

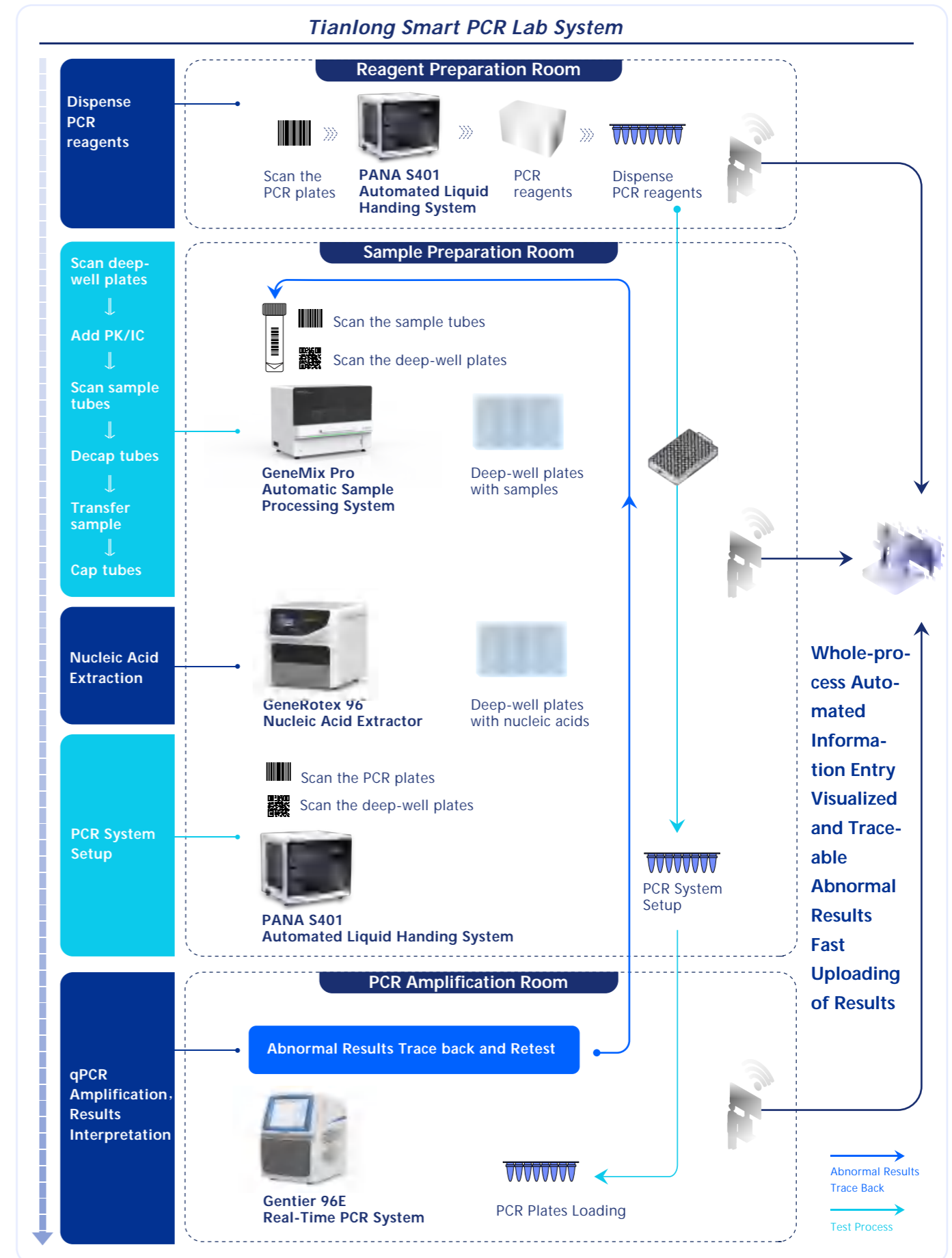


Tianlong develops complete solution for the smart laboratory. With the innovative smart laboratory system and interconnected automatic devices, nucleic acid testing efficiency in the lab can be greatly enhanced and data integrity can be ensured.

