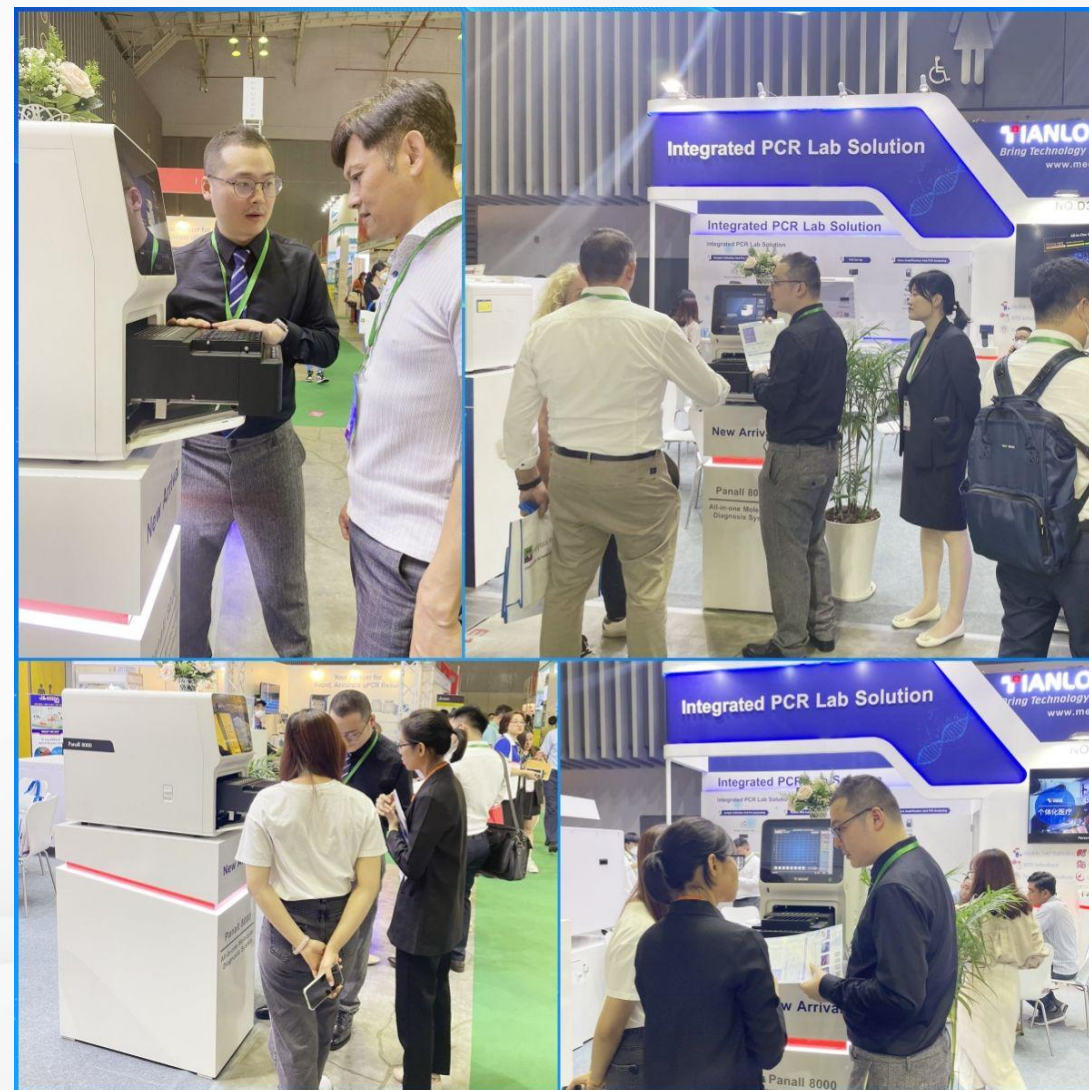
Guangdong

Guangdong Center for Disease Control and Prevention



Panall 8000 Shines at Exhibition Globally

Our new product Panall 8000 All-in-one Molecular Diagnosis System draw great attention from visitors on analytica Vietnam 2023.





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THANKS

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