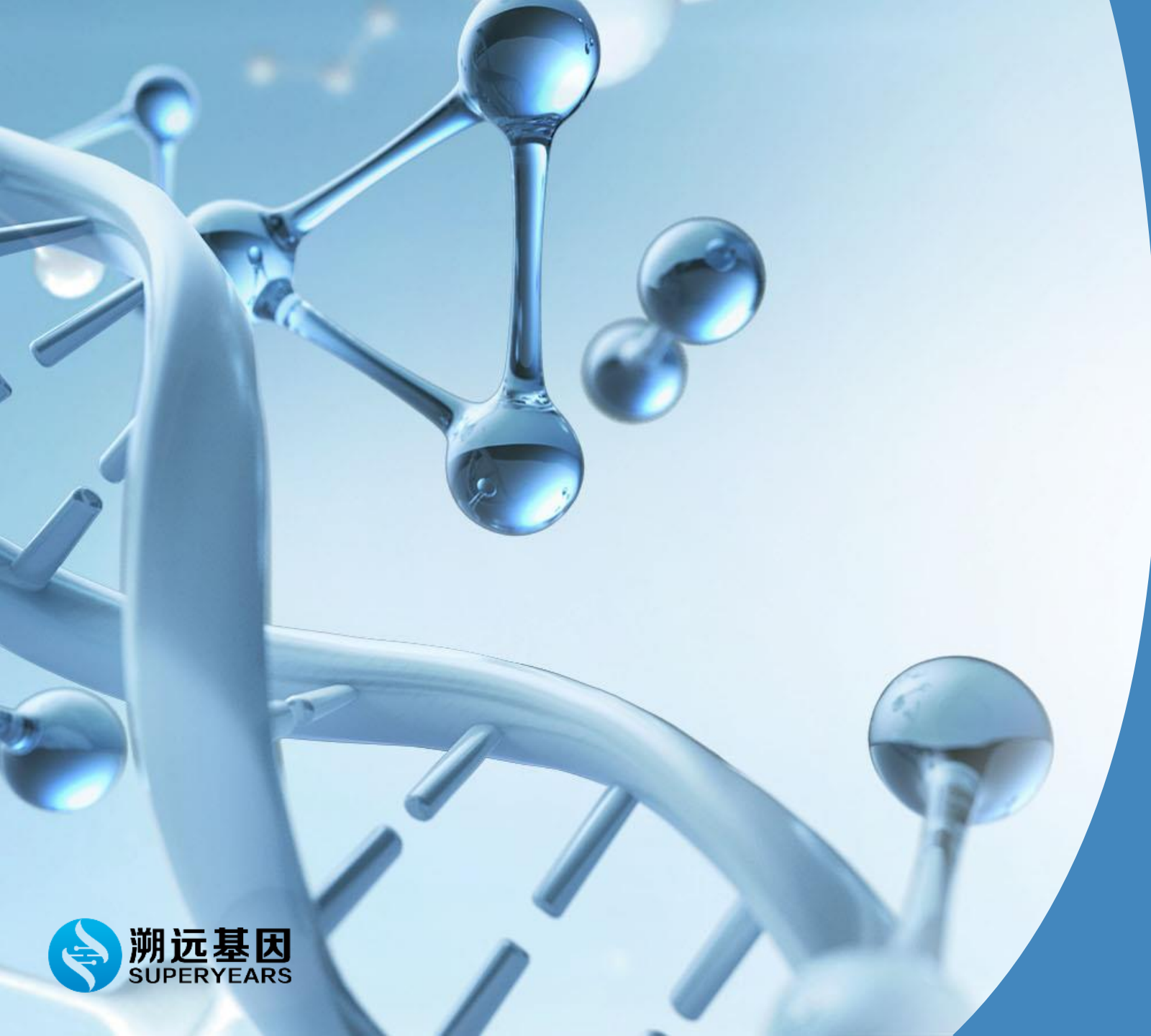




# Honor Series Genetic Analyzer

2021.9.27



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- Company Profile
- Market background and application
- Product Introduction
- Product Advantage
- Experimental Results Demo

*01*

# Company Profile

# Company Profile



Nanjing Superyears Gene Technology Co., Ltd. “Superyears Gene” as shown below, Found in September 2017, Superyears Gene is focused on high-end scientific instruments which integrate with self-sufficient R&D and manufacture. It is an innovation-driven and high-tech company. Superyears Gene is based on the Sanger Sequencing platform, using state-of-the-art Eight-Color technology. It has broken the long-term monopoly pattern of foreign enterprises in this field and achieved a milestone breakthrough of Sanger sequencing in China. Superyears Gene company will uphold the craftsmanship spirit of innovation, high efficiency, hard-working, mutual benefit, and win-win cooperation to give a national brand image as its mission in bioscience on the global stage.



# Company Development History



2017

Superyears Gene Established



2018

- The world's first Honor 1616 Sequencer analyzer success developed (6-color Fluorescence)
- Honor 1616 Genetic Analyzer approved by the Public Safety Certification Center of Ministry of Public Security
- The world's first Honor 1816 Sequencer analyzer success developed (8-color Fluorescence)



2019

- Capillary electrophoresis full-automatic Instrument Nova awarded Class I medical device registration certificate
- Awarded as the National High-tech enterprise



2020

- qPCR Instrument developed
- Classic116、108 Genetic Sequencer Instrument rewarded as the Class II medical device registration certificate
- Honor 1816 Genetic Analyzer approved by the Public Safety Certification Center of Ministry of Public Security



2021

- Honor1824 Genetic Analyzer developed successfully
- Estimated to complete A round Financial Founding



**Dr. Lv Hua**

**Co-founder and Chief Scientist**

Biological optics and microfluidic technology expert, Post-doctorate in the Department of Physics and Biochemistry, University of Leeds, UK. He is an associate professor at Southeast University in China. His Research mainly focuses on the high sensitivity detection of bio-molecule field. He led the Research and development of the first new generation of high-throughput Genetic sequencers in China. He presided over or participated in many projects of the National Natural Science Foundation of China and 863 projects.



**Dr. Xiang Guobing**

**Chief Technology Officer**

Molecular Diagnostic Reagent Research and Development Expert, Ph.D. in bio-organic Chemistry, Boston College, experienced in genetic testing equipment and reagents, R&D Management, used to be ABI/Life Technology Chief Scientist, Ion Torrent Sequencer R&D Chief Scientist, and Hanhai Gene Chief Scientist



**Dr. Zhu Jijun**

**Co-founder and Deputy General Manager of R&D**

Engineering automation and medical device technology development expert, the Doctor of Engineering of the Nanjing University of Aeronautics and Astronautics (NUAA). An associate professor and Head of the Medical device Institute at the Southeast University. The research focuses on micromachining, microfluidic related bio-mems system integration technology, vacuum arc ion modification and related surface modification and engineering evaluation, medical biochemical analysis instrument integration, high sensitivity optical detection technology



**Dr. Ji Shaoping**

**Section Leader of the Life-science Reagent**

Doctor of Chemistry and Molecular Biology in the Air Force Medical University (the Fourth Military Medical University), master's degree in the Institute of Basic Medical Science of the military Medical Sciences. He used to work in The Fourth Military Medical University, University of Saskatchewan, and as a distinguished Professor and Yellow River Scholar, He presided over the national 973 and 863 plan/ Project.





# Honorary certificate




Superyears Gene has established a completed ISO 9001 and ISO13485 quality management system, with a medical device registration certificate, CE certification, the Ministry of Public Security Testing report. Superyears gene has passed the information security management system certification, environmental management system certification, occupational health management system certification. The company has applied for 49 intellectual property rights, including 1 PCT patent, 15 invention patents (2 have been authorized), 29 utility Brandnew models (17 have been authorized), and 4 software Copyrights. Superyears gene has won several honorary titles such as National High-tech Enterprise, Small and Medium-size Science and Technology enterprise in Jiangsu province, and Nanjing small and medium-size enterprise with honorary titles "Specialization, Refinement, Characteristic, Novel"




 Honor1616/Honor1816  
Safety and Police Electronic  
Products Testing Center of the  
Ministry of Public Security approved  
the quality test

 ISO  
ISO9001  
Quality  
management  
system certification

 ISO  
ISO13485  
Quality management  
system certification

 EU CE Certification

 Authentication of  
information security  
management system

*01*

# Market background and application



# PESTLE ANALYSIS

## Political

The Regulations of *the People's Republic of China on The Management of Human Genetic Resources* came into force on July 1, 2019

According to the notice of "*Key Criminal Technology Project and Key Promotion Project*" *Double Ten Plan*", the state is highly dependent on imported equipment and reagents for the difficulty in case identification of public security inspection work. The implementation of home-made substitution, comprehensively improve the ability level of public security inspection and identification work.

## Technological

Broader molecular markers :WGS for clinical use, identification of disease-causing mutations in non-coding regions, etc.

Microscopic High resolution: Gene sequencing down to the level of single cells, with microfluidic, photoconductive and micropore analysis system to achieve higher resolution; Single cell sequencing has made significant breakthroughs in tumor microenvironment, tumor immunity and cell therapy, and viral antigen sequences.

