AutoGenX12

Fully automatic molecular detection

AutoGenX12
Fully automatic nucleic acid detection and analysis system

Introduction

AutoGenX12, a cutting-edge molecular diagnostics platform for automated sample-to-answer analysis. With gold standard technologies like physical lysis and real-time PCR, it streamlines operations across four sections: Sample Loading, Physical Lysis, Nucleic Acid Extraction, and PCR Amplification and Detection. Compatible with standard 1.5mL reagent tubes, it requires no preprocessing and ensures sample purity with automated pipetting and single-use reagent strips. Its fluorescence-based real-time PCR technology and automated result generation enhance efficiency, while internal UV decontamination and a HEPA filtration system prioritize safety. Ideal for core diagnostics labs, clinics, and government agencies, AutoGenX12 offers unmatched flexibility and performance in molecular diagnostics.

Application

Core Diagnostics Laboratories

CDC

Outpatient and Urgent Laboratories

Customs

Features

1. Disposable pipette magnetic bead extraction to reduce aerosol pollution.

2. Single-portion extraction strip design to avoid cross-contamination between samples.

3. The mechanical single arm is equipped with a pipette plate to prevent liquid dripping.

4. UV lamp + HEPA high-efficiency filtration system effectively ensures biological safety.

01

Sample injection area

• Original tube on machine

• Automatically adds samples and prepares liquids

02

Nucleic acid extraction area

• Physical saw grinding and lysis, handle most liquid samples

• Magnetic bead adsorption extraction, high extraction efficiency

03

Amplification detection area

• Standard four-color fluorescence quantitative PCR technology

• Independent temperature control module

• Each sample can freely choose 1-4 PCR reactions and 1-16 detection targets

04

Reagent and consumables area

• Lysis tube

• Disposable nuclear supplies

• Single serving extraction reagent strip

• 4-row PCR reaction tubes

Sections

★ **Sample Loading section:**
Primary sample tubes are loaded onto the instrument without any preprocessing

★ **Nucleic Acid Extraction section**：
It uses an automated pipetting system for extraction. Single used reagent strip to avoid sample cross contamination

★ **Physical Lysis section**：
The instrument can process any liquid sample and most

★ **Amplification and detection section**：
Standard fluorescence based real-time PCR technology, 4-color fluorescence colors, independent temperature control for each sample

Intuitive Operation

The AutoGenX12 boasts an intuitive operation interface designed to streamline laboratory workflows. With a user-friendly touchscreen display, navigating through the instrument's functionalities is effortless. This includes setting up assays, monitoring real-time progress, and accessing automated test results. The interface provides clear instructions and intuitive touch controls, ensuring ease of use for all laboratory staff. By incorporating automated result generation directly into the interface, the AutoGenX12 simplifies data analysis and interpretation. Users can quickly access comprehensive test results with just a few taps on the screen, enhancing efficiency and productivity in the laboratory.
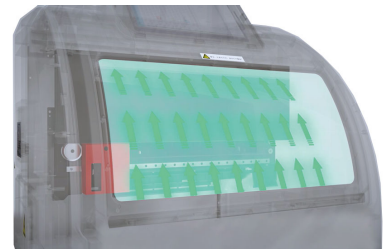
Intuitive Operation

The AutoGenX12 features an internal ultraviolet (UV) light system for daily decontamination, ensuring optimal laboratory hygiene and sample integrity. This integrated UV light source effectively sterilizes the instrument's internal components, including the sample processing areas, pipetting systems, and PCR chambers. By emitting germicidal UV-C wavelengths, the system eliminates a wide range of potentially harmful microorganisms, viruses, and nucleic acid contaminants. This daily decontamination process helps maintain a clean working environment, minimizing the risk of cross-contamination between samples and ensuring the reliability of test results. With automated UV light cycles programmed into the instrument's operation, routine decontamination can be easily scheduled and executed, enhancing laboratory safety and compliance with rigorous quality standards.
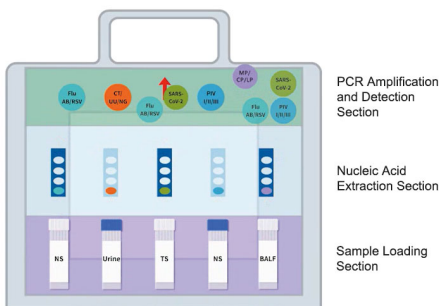
HEPA filtration system

