

USTAR Bordetella pertussis(BP) Solution



Ustar Biotechnologies (Hangzhou) Ltd.



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About Bordetella Pertussis



Whooping cough, also known as **pertussis** causes a highly contagious respiratory illness characterized by rapid, violent, and uncontrolled coughing fits that persist until the lungs are void of air, which can go on for **up to 10 weeks or more**

Transmission of Pertussis

Spread through the air from person to person

Infectious of Pertussis

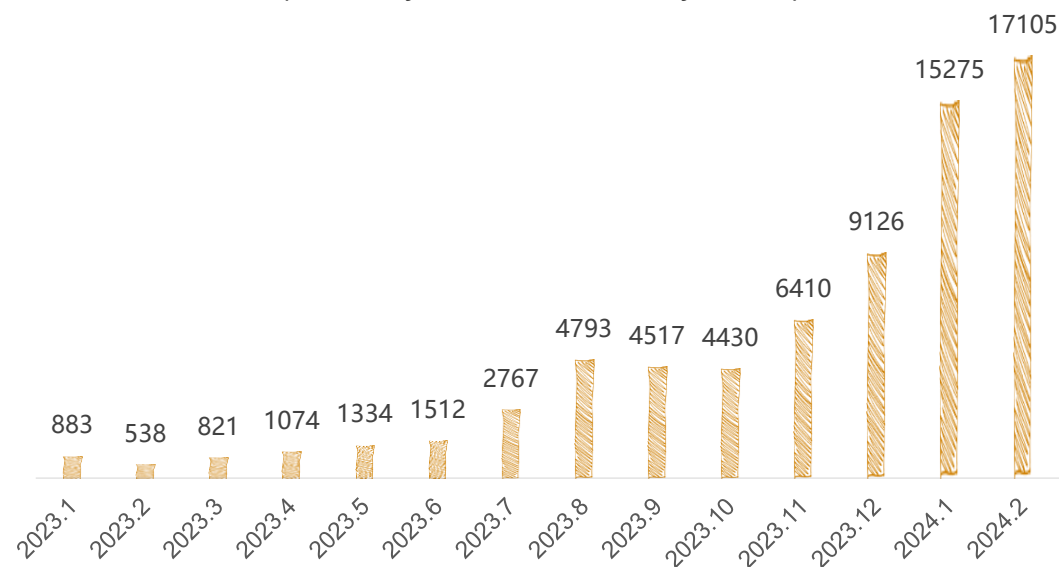
From the onset of the first symptoms until at least two weeks after the coughing begins, Some people have mild symptoms and do not know they have whooping cough, but they can still spread the bacteria to others





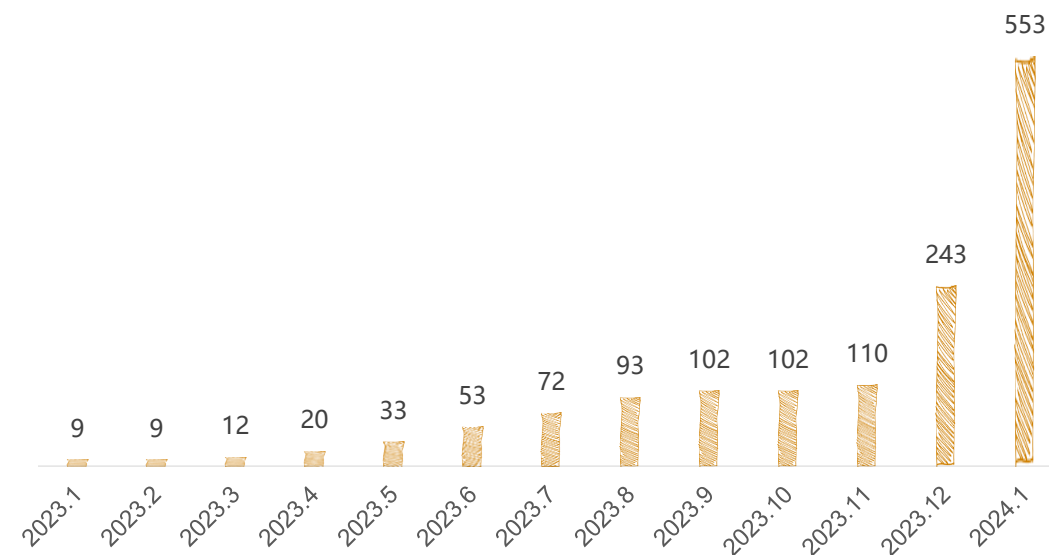
Bordetella Pertussis Resurgence

Number of Pertussis Cases Reported in China
(January 2023 - February 2024)



