Isopollo® COVID-19 detection kit

LAMP based assay system for detection of COVID-19 (Real-time / Premix / Colorimetric)



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Isopollo® COVID-19 detection kit (real-time)

Isopollo® COVID-19 detection kit is a diagnostic kit based on the newest patent technology (LAMP) to detect severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection from extracted RNA of clinical specimens of smeared material from human nasopharyngeal and oropharyngeal swab, sputum, and bronchoalveolar lavage by RT-LAMP (Reverse transcription loop-mediated isothermal amplification) and it has high specificity for targeted RNA because 6 primers selectively detect specific genes (RdRP gene and N gene) of SARS-CoV-2.

	Product					
Specification	Isopollo® COVID-19 detection kit (real-time)	Isopollo [®] COVID-19 detection kit (colorimetric)				
Detection target		Coronavirus disease (COVID-19)				
Target region		RdRP gene, N gene				
Detection technology	RT-LAMP based assay system for detection of COVID-19					
RNA extraction	Conventional extraction kit	sit Simple and direct extraction kit by M monitor (Mmaxpress® prep kit HA 01)				
How to check	PCR performance	Immediate check I	by color change			
Compatible instruments*	CFX96 [™] Real Time PCR System (Bio Rad), ABI 7500 / 7500 Fast Real Time PCR System (Applied Biosystems) *Conventional qPCR system available	Recommended isothermal Amplifier by M monitor (MXM-L1) *Conventional PCR system available				
Running time	22 min 32 min 32 min					



Isopollo® COVID-19 detection kit

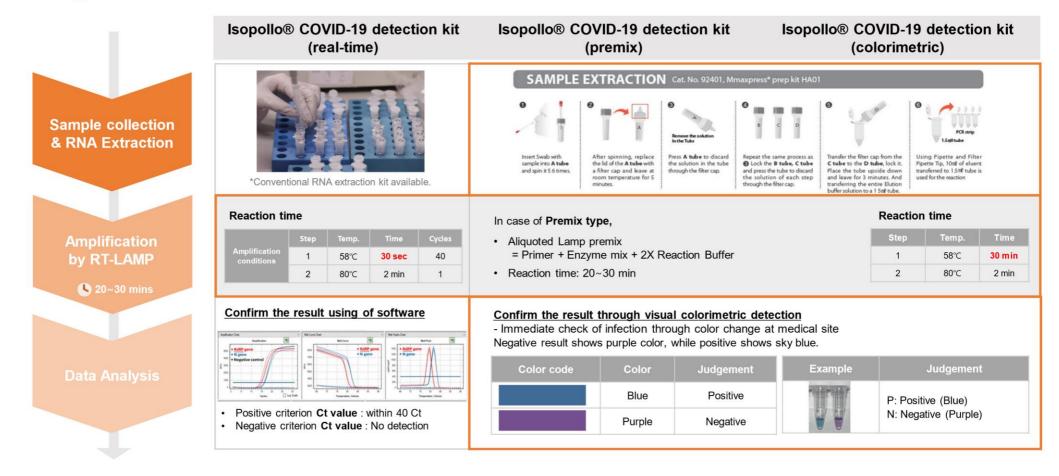
▼ Contents of the kit and Quantity



	Isopollo® COVID-19 det (real-time)	ection kit	Isopollo® COVID-19 de (premix)	tection kit	Isopollo® COVID-19 d (colorimetrie		
Reagent	2X Reaction Buffer Enzyme mix Detection primer (CR) Detection primer (CN) Control primer* Control template* Distilled water (DW)	1.25 ml*2 200 µl*1 200 µl*1 200 µl*1 40 µl*1 40 µl*1 1.5 ml*1	Lamp premix (CR/CN) Control primer* Control template* Distilled water (DW)	30 μℓ*2 40 μℓ*2 40 μℓ*1 1.5 mℓ*1	2X Reaction Buffer Enzyme mix Detection primer (CR) Detection primer (CN) Control primer* Control template* Distilled water (DW)	1.25 ml*2 200 µl*1 200 µl*1 200 µl*1 40 µl*1 40 µl*1 1.5 ml*1	
	Individual tube		Ready-to-use reage	nt	Individual tube		
Volume	100test/kit		96test/kit		100test/kit		
Retention period	6 months from the date of manufacture *After opening 50 days						