The AutoGenX12 is equipped with a High-Efficiency Particulate Air (HEPA) filtration system, featuring unidirectional airflow to maintain stringent biological safety standards within the laboratory environment. This advanced filtration system effectively removes airborne contaminants, including bacteria, viruses, and other particulates, ensuring a clean and controlled workspace for nucleic acid extraction and PCR amplification processes. By creating a positive pressure environment with filtered air flowing in a single direction, the HEPA system prevents the ingress of external pollutants while minimizing the risk of sample cross-contamination. This robust air filtration technology provides an additional layer of protection for laboratory personnel and sensitive biological samples,

Enhanced Workflow Efficiency

PCR Amplification and Detection Section

Nucleic Acid Extraction Section

Sample Loading Section

The AutoGenX12 ensures efficient and flexible laboratory workflows by processing each sample independently. This innovative feature allows different sample types and diverse tests to be run simultaneously within the same batch on the instrument, optimizing laboratory throughput and resource utilization. By accommodating multiple samples and tests within a single run, the AutoGenX12 enhances operational efficiency and streamlines molecular diagnostic processes. Laboratories can now perform various assays concurrently, saving valuable time and resources while maintaining high standards of accuracy and reliability. Whether analyzing different specimen types or conducting a range of molecular tests, the AutoGenX12 offers unmatched versatility and productivity, empowering laboratories to meet diverse testing demands with ease. With its ability to handle independent sample processing and simultaneous testing, the AutoGenX12 represents a significant advancement in molecular diagnostics, enabling laboratories to achieve faster turnaround times and improved workflow efficiency.

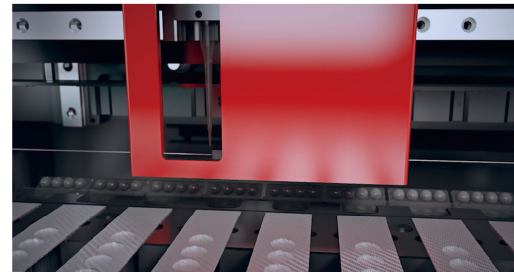**Fully Automated Sample-To-Answer Analysis with No Manual Operations**

Flexible and Versatile; Allows Mixture of Different Samples and Tests in a Single Batch

Universal Molecular Diagnostics Platform with Gold Standard Technologies

Various Designs for Sample Cross -Contaminationa Preventiona and Biosafety

Machine Structure Details

1. Sample loading zone

2. Physical lysis zone

3. Extraction zone

4. Amplification zone

Time-Saving Efficiency

Traditional nucleic acid testing process

Sampling ⇒ **Manual addition** ⇒ **Nucleic acid extraction** ⇒ **Manually configure the amplification system** ⇒ **Amplification and result analysis**

Manual time: 0.5 h   Detection time: 4-8 h

AutoGenX12 nucleic acid testing process

Sampling → **Automatic reporting of negative and positive results**

Manual time: 5 mins   Detection time: 1 h
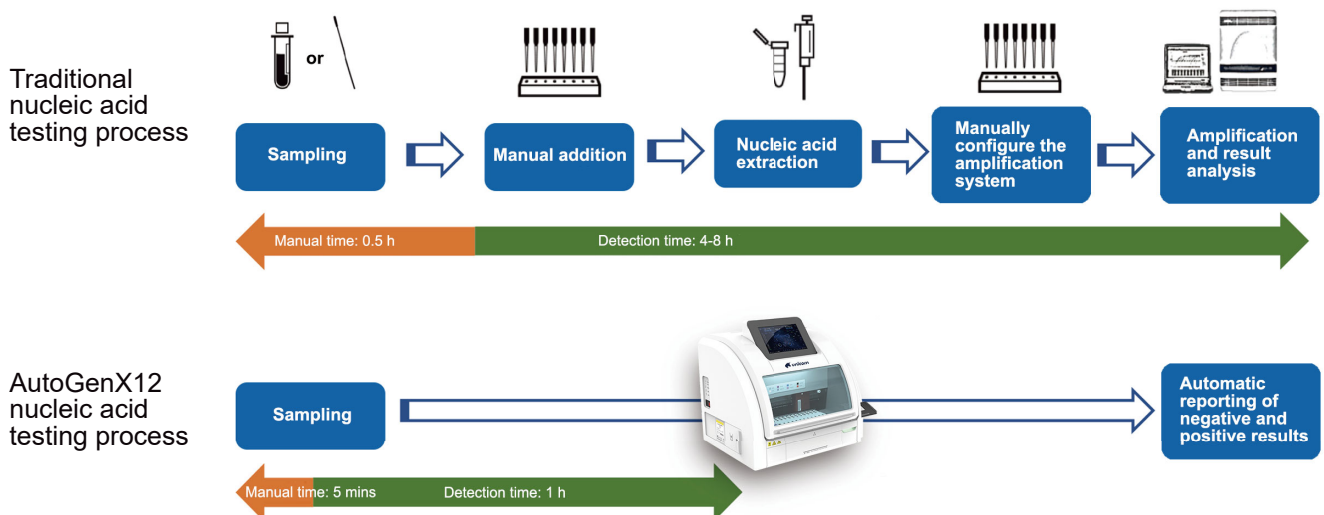
EXTRACTION AND PURIFICATION KIT