China has roaring up Pertussis cases, **almost 31.8** times increase on February 2024. (CHINA CDC)

Number of Pertussis Cases Reported in the UK
(January 2023 - January 2024)

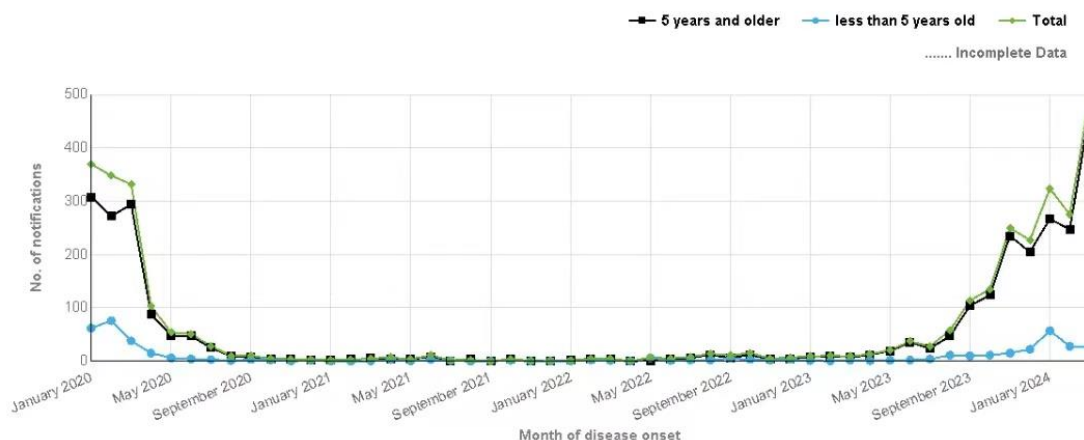


UK has suffered for a drastic increase of infection number since January 2024, which has **reached 553**, according to UK Health Security Agency (UKHSA)





Bordetella Pertussis Resurgence



New peak of Whooping Cough cases in **Australia**, a nearly **31 times** over the relative period in 2023, according to the government statistics.

In the **US**, new infections in the first quarter of 2024 has overwhelmingly exceeded that of 2023. NYC has reported a nearly **200% increase** relative to the corresponding period in last year.



Centers for Disease Control and Prevention
CDC 24/7: Saving Lives, Protecting People™

[NNDSS](#)[Query Annual Tables](#)[Annual Tables](#)[Weekly Tables](#)[Contact Us](#)

provided by CDC WONDER

Nationally Notifiable Infectious Diseases and Conditions, United States: Weekly Tables

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Weekly cases* of notifiable diseases, United States, U.S. Territories, and Non-U.S. Residents week ending March 9, 2024 (Week 10)

Reporting Area	Pertussis			
	Current week	Previous 52 weeks Max †	Cum YTD 2024 †	Cum YTD 2023 †
U.S. Residents, excluding U.S. Territories	89	283	1,413	759





Bordetella Pertussis Resurgence



According to ECDC, An increase in the number of pertussis cases has been reported since mid-2023 in EU/EEA Member States (**Czechia, Croatia, Denmark, Netherland, Luxembourg, Norway**)

Croatia

Total cases (Q1 2024): 2,110
Youth cases (10-19 years): 4,198
Annual cases (2023): 4,151

Norway

Total cases (Q1 2024): 707
Youth cases (10-19 years): 422
Annual cases (2023): 1,201

Netherland

Total cases (Q1 2024): 1,749
Youth cases (10-19 years): 422
Annual cases (2023): 2,712