Different from traditional PCR laboratories relying on manual and paper-based recording, the smart lab system can keep track of all the samples, and monitor the experiment status in real-time, thus realizing rapid traceability of abnormal test results. The increased connectivity and automation allow labs to work more efficiently, leading to higher-quality data with less human labor and less human error.

Tianlong smart lab solution empowers your lab with minimum expenses and maximum efficiency. It can be cost effective and make your lab more convenient, efficient, and safe.

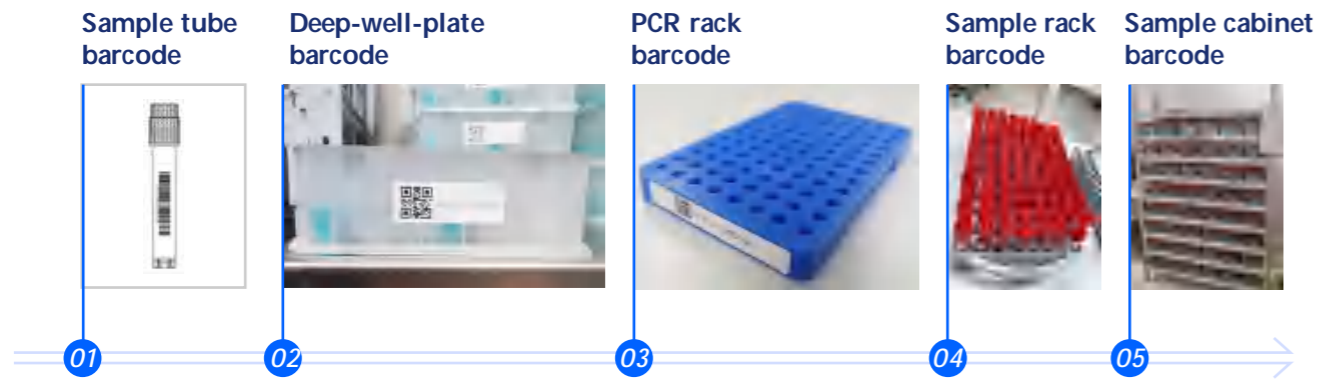
## Overview of Tianlong Smart PCR Lab Solution



# How It Works

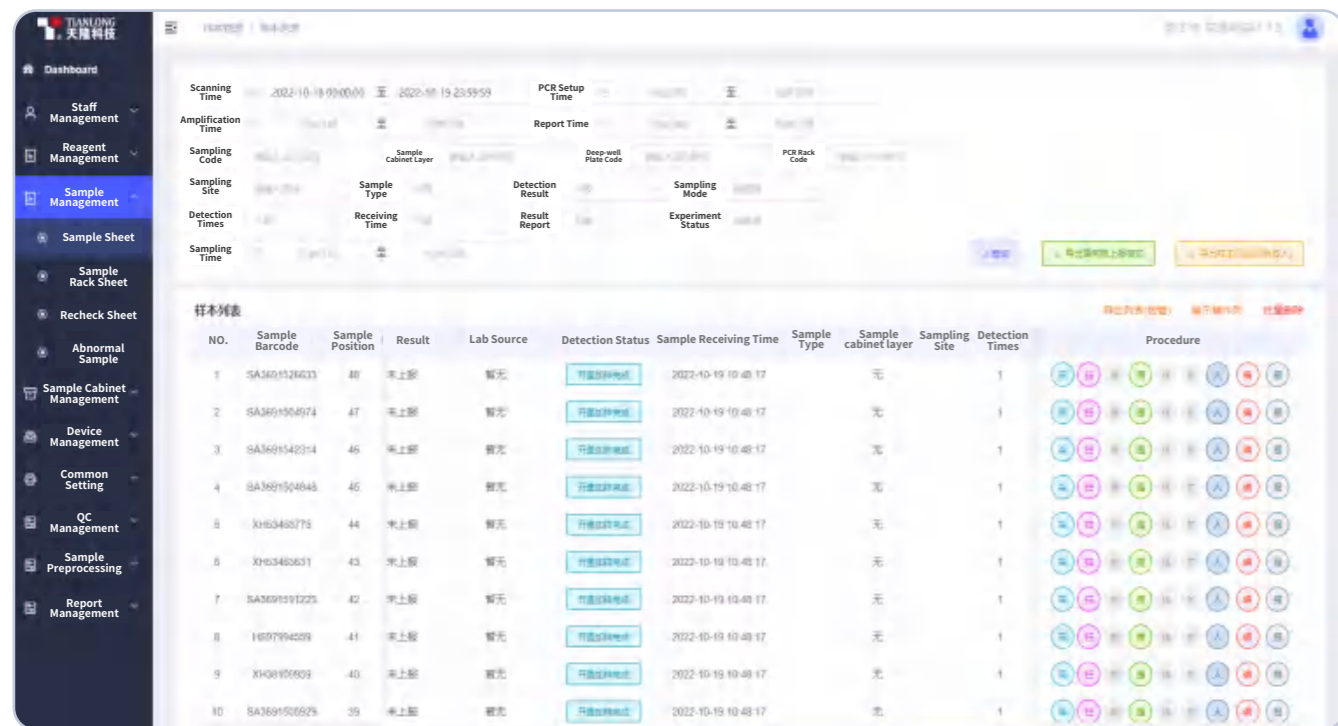
## 01 Sample Transition with Paperless Solution

