

Covid-19

Novel Coronavirus(SARS-CoV-2)

Antigen Testing Kit

MASH Co., Ltd

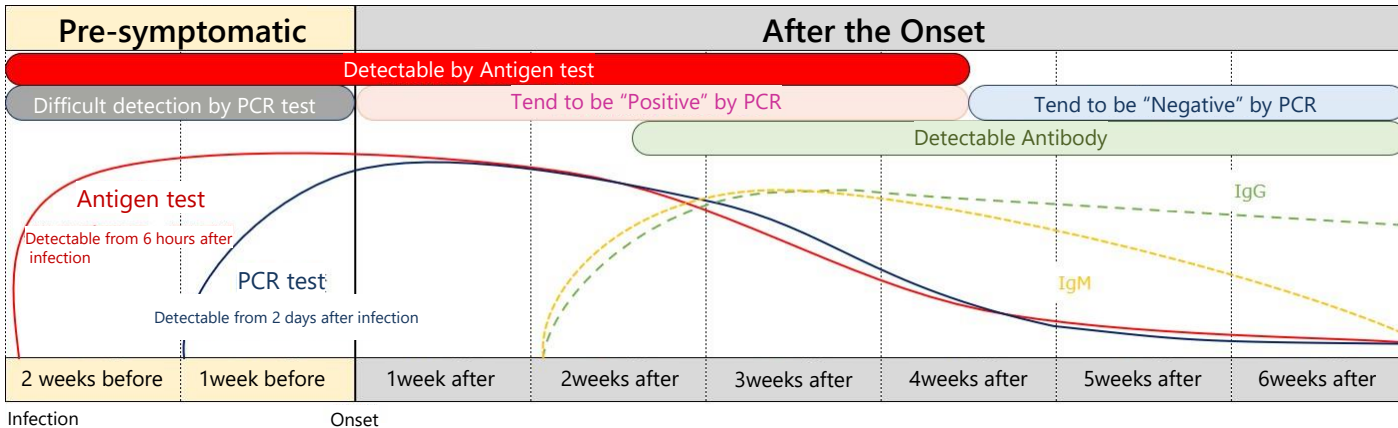


3 different methods to test Covid-19 (SARS-CoV-2)

Among 3 different types of test for Covid-19 (PCR test, Antibody test and Antigen test),

Antigen test is remarkable for requiring only about **15 minutes to reach its result**.

	Results	Samples	Detectable phase	Required time	Features
Antigen test (N protein)	Actual Status (Infected or Not)	Throat swab	感染6時間～回復	15 minutes	Immediate detection on site
PCR test (nucleic acid)		Throat swab Sputum	After arrival of symptoms	6-8hours	
Antibody test (IgM/IgG)	Record of infection	Blood	At antibody generation after infection	Detected only when Antibody is being formed	・感染したということがわかるだけ



Our Antigen-test Kit

We proudly present our Antigen-test Kit, developed by the best medical institutions in China, with higher accuracy of results than PCR-test. Our product is used and testified by global high-end users.

OUR TEST KIT



“Reaction Visualizing Pigment (Fluorescent Micro Sphere) ※”
makes

The test results more accurate than PCR-tests.

※**PATENT Granted.**

■ Export Record/Medical Certification

- More than 8,000 kits are exported globally including Japan, France, Italy, Singapore, U.S., Germany, Russia, Australia, Denmark and others



■ R&D Organization

● Research Institutions

- National Institute of Biological Sciences, Beijing
- Tianjin University
- 成都成华东升医院病原微生物研究中心

● Clinical Institutions

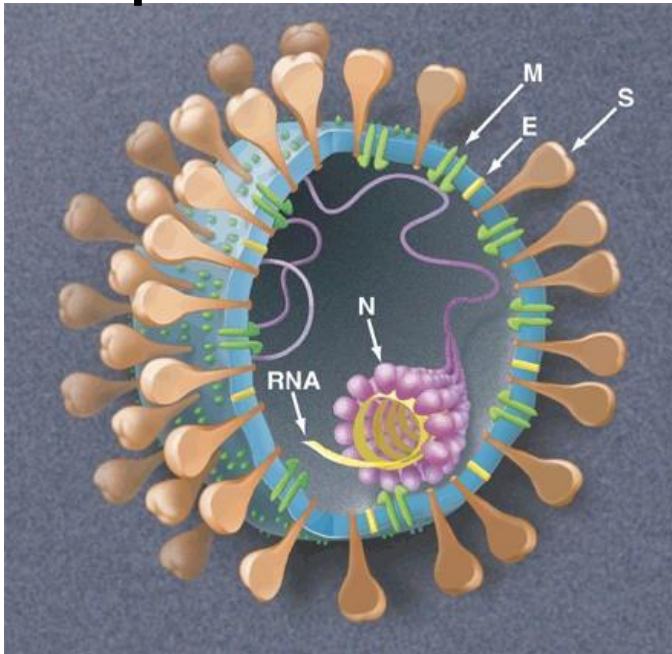
- 北京市医疗器械检验所
- 首都医科大学附属北京同仁医院
- 天津医科大学总医院空港医院