The first domestically developed single-molecule nanopore sequencer was launched in China in 2020

## Economical

According to the forecast of global economic growth released by The *International Monetary Fund (IMF)* in October 2020, the global GDP growth rate in 2020 is -4.4%. Since the Great Depression in the last century, China is the only major economy that IMF believes will achieve economic growth this year. Growth is expected to be 1.9 percent.

In 2020, there were 127 cases of financing for domestic gene industry in 2020, with a total amount of 38.664 billion YUAN (CNY), with a year-on-year growth of more than 100%. Foreign gene industry financing in 2020, a total of 115 cases, a total amount of \$7.864 billion.

## Legal

In January 2016, the *National Development and Reform Commission (NDRC)* officially issued the "13th Five-Year plan" for biological Industry Development, which mentioned in the development goals that genetic testing capability should be realized. Coverage of more than 50% of births.

The Ministry of Finance and the Ministry of Industry and Information Technology jointly issued the "*Guidance Standard for Government Procurement of Imported Products*" (2021 ed.) notice requiring 100% purchase of all 137 medical devices from domestic;

## Social

The epidemic has increased China's investment in the prevention and control system of infectious diseases.

In 2018, China spent 1.6 trillion yuan (CNY) on public health, accounting for only 1.7% of GDP. There is huge room for "quality investment" in China's existing medical and public health systems

## Environmental

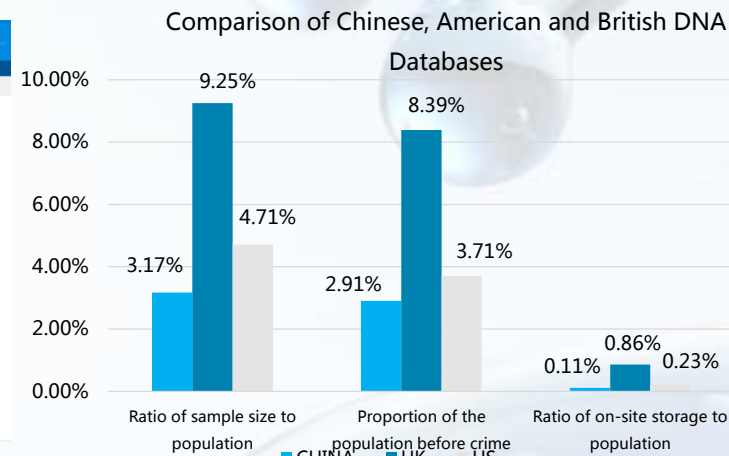
The 2020 COVID-19 pandemic has brought unprecedented attention to the fundamental and translational research of life sciences and medicine, especially gene technology.

In November 2020, the National Human Genome Research Institute (NHGRI) released a new round of strategic vision planning after 2003 and 2011.

# Public security direction of application -DNA database

Forensic DNA detection has become an indispensable tool in modern forensic identification, and gene sequencer is a necessary testing instrument. The penetration rate of forensic DNA testing in China is lower than that in Europe and the United States. Driven by the market-oriented reform of judicial identification, forensic DNA testing will become the next blue-ocean market of ten billion yuan, which will promote the demand for gene sequencing equipment.

Ministry of Public Security deployment: by the end of 2020, the initial completion of "National Male Family Screening System construction project" part of the policy documents and bidding documents



爆点	Application	EST. Unit price	EST. Sales Volume	EST. Market Scale
Establishment of DNA database of Ministry of Public Security	Criminal detection	100-150	8 Million / Year	2018-2020 , 10 billion Market Scales in total
Newborn Gene bank	Health check of newborn babies, anti-trafficking	1200	16-18 Million /Year	20 Billion/ Year
Genetic Relationship	Household registration	800-1800	65 Million/ Year	10 Billion Market Scales in total

# OTHER APPLICATIONS

## Medical clinical

-Medicine can be used for reproductive genetics, tumor drugs, pathogen typing, new drug development etc.



## Public Security Judicial

- Paternity identification
- Individual identification
- Establishment of genetic files
- Paternity and Maternal identification, etc.

## Research Institutes

-Research institutes carry out gene analysis, complex genome sequencing determination, bacterial and fungal identification, rapid scanning of gene mutations, methylation research, etc.



## Food Safety

- Identification and analysis of food microorganisms,
- Identification of genetically modified ingredients in food,
- Detect the unknown pathogens,
- Food Variety authenticity identification, etc.

02

# Product Introduction

## Honor Series Genetic Analyzer (Forensic Genetics Analyzer)

Support DNA sequencing and Fragment Analyzing Functions

Ministry of Public Security security and police electronic products certification



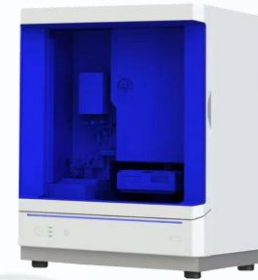
**Honor1616**

**6 COLOR 16 CHANNELS**



**Honor1816**

**8 COLOR 16 CHANNELS**



**Honor1624**

**6 COLOR 24 CHANNELS**



**Honor1824**

**8 COLOR 24 CHANNELS**

- **6 colors, 8 colors:** It related to the number of the sites detected at one-time test, 6 colors detect sites up to 40, 8 colors detect sites up to 70;
- **16, 24 channels:** It related to the number of samples tested at a time, 16 channels analyzed DNA fragment samples up to 16 samples at one-time test, 24 channels analyzed DNA fragment samples up to 24 samples at one-time test;