All reagents, samples, and racks are labeled with a barcode. As the barcode is scanned, it will automatically update in the smart lab system. The paperless workflow can reduce manual costs and avoid human error. The lab efficiency and data integrity can be ensured in operation. It will also be convenient for the traceability of abnormal test results. Professionals can monitor the sample transition status in real time and predict finish time of the experiment.



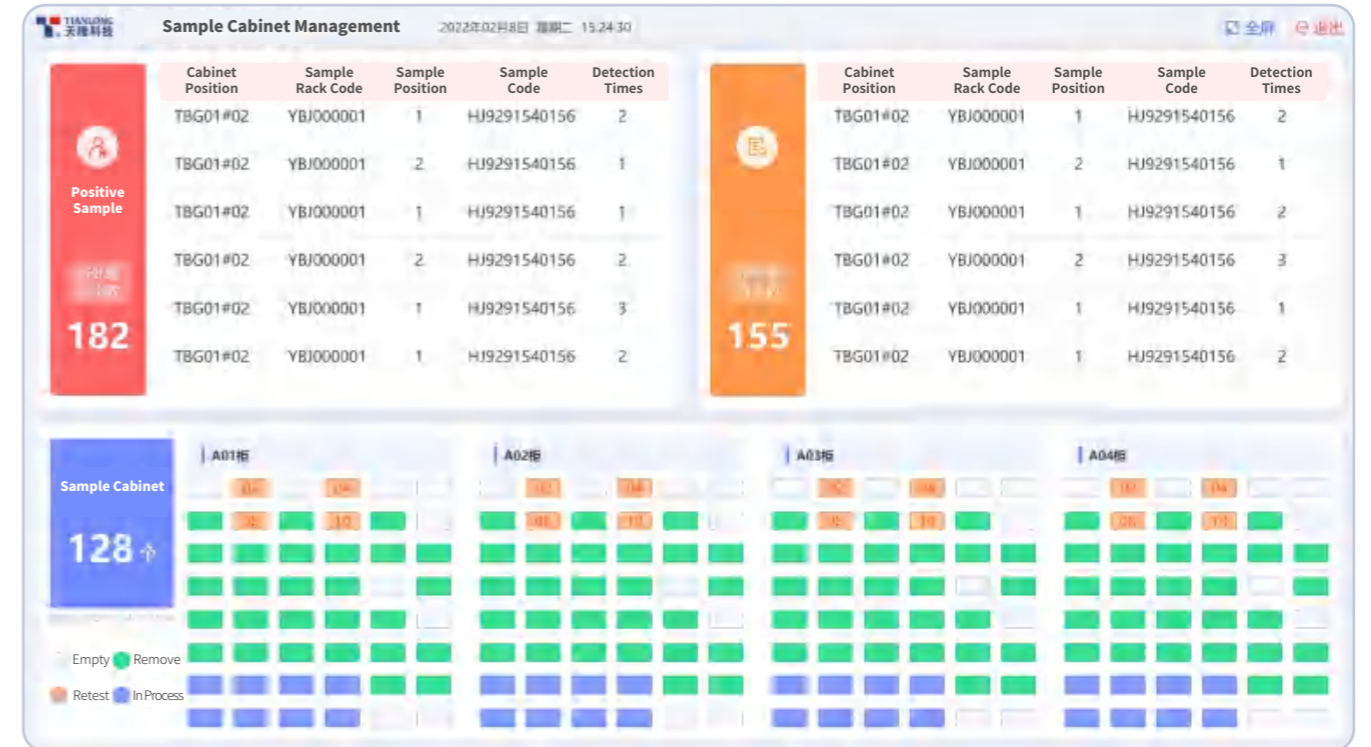
## 02 Visualizing the Working Status of Instruments