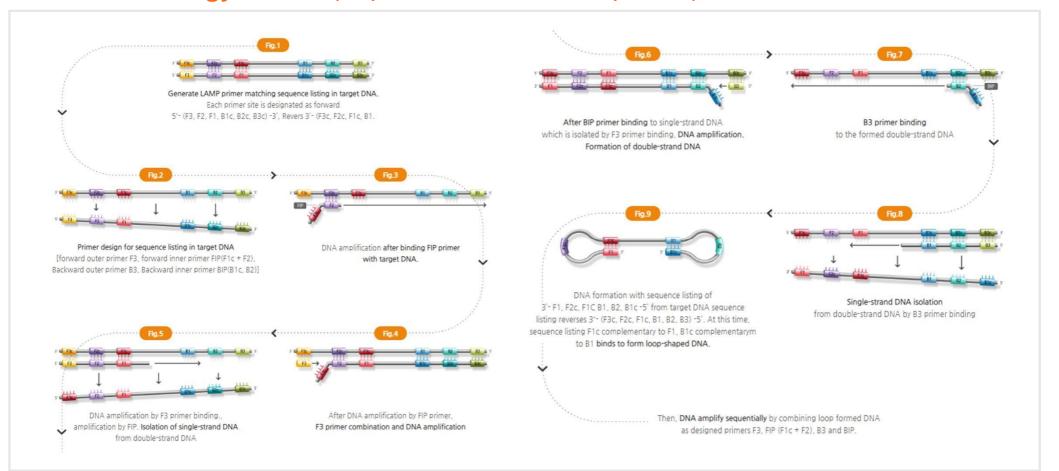
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Isopollo® COVID-19 detection kit



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Main Technology – LAMP (Loop-mediated isothermal amplification)





Experimental

Result & inte	rpretation
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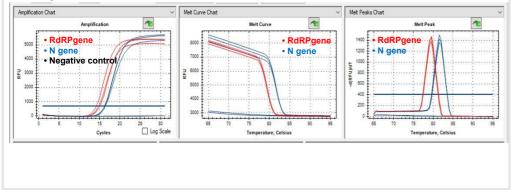
RdRP	Ν	Diagnosis
+	+	Infected
+	-	Infected
-	+	Infected
-	-	Not Infected

- » It is considered that both RdRP and N gene are **positive**.
- » Even if only one gene of two genes shows a positive, it is considered to be infected.

Isopollo® COVID-19 detection kit (real-time)

Confirm the result using of software

- Positive criterion **Ct value** : within 40 Ct
- Negative criterion **Ct value** : No detection



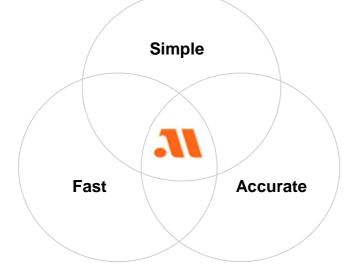


Characteristic of our products

Why to choose M monitor?

Higher specificity than conventional PCR, qualitative detection of RdRP and N gene

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Rapid	Diagnosis within 1 hour (included extraction process)
Sensitivity	Detection up to 1 pg (Small amount of virus can be detected) *Higher sensitivity as domestic licensed/temporary permitted product
Accuracy	99% of accuracy through qualitative analysis and 100% of specificity
POCT	Immediate diagnosis on site (Point-of-Care-Testing)

Cost reduction through simultaneous multiple sample tests

Proper action and infection control thorough rapid diagnosis

Comparison of other products

*Korea CDC's Emergency Use Approval (only 4 companies)

Spec.	Α	В	С	D	
Technology	Technology Real-time PCR Rea		Real-time PCR	Real-time PCR	
Kit size	Kit size 50test/kit 100test/kit		100test/kit	100test/kit	
Target gene	RdRP, E gene RdRP, E N gen		RdRP, E gene	Orf1a, N gene	
Sensitivity(%) > 98%		> 98%	> 98%	> 98%	
Accuracy(%)	> 99%	> 99%	> 99%	> 99%	
Reaction time	6 hour	4 hour	2 hour	2 hour	
How to check PCR performance P		PCR performance	PCR performance	PCR performance	
Consumables & device	CFX-96 (Bio-Rad), ABI 7500 / 7500 (Applied Biosystems™)				