# Components of the system

Honor Series Genetic Analyzer Components of the following parts



Capillary  
electrophoresis  
mainframe



Capillary tube,  
Consumables



Gel Polymer,  
Reagent.  
Consumables



Desktop  
Computer  
and Monitor



Data Collection  
and Data  
Analysis  
Software

# The inner structure of Capillary Electrophoresis host

Oven

Laser

Manipulator



Polymer Pump

Upper Polymer tube

Polymer bottle

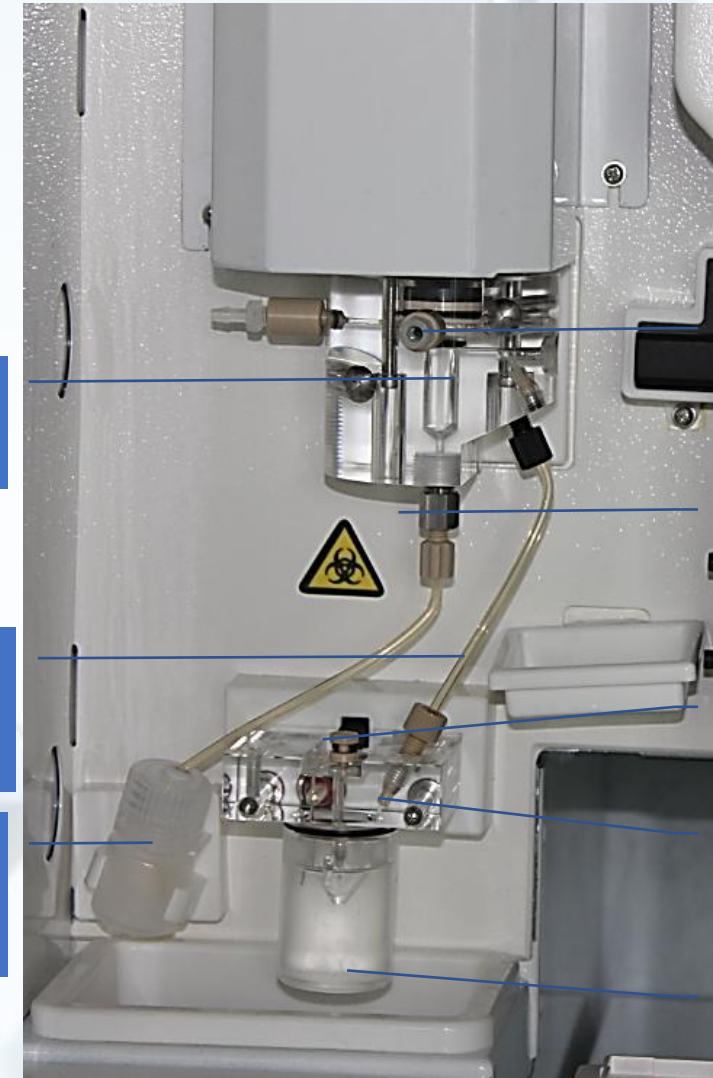
Array port

Polymer tube

Anode valve

Lower polymer block

Anode cup



# Consumables and Reagents

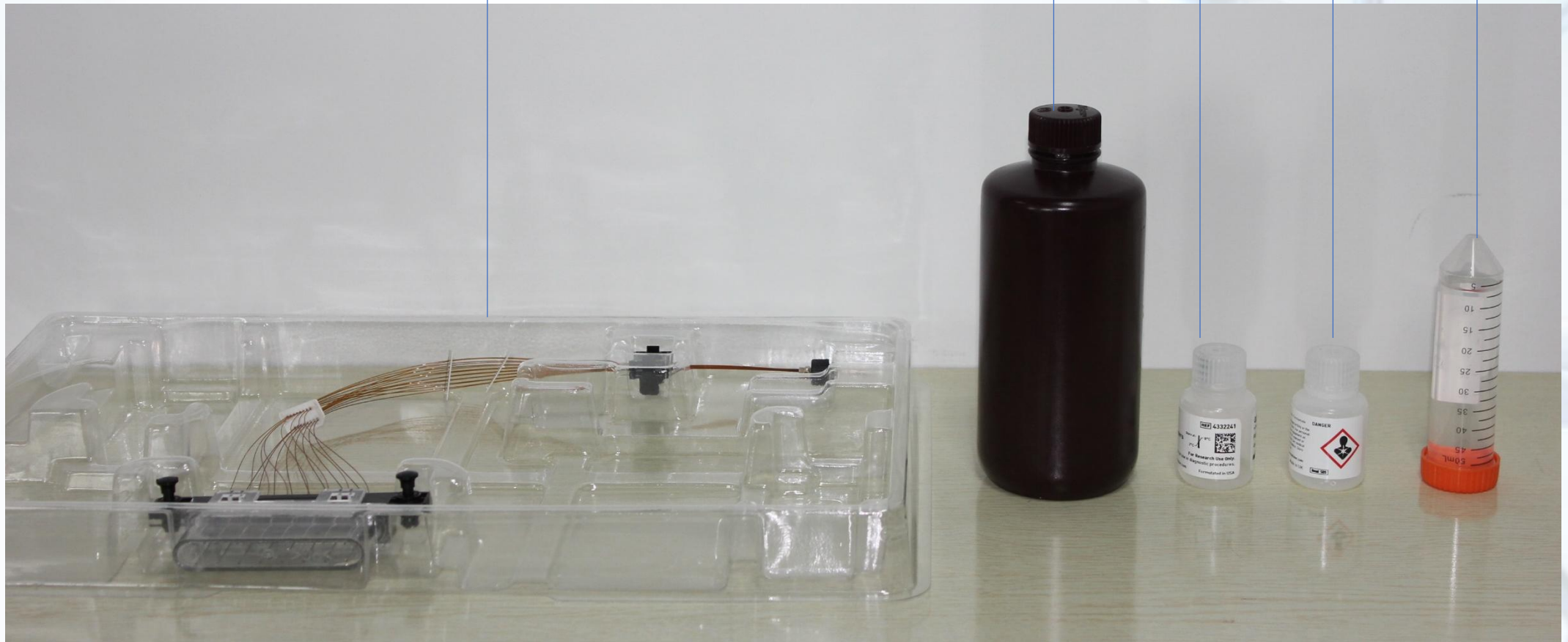
Capillary  
Tube  
(36cm)

Buffer  
solution

Pop4  
Gel

Hi-Di  
Formamide

Deionized  
Water

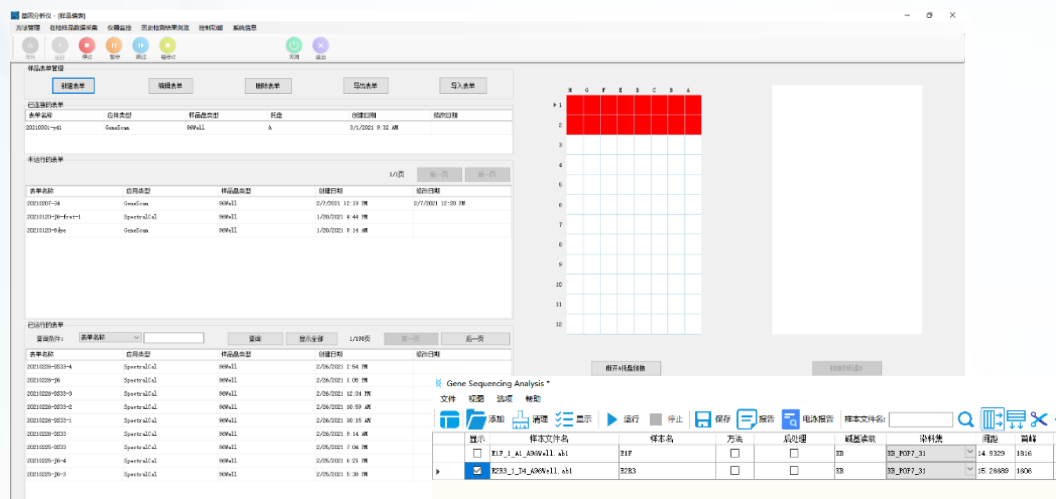




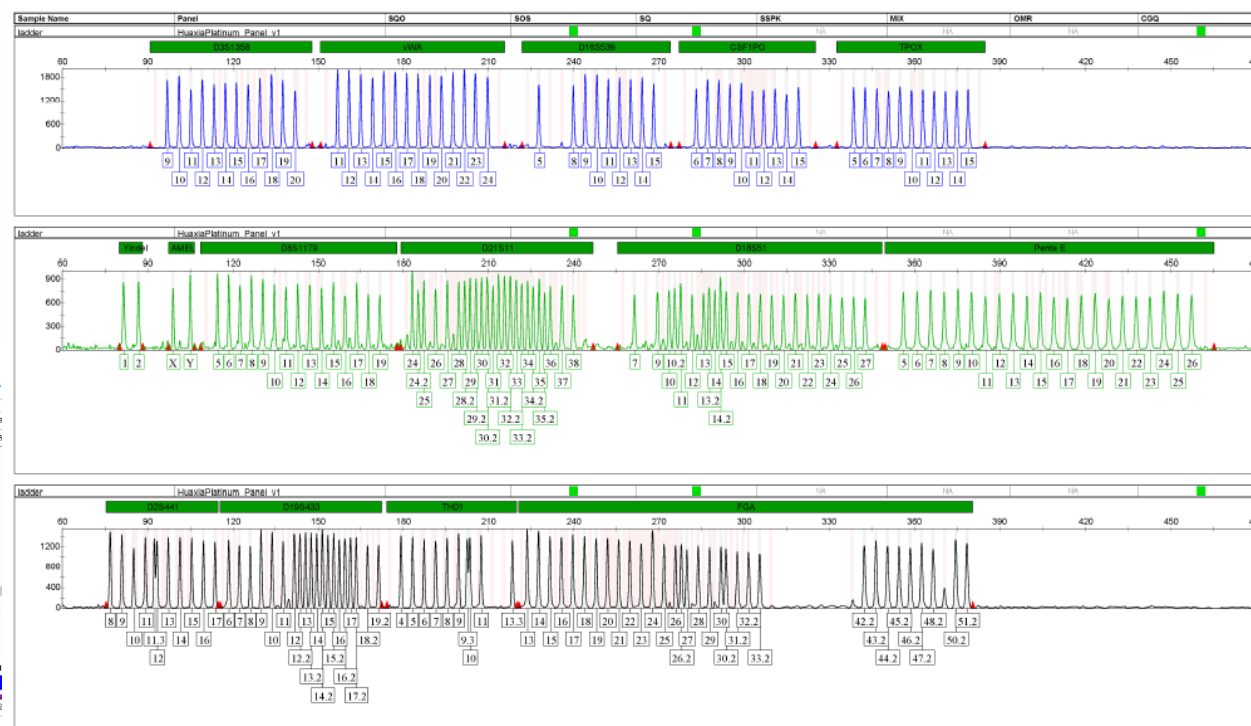
# Data collection and Data analyzing software

## Self-development, EN/CN version system

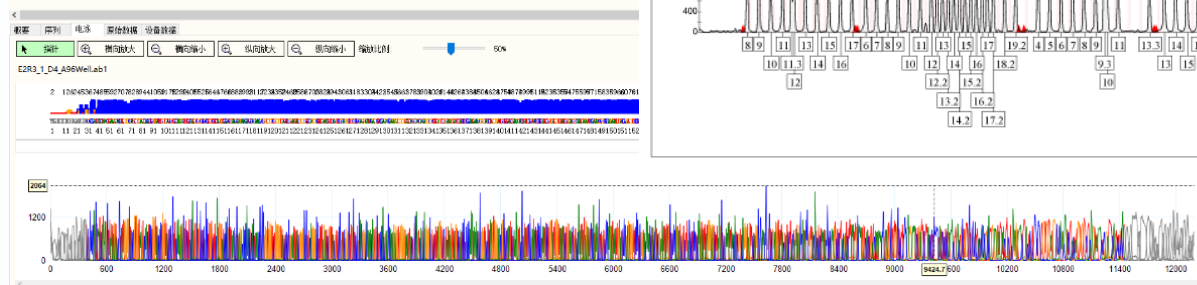
- Data collection software



- Fragment analyzing software



- Sequencing analyzing software





## Product Parameters :

### Basic Parameters

- Product Size:812mm×610mm×532mm
- Product Weight:128KG
- Channel : 16、 24
- Fluorescence dye : 6、 8
- Capillary Length : 36 cm、 50 cm
- Sample Handling : Automatic , 96-wells plate
- Injection Method : Automatic
- Laser : Semiconductor solid
- Laser wavelength : 505 nm
- Wavelength of fluorescent : > 520 nm

### Performance Parameters

- Temp Accuracy :  $\Delta T \leq 0.2^\circ\text{C}$
- Resolving Power : 1 bp
- Read length : Above 800 bp