Designed for the AutoGenX12 system, our extraction kit facilitates efficient extraction, enrichment, and purification of human and pathogenic nucleic acids. Delivering clinical-grade results, this kit enables precise in vitro molecular detection for a wide range of applications.

| NUCLEIC ACID EXTRACTION AND PURIFICATION KIT	AutoGenX12 series	AutoGenX system

DETECTION KIT

Application
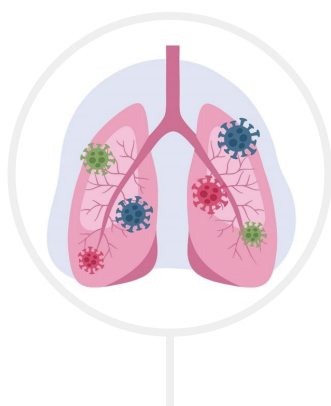
Respiratory Tract Infections

• Flu A/B RSV RT-PCR Kit (CE Mark)

• Paraflu RT-PCR Kit (CE Mark)
– More information

• MP/CP/LP RT-PCR Kit – RUO

• SARS-CoV-2/Flu RT-PCR Kit – RUO

• ADV/HMPV/HRV RT-PCR Kit – RUO

• MTB/RIF/INH Assay Kit – RUO

• CRE RT-PCR Kit – RUO

• VanA/B RT-PCR Kit – RUO

• MRSA RT-PCR Kit – RUO
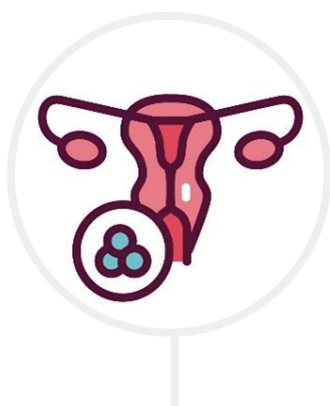
Women's and Sexual Health

• NG/UU RT-PCR Kit (CE Mark)
– More information

• MG Resistance RT-PCR Kit
– RUO

• HSV1&2 RT-PCR Kit – RUO

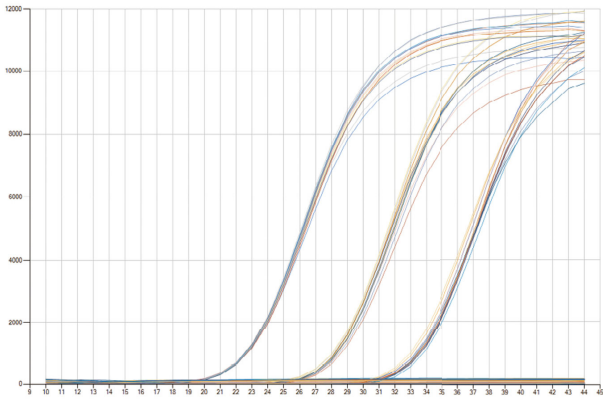• CV/TV RT-PCR Kit – RUO
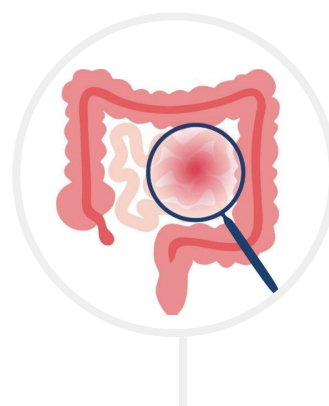
Gastrointestinal Infections