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Real-time /Colorimetric	Premix		
RT-LAMP	RT-LAMP		
100test/kit	96test/kit		
RdRP, N gene	RdRP, N gene		
> 98%	> 98%		
> 99%	> 99%		
20 min	30 min		
PCR performance	Color change		
CFX-96 (Bio-Rad), ABI 7500 / 7500 (Applied Biosystems™)	MXM-L1 *portable small isothermal amplifier by <u>M monitor</u>		

M monitor Inc.

M monitor Inc., is one of the leading companies with high technologies based on nucleic acid isothermal amplification platform. Our diagnostic products lead the paradigm of diagnosis in accuracy and speed aspects by combining with the advantages of both immuno-chemical diagnosis and molecular diagnosis methods.

Item	Contents
Company Name	M monitor
Address	, Republic of Korea
TEL	+971 562 277 797
CEO	Hyosung Jeon
Employee	24
Foundation	2014
Homepage	



02 Manufacturer

Certification List



Certification of GMP

Certification of ISO13485:2016

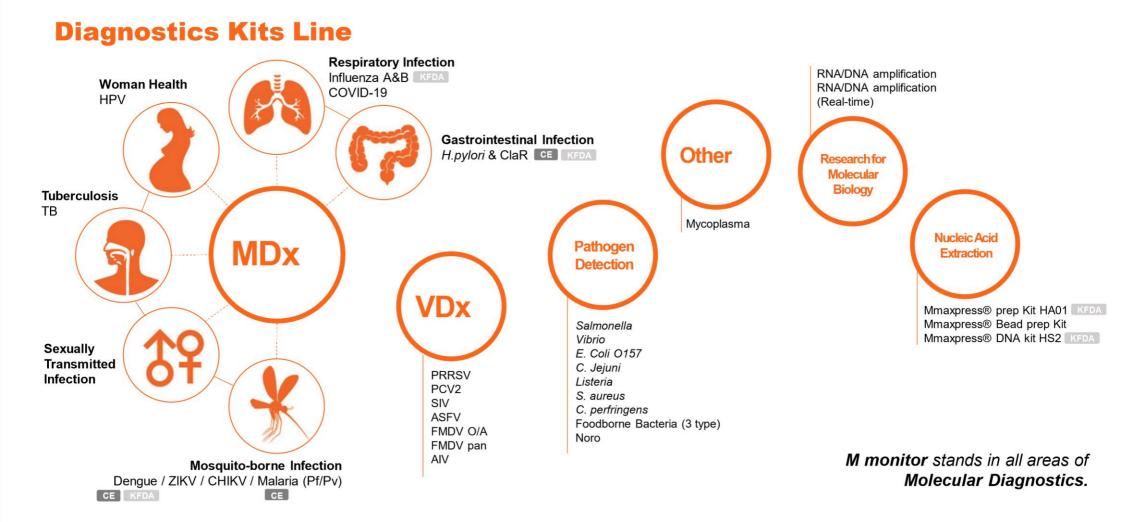
Medical device manufacturing license **Certification of EU**

Certification List

▼ Status of Global Licensing

Code		Class	Product Name	Permission / Certification
CE-IVD	In Vitro Diagnostic Medical Devices	Others	Isopollo® COVID19 detection kit (real-time)	Complete
CE-IVD	In Vitro Diagnostic Medical Devices	Others	Isopollo® COVID19 detection kit (premix)	Complete
Free Sale Certificate	In Vitro Diagnostic Medical Devices	Others	Isopollo® COVID19 detection kit (real-time)	Complete
Free Sale Certificate	In Vitro Diagnostic Medical Devices	Others	Isopollo® COVID19 detection kit (premix)	Complete
CE-IVD	In Vitro Diagnostic Medical Devices	Others	Isopollo® Dengue test kit	Complete
CE-IVD	In Vitro Diagnostic Medical Devices	Others	Isopollo® H.Pylori & ClaR	Complete
CE-IVD	In Vitro Diagnostic Medical Devices	Others	Isopollo® Malaria (Pf/Pv) detection kit	Complete
Peru(DIGEMID)	In Vitro Diagnostic Medical Devices	С	Isopollo® H.Pylori & ClaR	In progress
India(CDSCO)	In Vitro Diagnostic Medical Devices	С	Isopollo® Dengue test kit	In progress
India(CDSCO)	In Vitro Diagnostic Medical Devices	С	Isopollo® Malaria (Pf/Pv) detection kit	In progress