Denmark

Total cases (Q1 2024): 822
Youth cases (10-19 years): Majority
Annual cases (2023): 6,063

Czechia

Total cases (Q1 2024): 3,101
Youth cases (10-19 years): Majority
Annual cases (2023):

Luxembourg

Total cases (Q1 2024): 28
Youth cases (10-19 years): Majority
Annual cases (2023): 18





Diagnostic Challenges



Difficulty of Prevention

Early stages of pertussis may be mistaken for a common cold, complicating timely diagnosis. The factors, long testing time alongside the potential for asymptomatic carriers to spread the disease, underscore the complexity of effectively identifying and controlling pertussis outbreaks

Lack of Sensitivity

Another challenge in detecting pertussis is the lack of sensitivity in some diagnostic tests, especially in later stages of the illness when the bacterial load decreases. This can lead to false negatives. The disease's cyclical nature, with peaks in incidence every 3-5 years, also complicates surveillance and early detection efforts.

Complexity of Differentiation

Confirming pertussis involves additional challenges due to the presence of *Bordetella parapertussis*, which can cause similar symptoms but requires different treatment approaches. Distinguishing between the two through clinical presentation alone is difficult, necessitating specific laboratory tests.





Why Ustar

Guideline



Centers for Disease Control and Prevention
CDC 24/7: Saving Lives, Protecting People™

PCR is an important tool for diagnosis of pertussis especially in the setting of the current resurgence of pertussis disease
PCR can provide timely results with improved sensitivity over culture

USTAR



USTAR, founded in 2005, is committed to the research and development, production and sales of **innovative point-of-care molecular diagnostic technology**, providing medical institutions with advanced, integrated nucleic acid diagnostic solutions