• C. difficile Assay Kit – RUO

• Fusobacterium synovialis / Enterotoxigenic Bacteroides fragilis / PKS-containing Escherichia coli nucleic acid detection kit (Fluorescence PCR method) – RUO
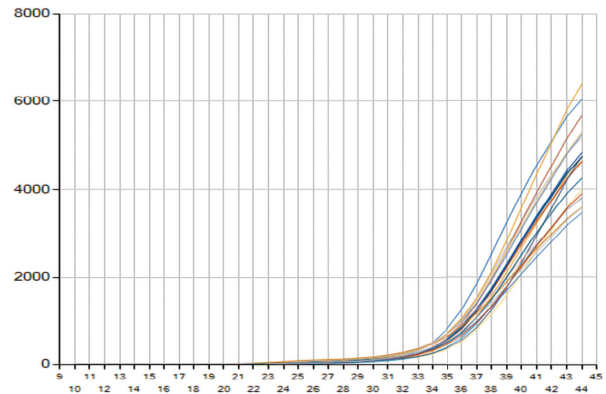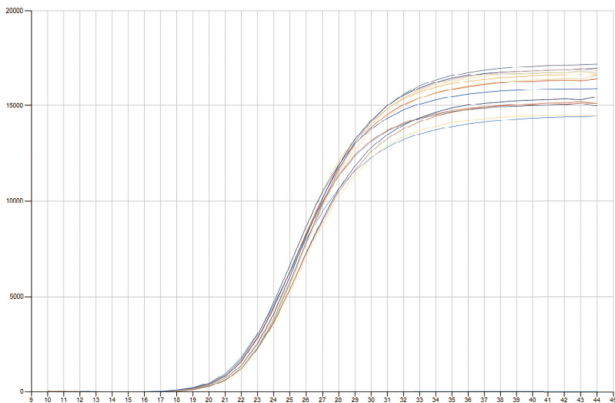
Performance Data

Precision

For yeasts with high, medium and low concentrations, samples of each concentration were tested repeatedly 72 times on AutoGenX12, and the CV values were all <7%.

Sensitivity

400copies/mL National Reference Material for Influenza Virus, tested 20 times using AutoGenX12, with a detection rate of 20/20

No cross contamination

Negative samples (n=6) and positive samples (n=6) were alternately placed into the AutoGenX12 sample wells for fully automatic extraction and amplification. The results showed that all negative samples showed negative results, indicating that there was no sample cross-contamination in adjacent wells.

Linear correlation
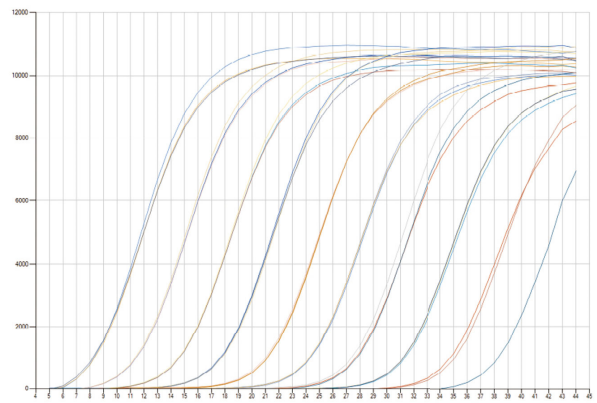
The 10^8 FU/mlMP recombinant plasmid was serially diluted 10 times. Samples of each concentration were tested three times with AutoGenX12 and the average value was taken. The linear correlation coefficient $R^2=0.9995$

Technical specification

Model	AutoGenX12
Function	Fully automatic sample loading, extraction, kit system configuration Real-time PCR amplification, data transmission (LIS), all-in-one
Principle	Magnetic bead extraction + fluorescence quantitative PCR
Sample type	Nasal throat swab, whole blood, serum, plasma Genital secretions, urine, sputum, diarrhea etc.
Sample throughput	12 sample positions, 48 test positions
Turnaround time	60-90min, depending on the test items
Reagent position	15 reagent storage positions at 2~8℃
Sampling accuracy	Accuracy error (Δi) <±8%, and repeatability (CV) <8%
Block temp. accuracy	≤ 0.5℃
Lysis	Ceramic beads based physical lysis, Megnetic beads
Extraction	Magnetic beads, boom chemistry based total nucleic acid (DNA+RNA)
Ramp rate	Heating ≥ 5℃/s , Coolinig ≥ 3℃/s
Repeatability	Sample detection repeatability, CV of CT value ≤ 3%
Linear	Absolute value of the linear regression r between the Ct value of each concentration of the serial dilution gradient sample and the logaithm of the concentration ≥0.980
PCR block	12 independent temperature control modules, each module has 4 detection wells
Temp. control range	20~105℃
PCR reaction volume	Up to 30µl / reaction
Universal	Any (liquid) sample, any target
Fluorescence	4 channels, FAM, HEX, ROX and Cy5
Anti-pollution	One-way airflow, UV light, external exaust HEPA filtration system
Barcode scanning	Support sample barcode scanning
Data transfer	Type-C, HDMI, USB, LIS
Software	Real-time monitoring, automatic identification and calculation of positive and negative results
Environment temp.	-20~55℃
Environment humidity	93%
Dimensions(W×D×H)	720×650×720mm
Net weight	80KGS