Developed with more than 1,000 samples in Wuhan

Details about our Antigen-test Kit

Can detect also the Variants Virus

■Composition of Novel Coronavirus



Mutation of Novel Coronavirus takes place in the field of Spike Protein. This makes extremely difficult the detections thru the methods of which the targets are Spike Protein or the gene sequence related to Spike Protein, such as PCR tests.

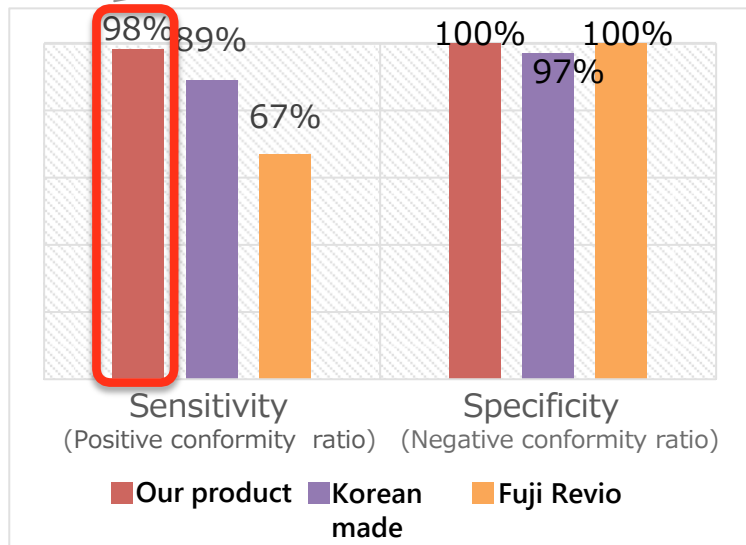
Our N protein Antigen detection test's target is in the field of N protein. This field is the most conservative, the least variable among the proteins of Novel Coronavirus and rarely affected by the mutation of virus. In field verifications, our test has detected more than 30 variants of virus.

- S : Spike (S) Protein
- E : Envelope (E) Protein
- M: Integral Membrane (M) Protein
- N : Nucleocapsid (N) Protein
- RNA : Virusgenome

The best performance assured (test cases with throat swab)

Among 3 different products of Covid-19 Antigen-test kit used in Japan,
Only our Antigen-test kit can bring the result with only one twentieth amount of Virus
than the other products.

Our product has the best sensibility



Why our product is the best?

Thanks to the reaction visualizing pigment
"Florescent Micro Sphere".
Our original Patent.

	Our Product	Korean made	Fuji Revio
Reaction visualizing pigment	Florescent Micro Sphere	Gold Colloid	Gold Colloid

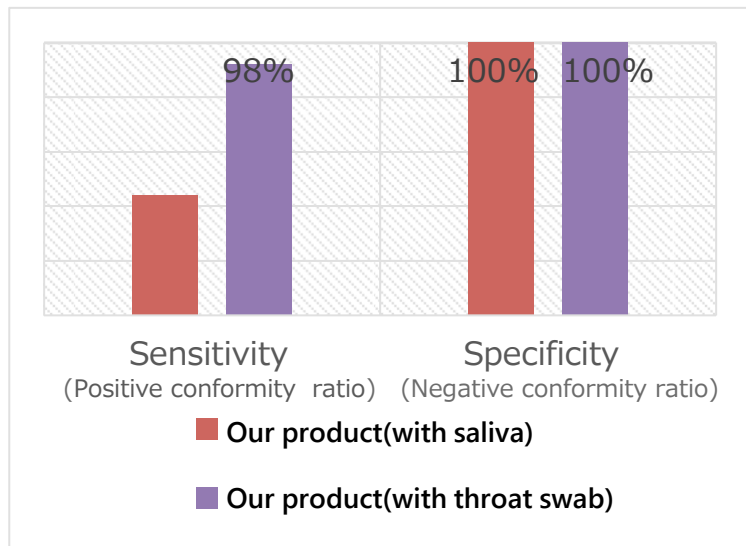
◎Required amount of Virus

- Florescent Micro Sphere → 250pg/ml
- Gold Colloid → 5000pg/ml
- PCR Test → 750pg/ml