"Sample-Deep-well-plate-PCR rack" information is connected. From sample to result, it is in closed-loop management, which makes it easier to locate the sample and rapidly and precisely trace abnormal results. Tianlong's automatic instruments can free professionals from repetitive work and realize a fully automated, high throughput, and standardized process of nucleic acid detection in your lab.

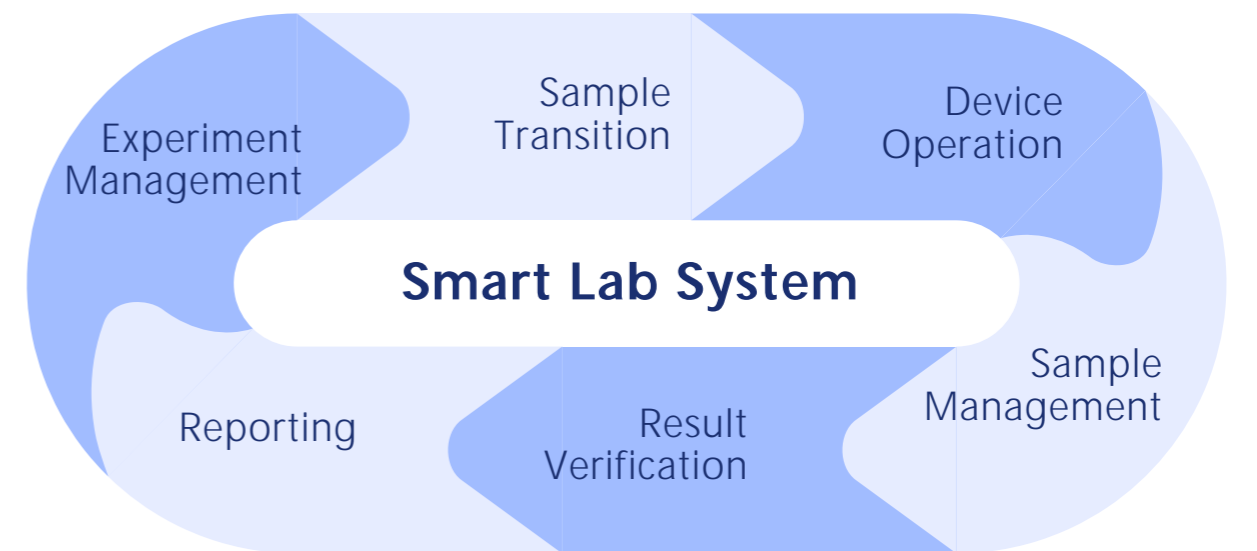


## 03 Reporting Automatically and Positioning Abnormal Samples

The whole experiment process is monitored in the smart system. With no need for tedious and repetitive verification, the test result can be seen from the smart lab software interface and accurately position abnormal samples. The system will send the report automatically and save human labor. Digitalization can greatly enhance the operation efficiency of your lab.