### Operating Environment

- Voltage : 220 VAC , 50 Hz ; Single phase : 10 A , 2200 VA
- Ambient Temp :  $20^\circ\text{C} \sim 30^\circ\text{C}$  , The operation temperature fluctuation rate no more than  $\pm 2^\circ\text{C}$
- Relative Humidity : 40%-80% ( non-condensing )
- Atmospheric pressure : 86 kPa~106 kPa

03

# Product Advantage

# Product Advantage



	Honor 1816	A Product
Manufacture	<b>Domestic</b>	Overseas
Consumables	<b>Open Platform , compatible with many manufactures</b>	Product time-limited and restrict in manufactures
Operation Interface	<b>CN/EN</b>	EN
Boot Speed	<b>1min</b>	about 5min
Flux	<b>16、 24</b>	8、 24
Max. Supported Fluorescence	<b>6、 8 color</b>	6 color
Repeatability	<b>99.2%</b>	99%
Max. Read length ( Fragment Analysis )	<b>640 bp</b>	600 bp
After Sales	Free after-sales service for 2 Years	1 Year
Gross Margin for End-use	<b>40%-50%</b>	15%~30%

# Product Advantage

## Handy to use

Boot time 1-2 mins, Multi-language Interface, User friendly and easy to operate

## Open platform

Open platform, Compatible with Domestic and International mainstream consumables and reagents

## Affordable Price

Independent Intellectual Property rights, Consumables Localization, Low operation and maintenance costs



## Flexible Cooperation

R&D Cooperation, R&D Customization, Strategic Alliance, Financial Leasing

## Data Security

Gene database security and State secrets protection

## On-time Service

High R&D efficiency, Short period cycle of Order delivery

## Perfect Support and Service

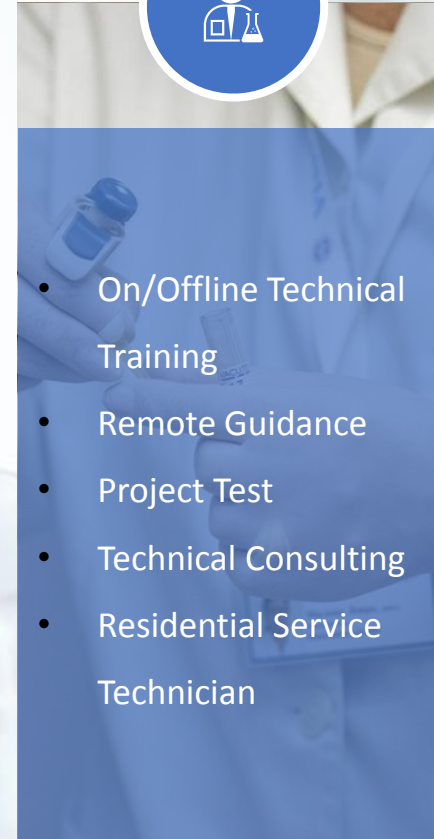
Superyears provides complete business support and technical support, including customizable online/offline technical training, remote guidance, project testing, technical consulting, Residential Service Technician etc., with high-quality after-sales service, so that your equipment procurement without worries.

### Business Support



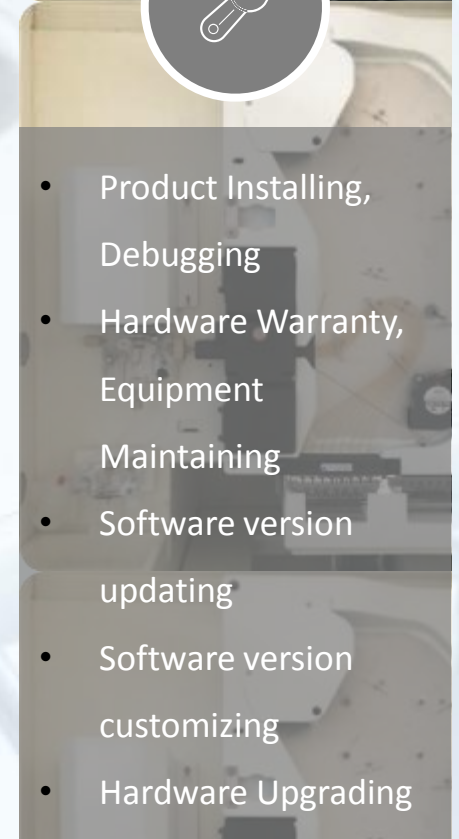
- Project Introduction
- Sales Training
- Strategic Cooperation

### Technical Support



- On/Offline Technical Training
- Remote Guidance
- Project Test
- Technical Consulting
- Residential Service Technician

### Quality Assurance and After-sales Service

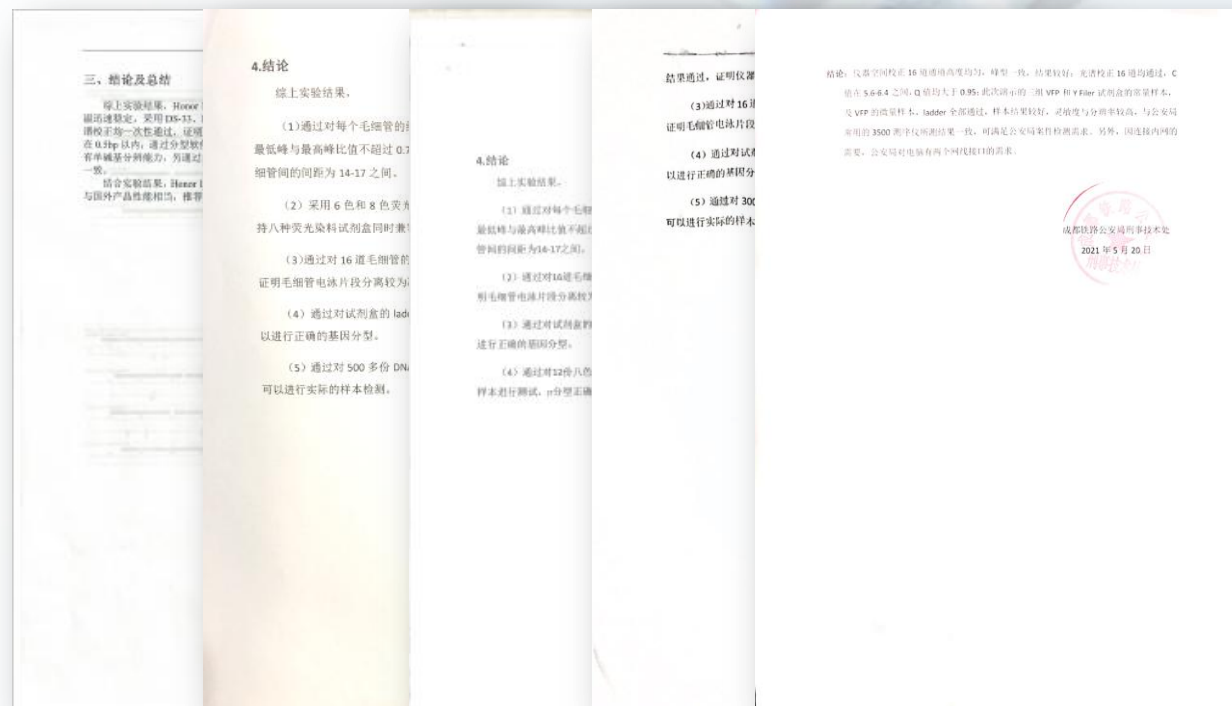


- Product Installing, Debugging
- Hardware Warranty, Equipment Maintaining
- Software version updating
- Software version customizing
- Hardware Upgrading

# Customer recognition



Honor series genetic analyzer was recognized by Ministry of Public Security, Inner Mongolia Public Security Department, Shanghai Public Security Bureau, Dali Public Security and Forensic Appraisal Center, Fengcheng Public Security Forensic Appraisal Center, Chengdu Railway Public Security Bureau and many other customers.



04

# EXPERIMENTAL RESULTS DEMONSTRATION

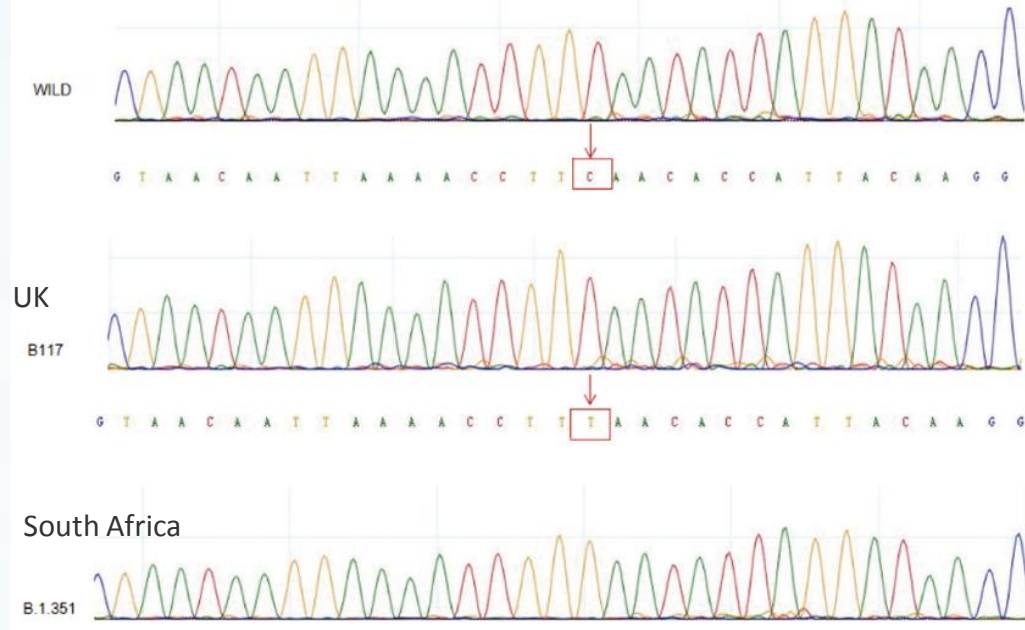


# Function of gene analyzer– Sanger Sequencing and Fragment Analyzing

## Sanger Sequencing

Gene Sequencing , or DNA Sequencing , is indicating some specific base sequencing on the DNA fragment , which determines the ordering of the DNA base, which are Adenine(A), Thymine ( T), Cytosine ( C ) , and Guanine ( G).