02 Manufacturer



02 Manufacturer



2.4 M monitor Global activities



RT-LAMP

In the case of general COVID-19 diagnostic kits take about 2 to 6 hours to check the result, while **M monitor uses an innovative** technology that can check the result within 1 hour.

This method is specifically advantageous because it can all be done quickly in **one step**. The sample is mixed with the primers, reverse transcriptase and DNA polymerase and the reaction takes place under a constant temperature. There is no need for expensive thermocycling equipment that is necessary for other methods like PCR, which makes RT-LAMP **very cost effective**. In contrast with conventional PCR and real-time PCR assays, this method is much more efficient while still obtaining a high level of precision. Also, the LAMP method has **High specificity** because of designed specific primers to be compatible with the target RNA.

This diagnostic test product, used to confirm COVID-19 need a diagnostic laboratory, a specialist, a laboratory that can handle clinical samples, and a PCR test equipment (Real-Time qPCR machine) in a large hospital or specialized testing center. **Sensitive** and **specificity** that only detects COVID-19 are detailed in the product introduction.

*Examination time varies according to the inspection equipment status, experts and proficiency of the hospital.

Frequent Q&A

1) Commercial Prices in other export countries

- Our policy is based on Korea FOB in all countries for export. *Shipping fee is responsible by the importer.

2) Packaging unit and weight

Box size (1 kit) : 26cm * 26cm * 27.5cm (6 kg)
*Packing stability evaluation was safe up to 5 days when we shipped in ice pack packaging.
*Packing box size will be change depending on order quantity.

3) Minimum Order Quantity

- MOQ (Minimum Order Quantity) is 50 kits per order.

4) Payment terms

- Buying Immediately : 100% T.T Advance Payment
- Booking in weekly base : 50% Deposit (Basis on Min. 1,000kit) Before 1 ~2week

5) Production Capacity in Manufacturer, Korea

- 30,000 Test / day

6) Product storage condition

- Required refrigeration (-15°C~-20°C)

Frequent Q&A

7) Storage expiration length

- Validity 1 year from date of manufacture (real-time)
- Validity 6 month from date of manufacture (premix)

8) Kit specification

* Isopollo® COVID-19 detection kit (real-time)

- Kit Box Size : 8.5cm * 7.5cm * 8cm
- Kit Unit : 100 Test/kit
- Required Instrument for COVID-19 kit : Conventional PCR Machine
- a) Bio-Rad, CFX-96 system
- b) Applied Biosystems™, 7500 Real-Time PCR Instrument System
- c) Applied Biosystems™, 7500 Fast Real-Time PCR Instrument System

* Isopollo® COVID-19 detection kit (premix/colorimetric)

- Kit Box Size : 16.5cm * 10cm * 11.5cm
- Kit Unit : 96 Test/kit (2pcs/set)
- Required Instrument for COVID-19 kit : portable small isothermal amplifier from M monitor
- a) M monitor, Inc., MXM-L1 (Nucleic acid amplifier-isothermal condition only)
- b) M monitor, Inc., MXM-F1 (Nucleic acid amplifier-isothermal condition and end-point PCR is available)

Frequent Q&A

9) Time to extraction result

- You can check the result in about 30 minutes.

10) Specimens

- Nasopharyngeal swab
- Oropharyngeal swab
- Sputum
- Bronchoalveolar lavage

Selling Point (only for Sales)

1) Diagnostic Kit Accuracy (More than 99%)

- Sensitivity : Small amount of virus can be detected up to 1 pg using this product.
- Specificity : It has 100% specificity for targeted RNA because 6 primers selectively detect specific genes (RdRP / N gene) of SARS-CoV-2.
- Feature
 - a) Multiple simultaneous detection of specific genes (RdRP / N gene)
 - b) Accurate qualitative analysis
 - *The advantages of both immuno-chemical diagnosis and molecular diagnosis methods.
 - c) Rapid diagnosis of prompt confirm the result and proper action and infection control

2) The efficiency of RT-LAMP diagnosis

- Cost reduction through simultaneous multiple sample tests
- 99% of accuracy and 100% of specificity
- Accurate qualitative analysis
- Proper action and infection control thorough rapid diagnosis
- Positive/Negative control included for clearly check the result

3) Common Use

- Conventional RT-PCR equipment can be used for diagnosis.