# Tianlong Smart Lab System



- Reduce human cost
- Drive lab efficiency
- Monitoring in real-time
- Closed-loop management
- Safe operation

## Comparison of Traditional PCR Lab and Smart PCR Lab

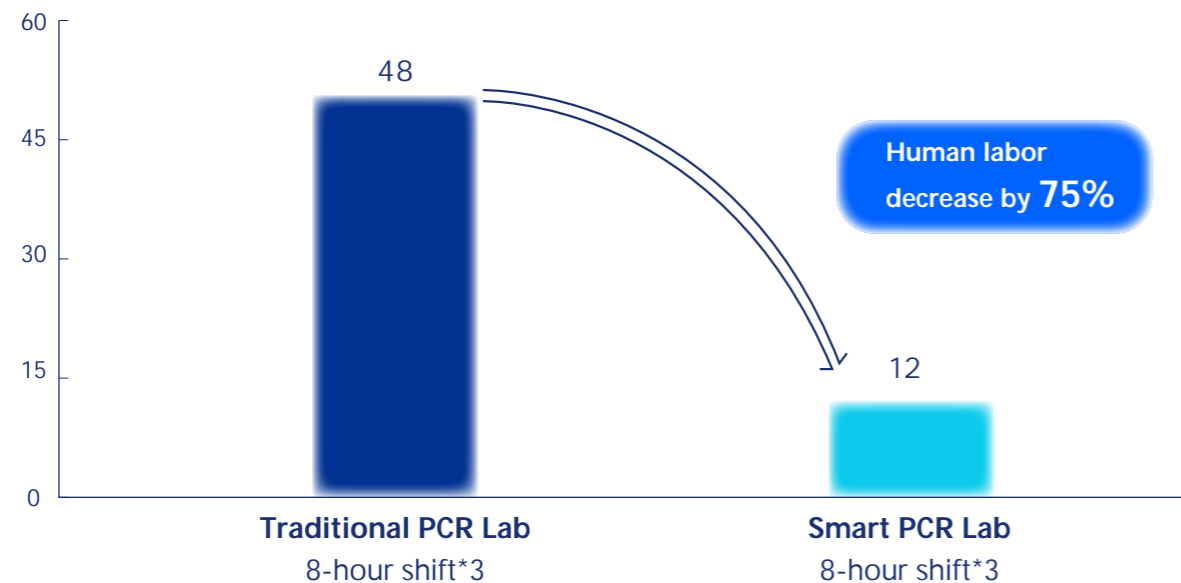
Tianlong smart lab solution can be a perfect solution for massive testing due to its high efficiency. Taking COVID-19 nucleic acid testing as an example, the system can greatly save time and human labor. Below we can explain the smart lab solution in detail based on the testing capability of 10,000 tubes in 24 hours.

Staffing in the Smart PCR Lab and Traditional PCR Lab

Laboratory Area	Traditional PCR Lab	Smart PCR Lab
	8-hour shift*3	8-hour shift*3
Sample Preprocessing	3 professionals*3shift	0 professional*3shift
Reagent Preparation Room	2 professionals*3shift	1 professional*3shift
Sample Preparation Room	6 professionals*3shift	3 professional*3shift
PCR Amplification Room	3 professionals*3shift	0 professional*3shift
Reporting	2 professionals*3shift	0 professionals*3shift
<b>Total</b>	<b>48 professionals/day</b>	<b>12 professionals/day</b>

\*In smart lab, 1 staff can take turns to work in reagent preparation room and PCR amplification room.