## Result Demonstration

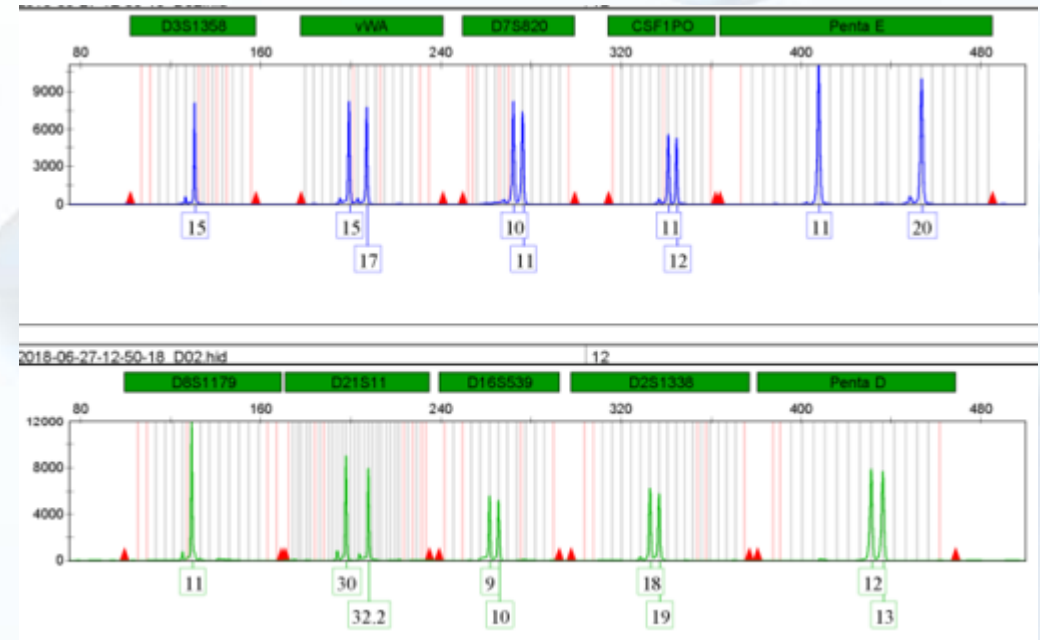


## Fragment Analyzing

It refers to DNA or cDNA as a template to generate DNA fragments of varying numbers and lengths through PCR.

For those fragments, implement methods to analyze them by using differences in fragment size or labeled fluorescence.

## Result Demonstration

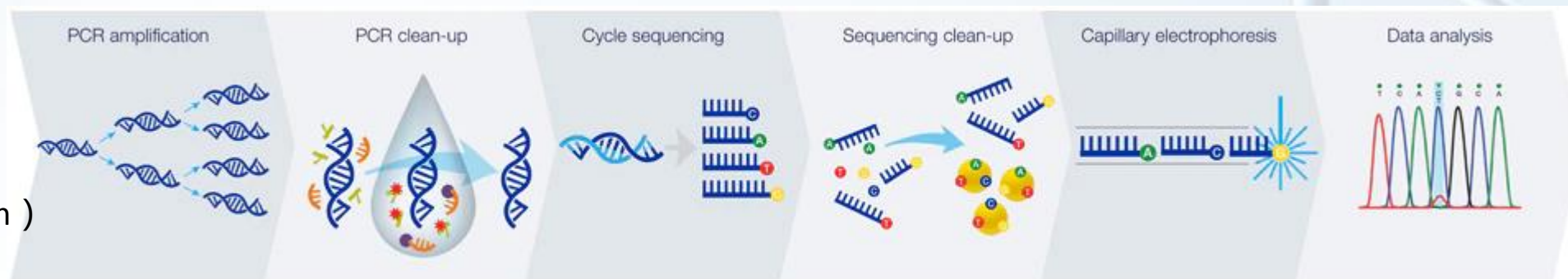


# Experimental Process

## Sanger Sequencing

~8.5 Hour

( Not Include DNA Extraction )

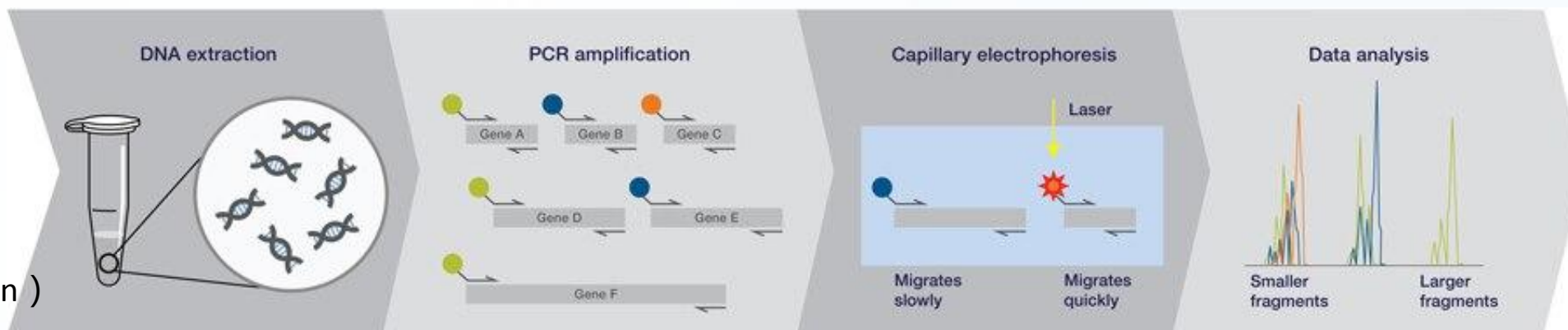


DNA Extraction	PCR Amplification	PCR Clean-up	Cycle sequencing	Sequencing Clean-up	Capillary Electrophoresis	Data analysis
2 h	1.5 h	0.5 h	2 h	3 h	1.5 h	10 min

## Fragment Analyzing

~2 Hour

( Not Include DNA Extraction )



DNA Extraction	PCR Amplification	Capillary Electrophoresis	Data analysis
2 h	70 min	40 min	10 min

# Result Demonstration

REAGENT KIT NAME	MANUFACTURER
AY60 FLUORESCENCE DETECTION KIT ( 8 Color )	Superbio
Y62Plex FLUORESCENCE DETECTION KIT ( 8 Color )	Superbio
Identifiler <sup>®</sup> Plus	ABI
HUAXIA <sup>™</sup> PLATINUM PCR AMPLIFICATION KIT	ABI
VERIFIED <sup>™</sup> Plus	ABI
VersaPlex <sup>™</sup> 27PY	Promega
PanGlobal	Health