Detect also small amount of Virus at the first stage of infection or weak infection cases

Reliable results with saliva(test cases with saliva)

Our Covid-19 Antigen-test kit is functional also with saliva. Although the detection with throat swab can be more sensible, our detection with saliva shows equal or better performances compared to the other product's detections with throat swab.



Our product requires **only 250pg/ml** for the test, and can **maintain high sensitivity of the tests with saliva**.

Nevertheless, the quantity of the virus can be drastically more with throat swab than with saliva. We advise to test with throat swab, when possible, without any specific issues.

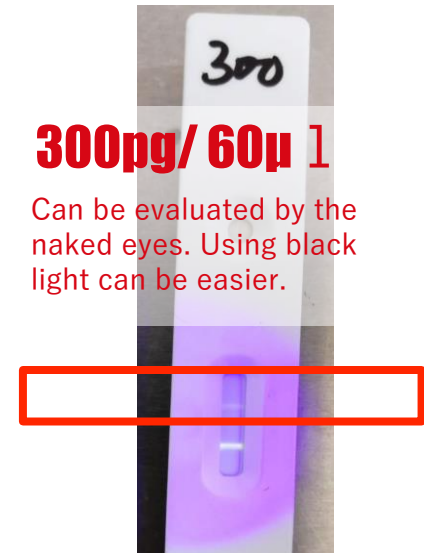
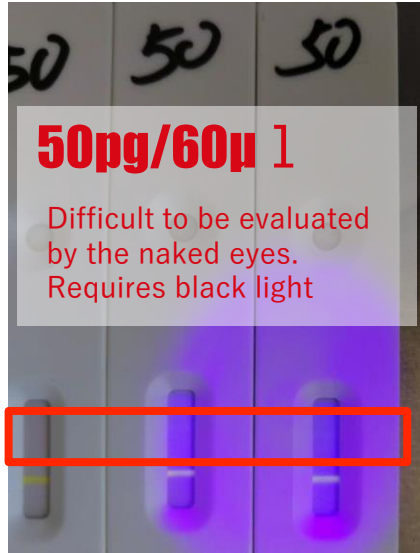
There are some makers which claim their product can detect from 20pg/ml. If we raise the density of N protein to maximum, we also can detect it from 1pg/ml. But we know this value is totally meaningless. We use only results with "real viruses".

Our superiority over other products

The world is facing rapid mutation of Novel Coronavirus and these variant viruses can be difficult to be detected by PCR tests. Our Antigen-test kit can **detect all of current variants of viruses**, and **requires only 250pg/ml** (around amount of 15pg/ml-50pg/ml can be tested only with specific testers).

Black light is used for accurate evaluation.

Our kits apply **"fluorescence immunoassay measurement method"** of which the result of test in the U.S. shows 100% in both sensitivity and specificity at CT<25. Many of antigen test kits apply gold colloid method and its sensibility can reach more or less to 60% at its limit.



Dedicated measuring instruments

Our dedicated measuring instruments makes possible to evaluate small amount of Virus (250pg/ml~), when the evaluation with the naked eyes is difficult. It also makes possible to digitalize the effects of Medical treatments, to evaluate the phases of recovery.



Savant-60

Portable virus measuring instrument.
Works with batteries and you can use it
Wherever you want.
Quantitative results can be shown using
our software. (Mobile or PC)
Takes 10 second for one test.
Size: 155mm*115mm*82mm

Savant-200

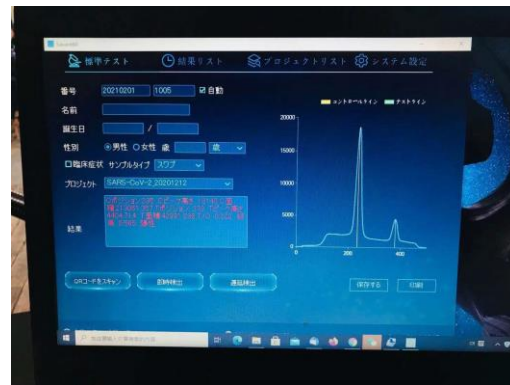
Virus measuring instrument with printer.
Quantitative results can be shown on
the display of this machine.
You can also print out the results.
Takes 8 second for one test.
Size: 300mm*265mm*150mm