Why Ustar

Team



600+ Employees
200+ R&D team

Certificates



ISO 13485:2016



MDSAP



CE-IVDR

GMP workshop



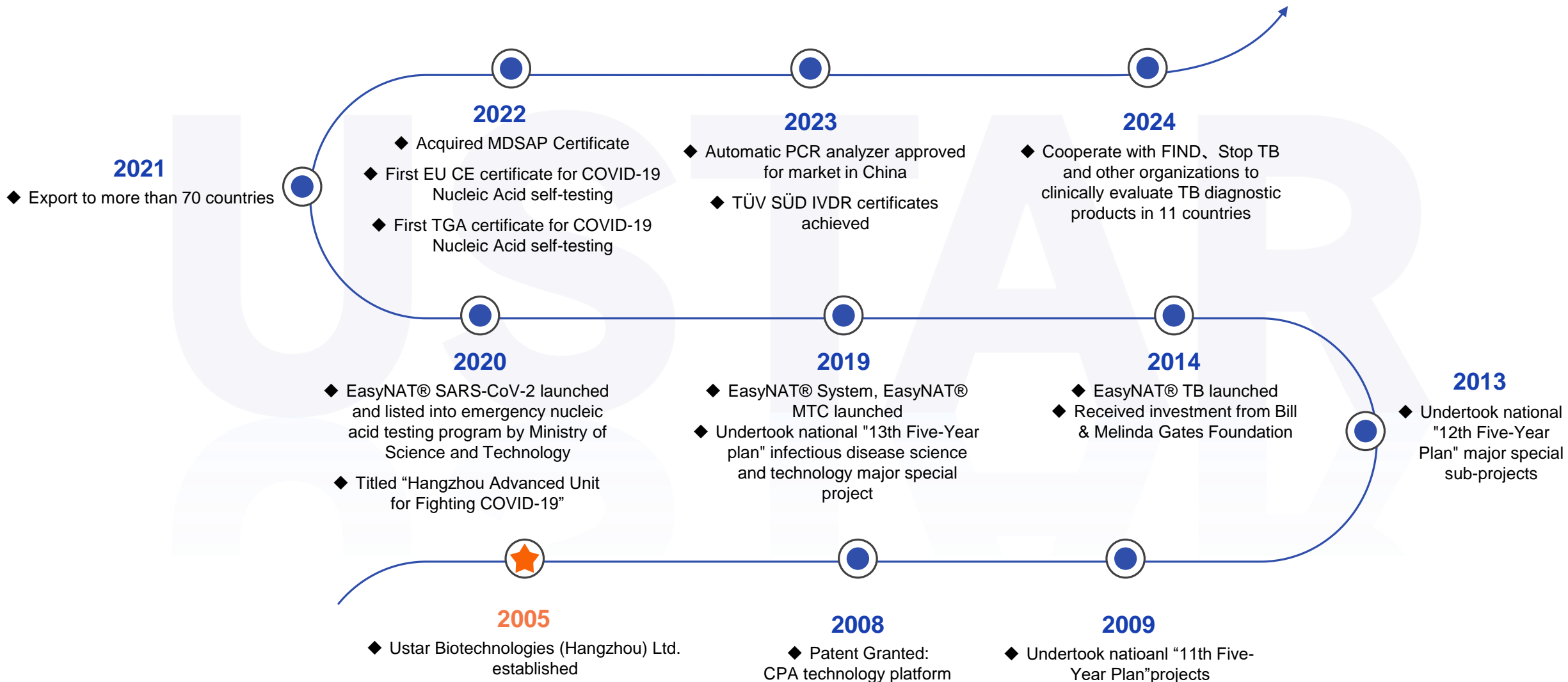
5,000+m²

USTAR, founded in 2005, focus on innovative **point-of-care** molecular diagnostic technology





Milestone





Ustar International Cooperation



The Gates Foundation's Grand Challenge



Foundation for Innovative New Diagnostics (FIND) visits Ustar



World Health Assembly Diagnosis Day in Geneva, Switzerland



Communicate with Stop TB



World Congress on Lung Health



International Exhibitions





EasyNAT BP Diagnostic System



- **Sample type** : nasopharyngeal swab
- **LOD**: 500 copies/mL
- **Simple**: Sample in, result out; get result after a single click
- **Safe**: test in an enclosed cartridge, reduce potential contamination
- **Transportation**: Exclusive glassification technique enables ambient transportation (-25°C~ 37°C)