# Result Demonstration

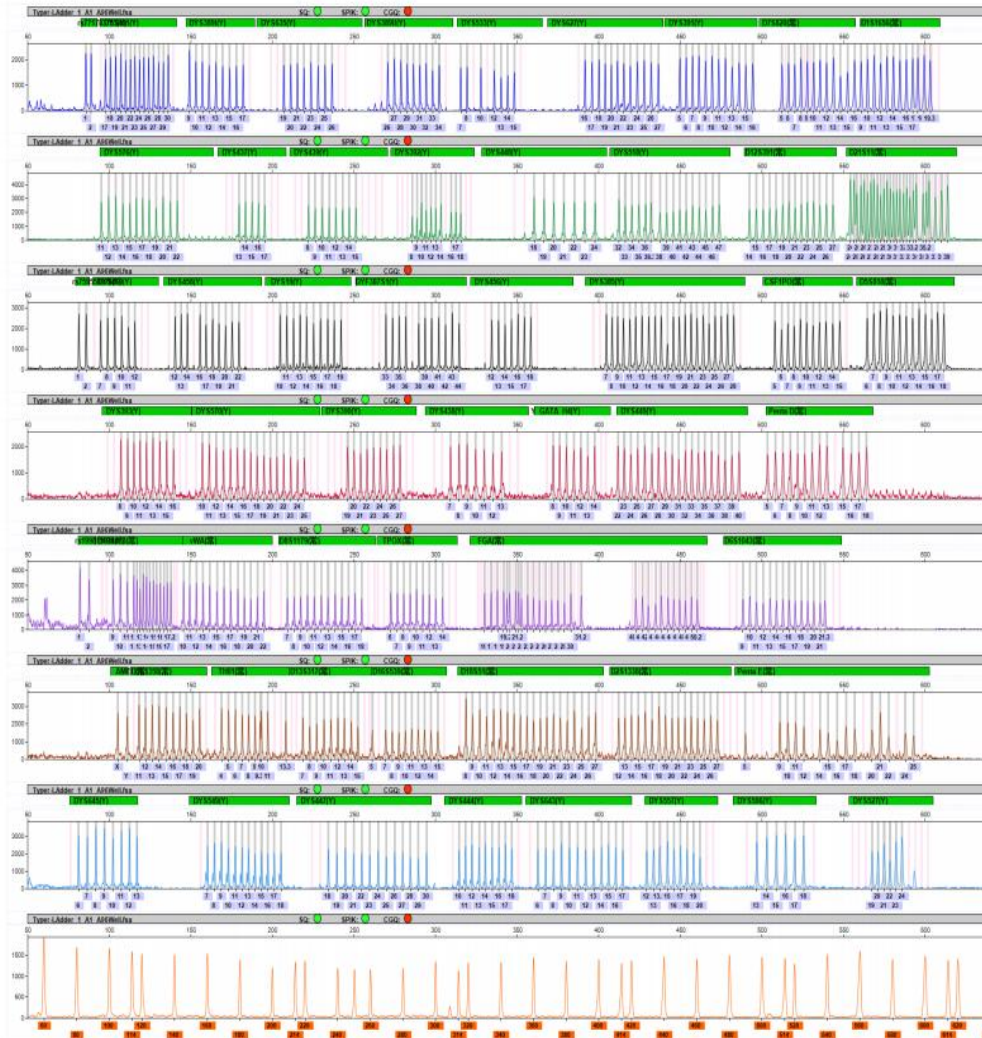
## – AY60 FLUORESCENCE DETECTION KIT ( 8 )



### AY60 Fluorescence Detection Kit



Typer-Ladder\_1\_A1\_A96Well.fsa



Using the latest self-developed 8-color fluorescence detection technology, combined with the Honor-1816 genetic analyzer, a total of 60 loci can be amplified in one time.

Simultaneous detection :

20 autosomal STR loci

36 Y chromosome loci

3 Y-Indel loci

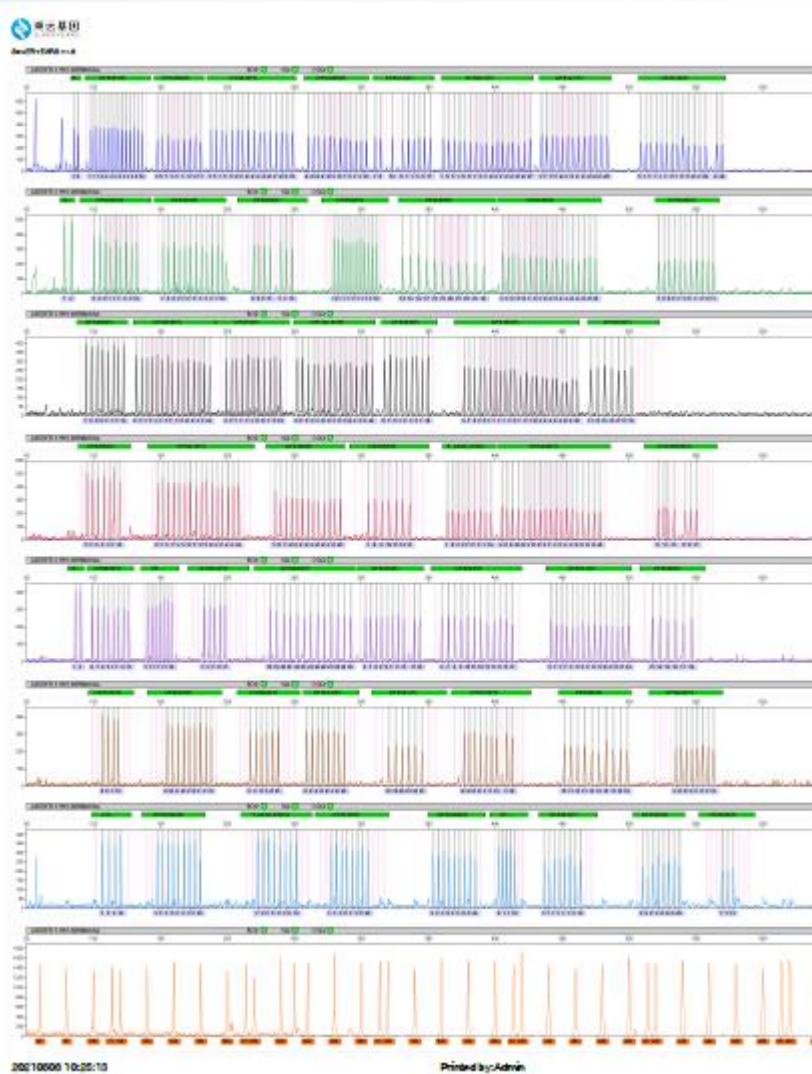
1 loci of Amelogenim

Application characteristics :

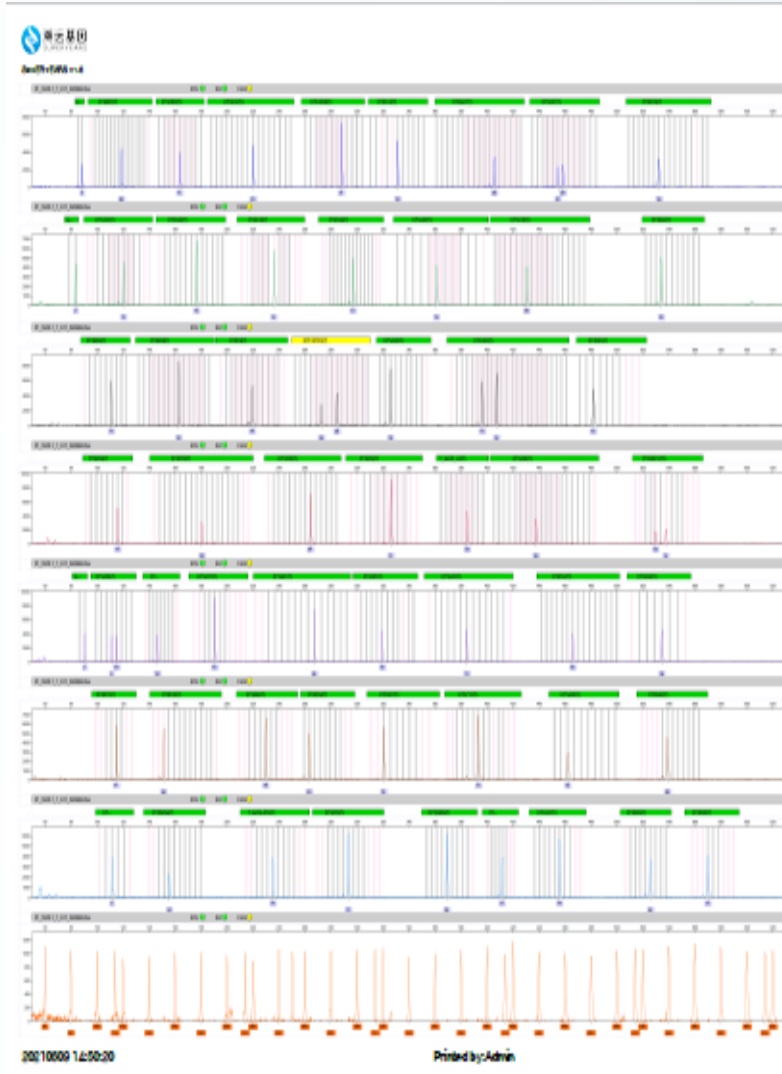
- Including 17 CODIS loci and 3 commonly used loci in the market, consistent with the 20 most widely used loci in the public security department.
- *In according to the requirements of the Code of practice for identification of biological full sibling testing, there are 19 loci compulsory*