Comparison of COVID-19 Test Method

Spec.	Immune	diagnosis	Molecular Diagnostics (Biochip, Biosense, PCR)		
Method of inspection	Antigen Diagnosis	Antibody Diagnosis	PanCorona Virus Test	COVID 19 Detection Test	
Inspection Equipment	Antigen Diagnostic Kit	Antibody Diagnostic Kit	Real-time PCR	Real-Time RT PCR	
Pathogen	Corona 19 Detection (Low accuracy / sensitivity)	Corona 19 Detection (Low accuracy / sensitivity)	Whole Corona Virus Detection	Corona19 Detection	
Accuracy	50~85%	50~85%	80~95%	95~99%	
Inspection Difficulty	Low Low		High (High false positive rate)	Middle	
Corona19 Diagnostic Method	Put a runny nose or sputum in the kit and check for the presence of N protein of Corona 19 (Not likely to respond within 10 days of onset) Antibodies (IgG, IgM) to defend against the viral antigens of Corona 19 through the blood Check for infection by presence (Likely not responding within		 Nucleic Acid Extraction Conventional RT PCR Electrophoresis Transfer CDC at the first positive decision Request for Gene Sequence Analysis Confirmation of final positivity 	 1) Nucleic Acid Extraction 2) Real-Time RT-PCR 3) Pathogen Identification 4) Confirmation of Positive Status 	
Diagnostic time	10~40 mins	10~40 mins	1~2 days	4~6 hours	
Modification	Easy Kit Development	Easy Kit Development Easy Kit Development		 Quantitative Analysis of Gene Expression Pathogen detection Virus Quantitative Analysis 	
Feature	Low response early in infection Inadequate for infectious disease confirmation	RT-PCR test required for final confirmation	Complementary measures until development of the diagnostic kit	Specialized Kit for corona19 confirmation (WHO recommended)	

* This information is an unofficial data compiled internally by Medi & Korea to help local distributors understand.

Selling Point (only for Sales)

Cat.	ltem	Description	Unit	Original Size	Sample Sample
No.					Size Qty

52225	Isopollo® COVID-19 detection kit (colorimetric)	Isothermal amplification-based assay system for detection of COVID-19. - Check for accurate qualitative result within short reaction time and visually confirm through color change. *It can be checked the result (infected or not) with simple process without expensive equipment in the field.	1 Kit	100T	25T	1 Kit
52226	Isopollo® COVID-19 detection kit (premix) – RdRP gene, N gene COVID-19 detection kit (premix) consists of 2 boxes (1 set). One is for detection RdRP gene and another is N gene.	Isothermal amplification-based assay system for simultaneous detection of COVID-19 using ready-to-use lamp premix reagent Fast and simple checks for infection through color changes on medical site. *It can be checked the result (infected or not) with simple process without expensive equipment in the field.	1 Kit	96T	24T	1 Kit
52227	Isopollo® COVID-19 detection kit (real-time)	Real-time LAMP based assay system for detection of COVID- 19. - Check for accurate qualitative result within short reaction time of about 20 minutes. *It will be more appropriate for places such as large hospitals and laboratories equipped with experimental equipment.	1 Kit	100T	25T	1 Kit
92401	Mmaxpress® prep kit HA01	Rapid preparation of DNA from nasal swab sample for nucleic acid extraction kit.	1 Kit	13T	13T	2 Kit
82302	MXM-F1	Compatible PCR and Isothermal mode. 25 wells for 0.2ml PCRtubes.8 different MXM-F1 can be controlled by a single laptop.	-	EA	-	-

		Isothermal amplification only. 8 wells for 0.2ml PCR tubes. Compact sized, mobile phone control, and battery pack available for on-site				
82303	MXM-L1	diagnostics.	-	EA	-	-

Thank you