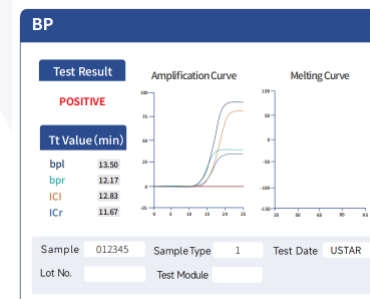
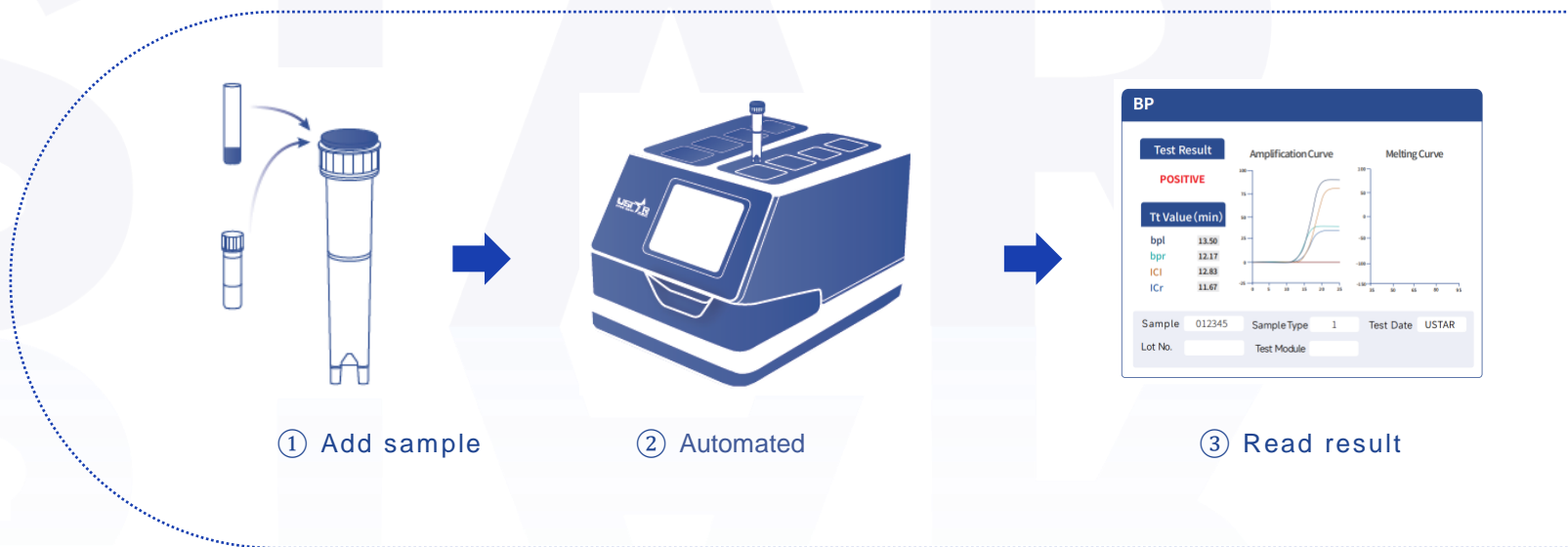
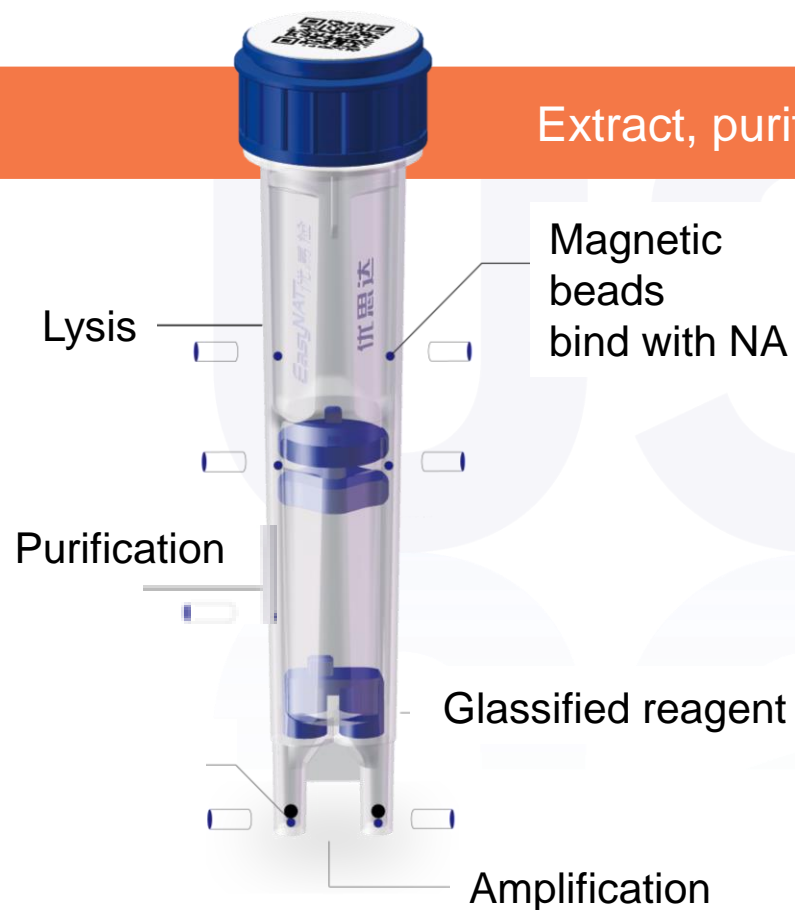
Test kit integrates the classic magnetic bead method for nucleic acid extraction and nucleic acid amplification into a single, independent, sealed detection tube, achieving "**sample in, result out**" **POCT (Point of Care Testing)** for nucleic acid testing





MECHANISM & WORKFLOW

Extract, purify, amplify and detect nucleic acid (NA) in a sealed cartridge





HIGHLIGHTS



Simple

One-step operation



Fast

Get result within 49 minutes



Accurate

LOD : 500copies/ml



Safe

All-in-one cartridge avoid
potential contamination



Flexibility

Independent module
Test anytime anywhere



Certification

CE-IVDR approved

THANKS



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