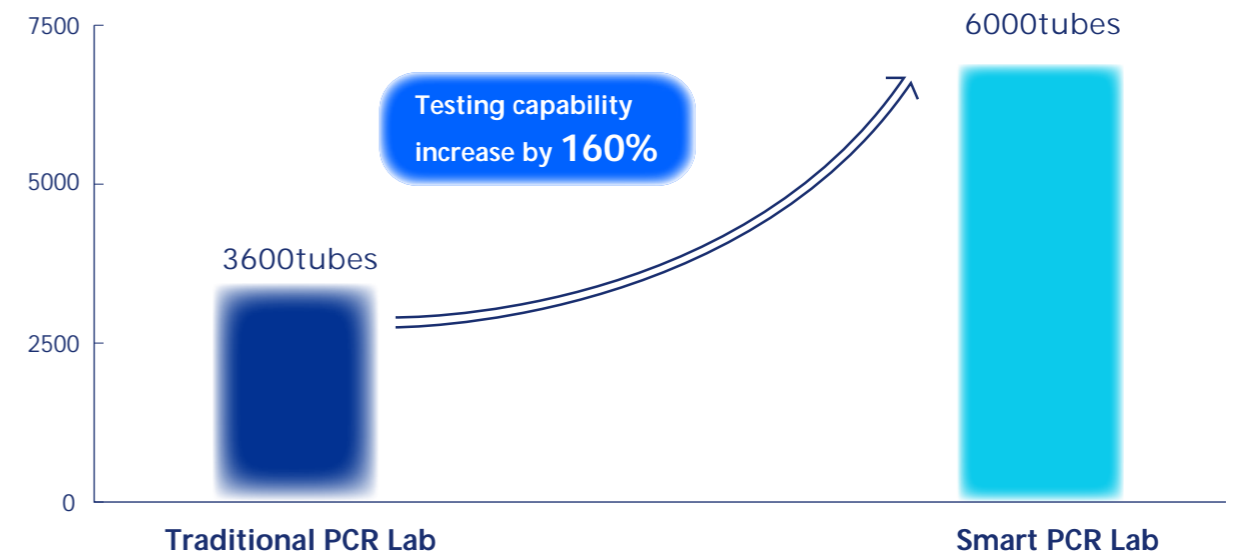
Staffing Comparison



Testing Capability in the Smart PCR Lab and Traditional PCR Lab

Lab Type	Instrument	Quantity (set)	Sample Throughput/8h (in theory)	Number of Professionals
Smart PCR Lab	Sample Processing System (GeneMix Pro)	3	6000 tubes	4
	Nucleic Acid Extractor (GeneRotex 96)	3		
	Liquid Handling System (PANA S401)	1		
Traditional PCR Lab	Biosafety Cabinet	/	3600 tubes	16
	Nucleic Acid Extractor (GeneRotex 96)	3		

Testing Capability Comparison in 8 hours



## The Benefits of Tianlong Smart PCR Lab Solution

- 01 Good compatibility**  
 The Tianlong smart PCR lab solution excels at compatibility since Tianlong can provide both the hardware and software for your laboratory. The integration of the smart lab system and the connected instrument can maximize resources by making the best use of people, space, and equipment.
- 02 Reduce human cost**  
 Paperless recording removes manual, error-prone workflows. The instrument can automate laboratory workflow and improve efficiency and safety for medical professionals. Take massive COVID-19 testing for example, 75% of human labor can be saved with Tianlong's smart lab solution.
- 03 Visualizing and monitoring in real-time**  
 The information of the "Sample-Deep-well-plate-PCR rack" is connected by the barcode. The whole process is visualized by the system. Professionals have an unprecedented view of everything that is happening in the lab.
- 04 Drive lab efficiency and ensure data integrity**  
 The smart lab system can deliver testing reports automatically and ease the workload of professionals. The increased connectivity and automation allow labs to work more efficiently, leading to higher-quality data with less human labor and less human error.
- 05 Rapid traceability of test results**  
 The smart system can keep track of all the samples in a closed loop, and monitor the experiment status in real-time, thus improving the rapid traceability of abnormal test results.

## Application Case

### 01 Tianlong smart lab solution applied in public hospitals in China



Beijing Tsinghua Changgeng Hospital  
 Landing container mobile laboratory (two cabins).  
 Daily testing capability can be up to 10,000 tubes per day in each cabin.



Beijing Children's Hospital  
 Landing container mobile laboratory (two cabins).  
 Daily testing capability can be up to 10,000 tubes per day in each cabin.

### 02 Tianlong smart lab solution applied in government nucleic acid testing base



Xi'an, China  
 2 sets of inflatable mobile laboratory.  
 Daily testing capability can be up to 130,000 tubes per day.



Guiyang, China  
 5 sets of inflatable mobile laboratory.  
 Daily testing capability can be up to 250,000 tubes per day.