# Result Demonstration

## – Y62Plex FLUORESCENCE DETECTION KIT (8 COLOUR)



Ladder Graphic



Sample Graphic

### Y62 Plex Fluorescence Detection Kit

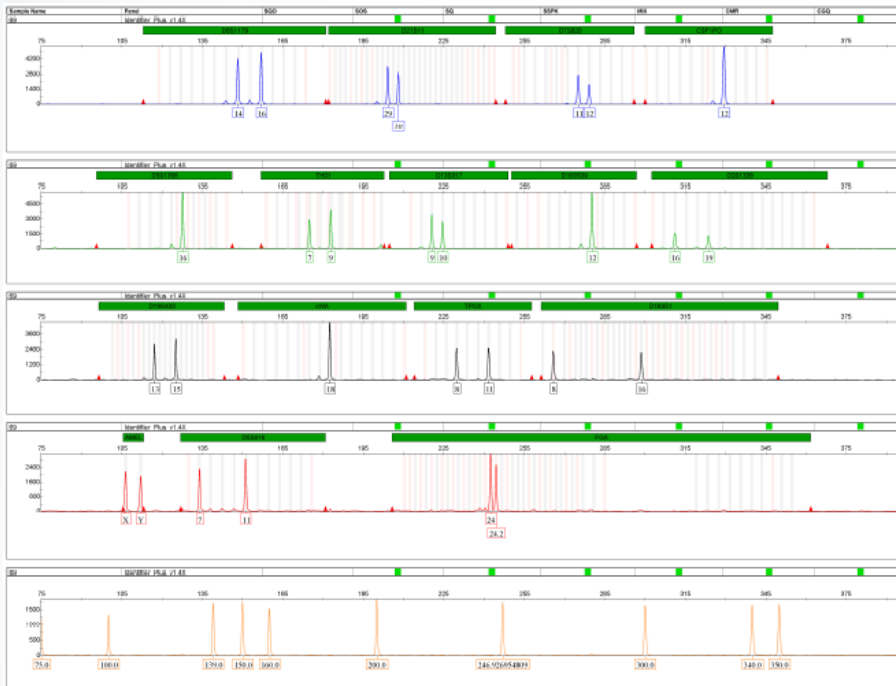
Y62 is using eight-color fluorescence and fluorescence energy resonance transfer technology, including all 35 loci, 25 alternative loci, and 2 Indel Y chromosomes in the core and optimum standard of Y-chromosome database construction. The product will be dramatically improved the efficiency of database construction and reduced the cost of database construction. it also covers all the loci of the current mainstream companies in the market.

Y62 contains all 35 loci in the core and optimum loci of Y database construction standard, 27 alternative loci, B and Y indel

# Results contrast - Identifiler<sup>®</sup> Plus

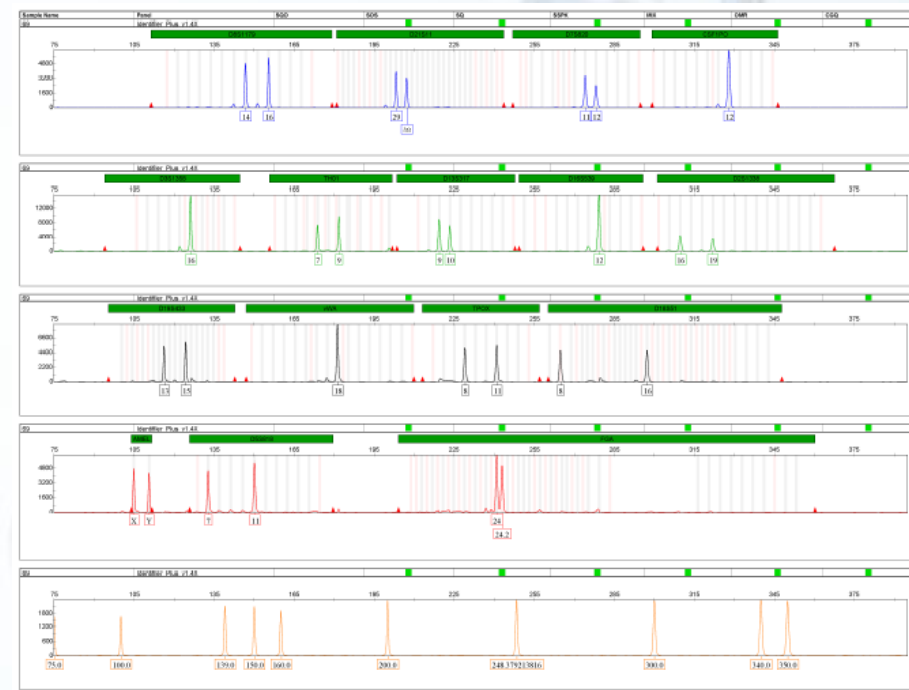
## Honor1816

Sample Results output on Honor 1816



## 3500xl Dx

Sample Results output on 3500Dx



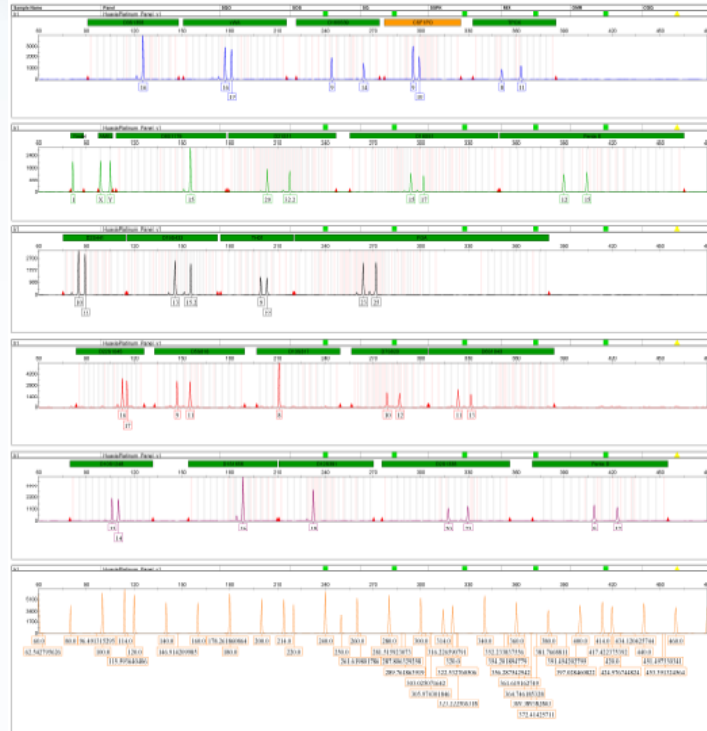
Honor 1816 and 3500XL Dx Genetic analyzers were used to test the same sample respectively, and the analysis results showed that:

**The classification result of Honor 1816 is consistent with that of 3500XL Dx.**

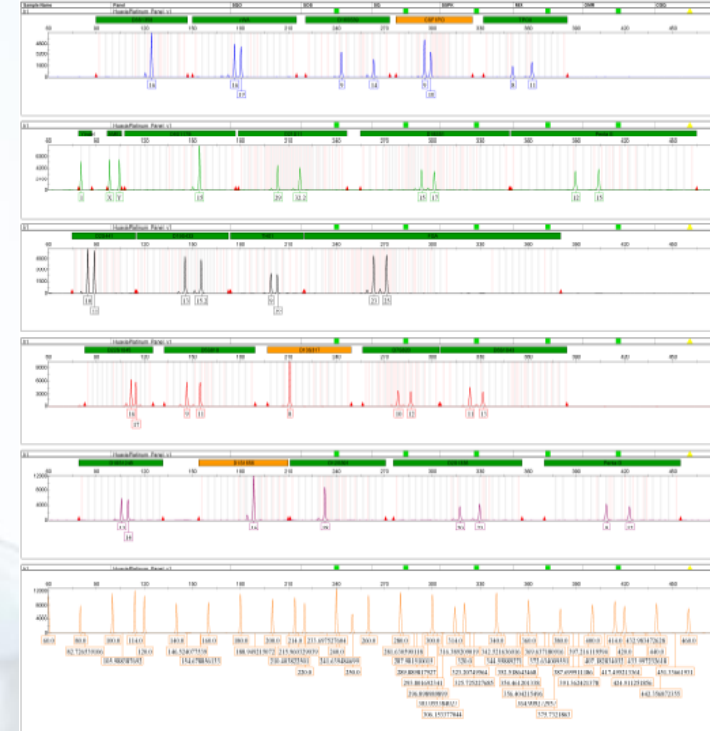
# Results contrast – HUAXIA™ PLATINUM



## Honor1816 Sample Results output on Honor1816



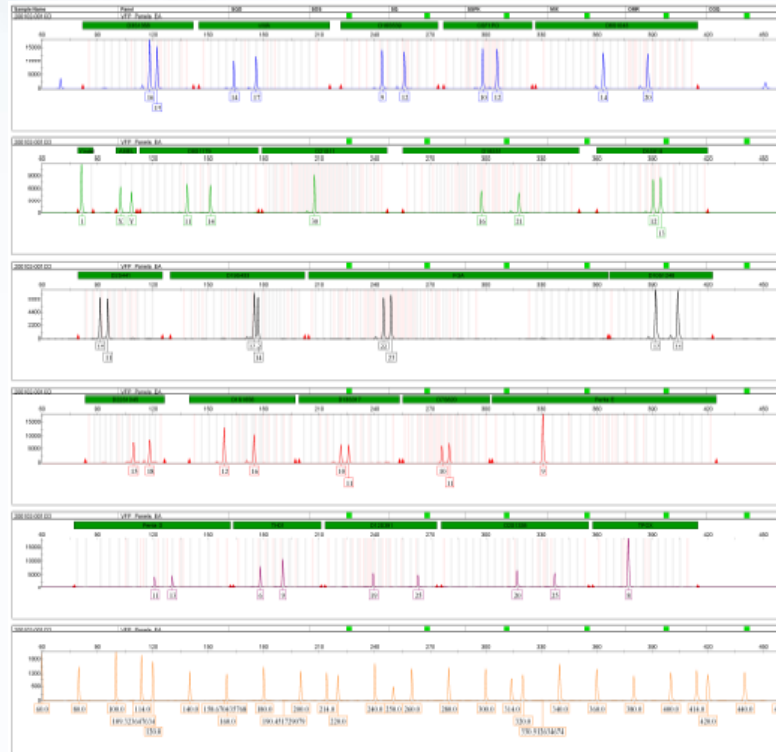
## 3500xl Dx Sample Results output on 3500xl Dx