Savant-300

Virus measuring instrument, capable of
measuring 20 test samples each time.
Quantitative results can be shown on
the display of this machine.
Takes 120 seconds for 20 tests.
Size: 550mm*440mm*300mm

Dedicated measuring instruments

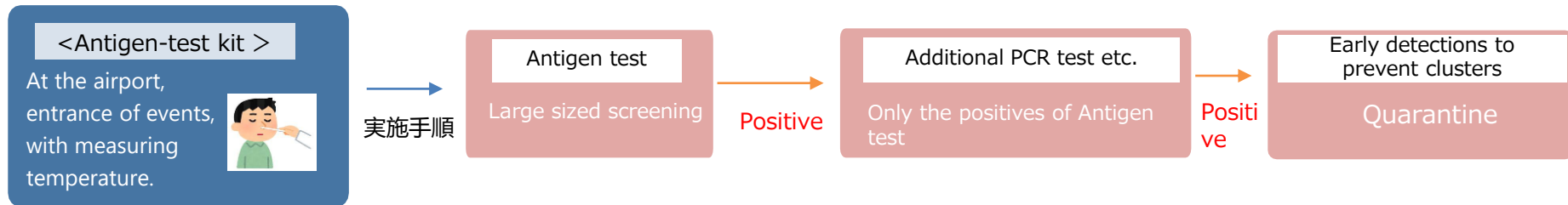
Link with dedicated software and server, to accumulate and share the data.



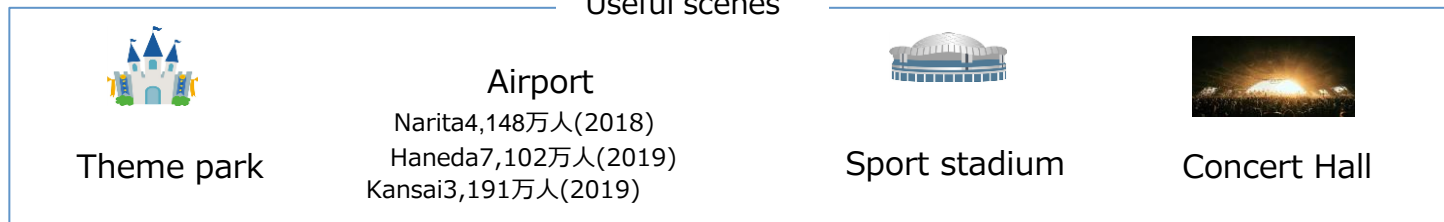
When and how to use our product

Few examples where our Antigen-test kits can be extremely useful.

1. To get early detections, at the airport immigrations, entrance for big events etc.



Useful scenes



2. To prevent recurrence of the virus after quarantine, discharge from hospital etc.

<Combined use with PCR test>

The negative result with PCR test can't tell the remaining quantity of N protein (a part of the Virus). If N protein remains, it can cause the recurrence after some time to be "positive" again. Using Antigen-test with PCR test will secure the safety of patients.

Rap-up the features of our product

Result within 6 hours

Ideal for airport workers and pilots, visitors from abroad. Quarantine period will be drastically shorter.

Detect all variants of virus

Our detection target, N protein antigen rarely mutates. It means our product can detect the variants of virus (from England, South Africa etc.) of which PCR tests might fail to detect. Best for international airports and ports, where we face the risk of a new PCR-indetectable variant each day, each moment.

Digitalize the activity of Virus with quantitative method

Knowing the concentration of N protein helps us to see the activity of Virus. It will allow us to foresee the possibility of aggregation, or recovery.

Example use of our product

In the hospital, for inpatients and at their discharge

Our Antigen-test kit is based on **quantitative method**, and it can show the status of inpatients, whether they are recovering or advancing in severity, while testing them every day.

At their discharge from the hospital, a patient can be tested with both PCR test and our Antigen-test, to ensure the total recovery.

PCR test shows “Negative” when the amount of virus is under 500 in 1ml sample, nevertheless, it doesn't detect the concentration of N protein.

When a patient leaves the hospital without knowing the high concentration of N protein, the virus can be recur some time later and there are cases of deaths over this fact.



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