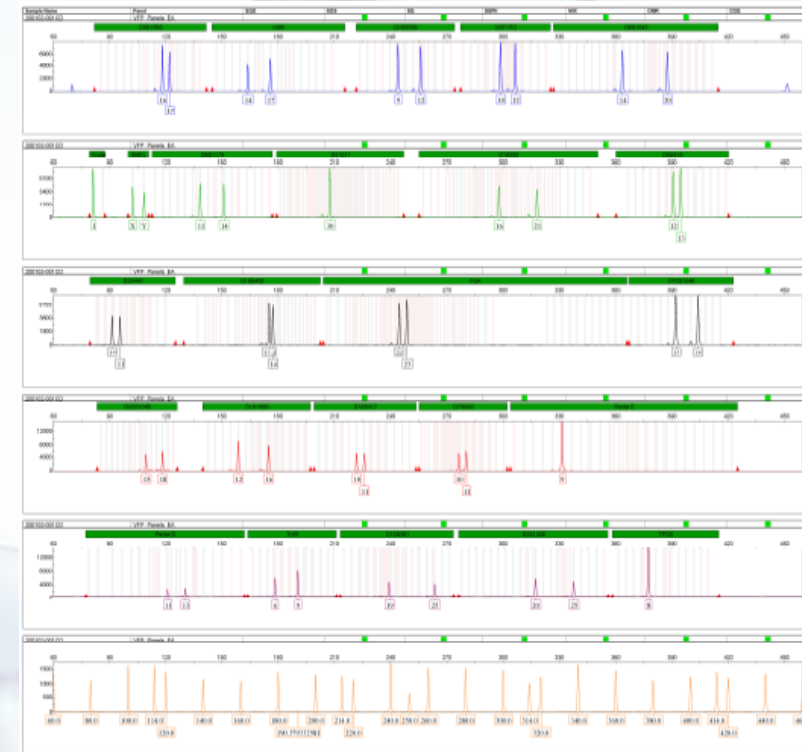
Honor 1816 and 3500XL Dx Genetic analyzers were used to test the same sample respectively, and the analysis results showed that:  
**The classification result of Honor 1816 is consistent with that of 3500XL Dx.**

# Results contrast - VERIFIED™ Plus

## Honor1816 Sample Results output on Honor1816



## 3500xl Dx Sample Results output on 3500xl Dx



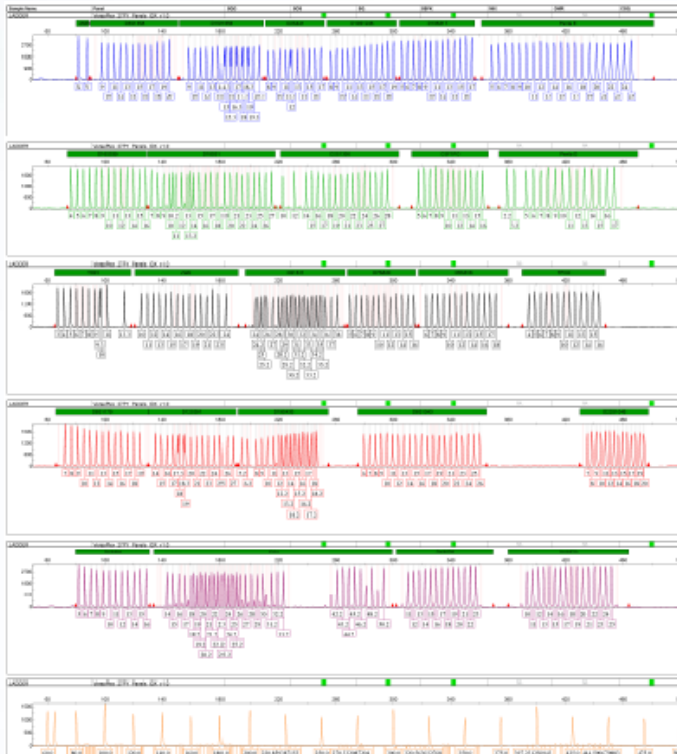
Honor 1816 and 3500XL Dx Genetic analyzers were used to test the same sample respectively, and the analysis results showed that:

**The classification result of Honor 1816 is consistent with that of 3500XL Dx.**



# Results contrast - VersaPlex™ 27PY

## Honor1816 Ladder Graphic



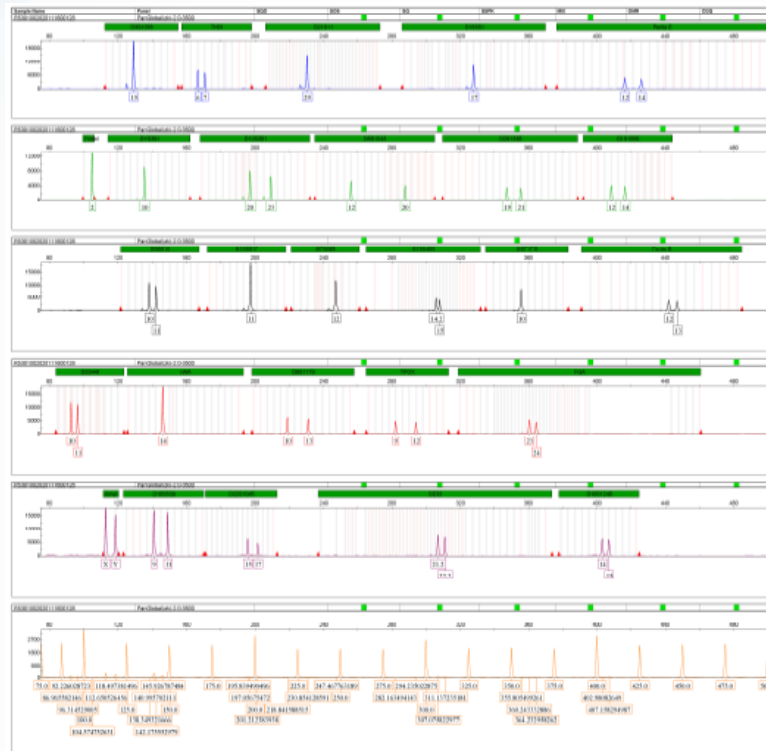
## 3500xl Dx Ladder Graphic



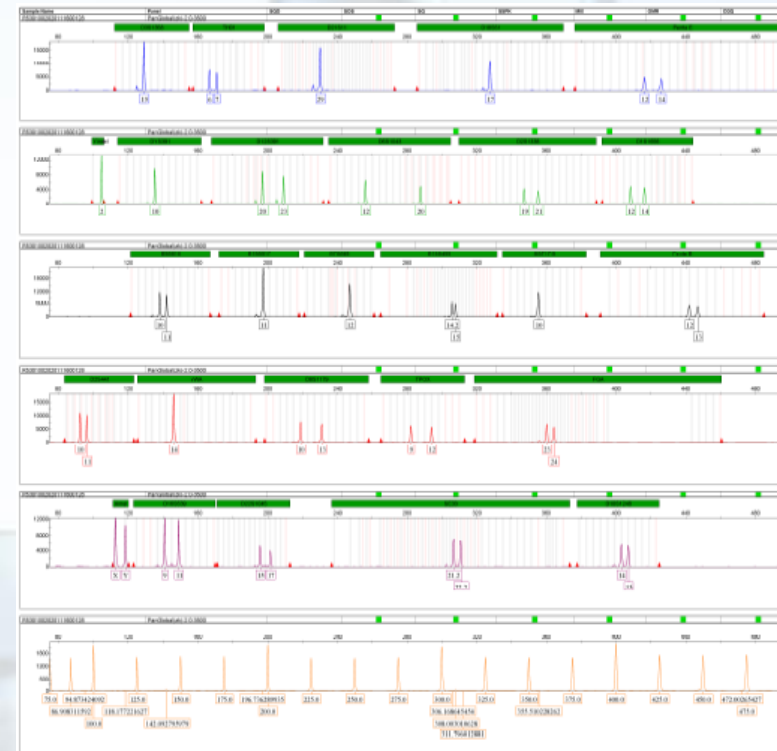
Honor 1816 and 3500XL Dx Genetic analyzers were used to test the same sample respectively, and the analysis results showed that:

**The classification result of Honor 1816 is consistent with that of 3500XL Dx.**

## Honor1816 Sample Results output on Honor1816



## 3500xl Dx Sample Results output on 本在3500xl Dx



Honor 1816 and 3500XL Dx Genetic analyzers were used to test the same sample respectively, and the analysis results showed that:

**The classification result of Honor 1816 is consistent with that of 3500XL Dx.**



**Thank You For Watching**

2021.9.27