

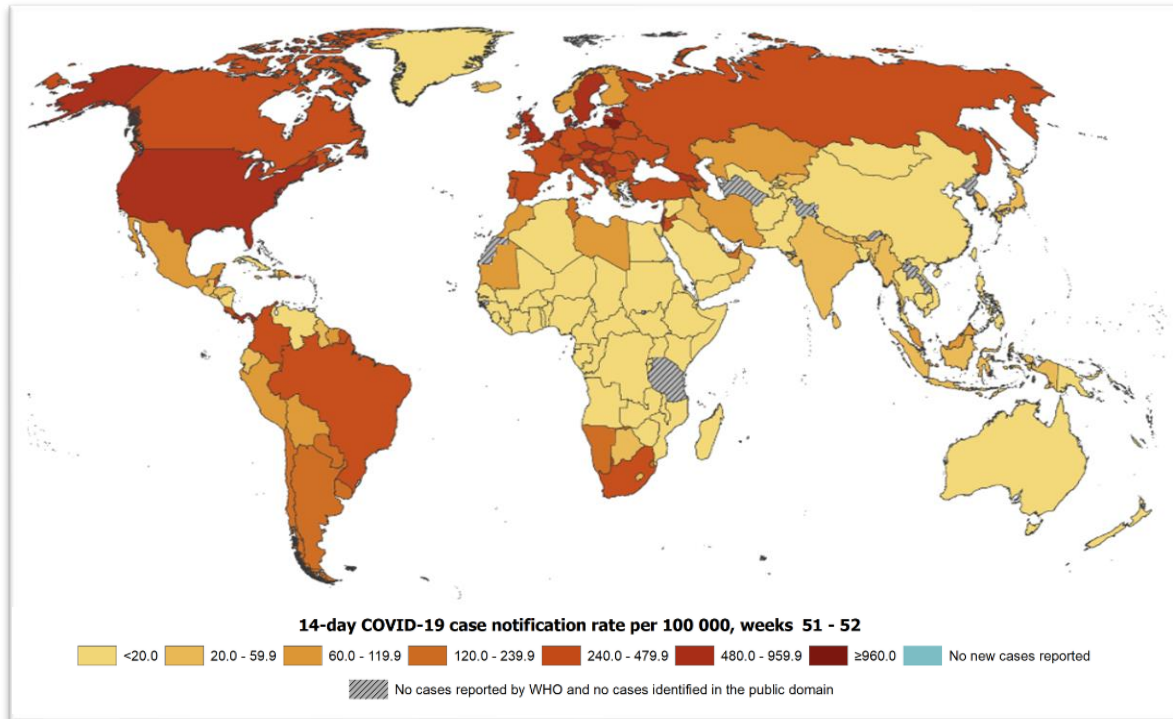
HANCOM

**HANCOM**  
HANCOM HEALTHCARE

**Malang Malang™  
SARS-CoV-2 Neutralization Antibody ELISA Kit**



# COVID-19 Outbreaks – Global Situation



Americas

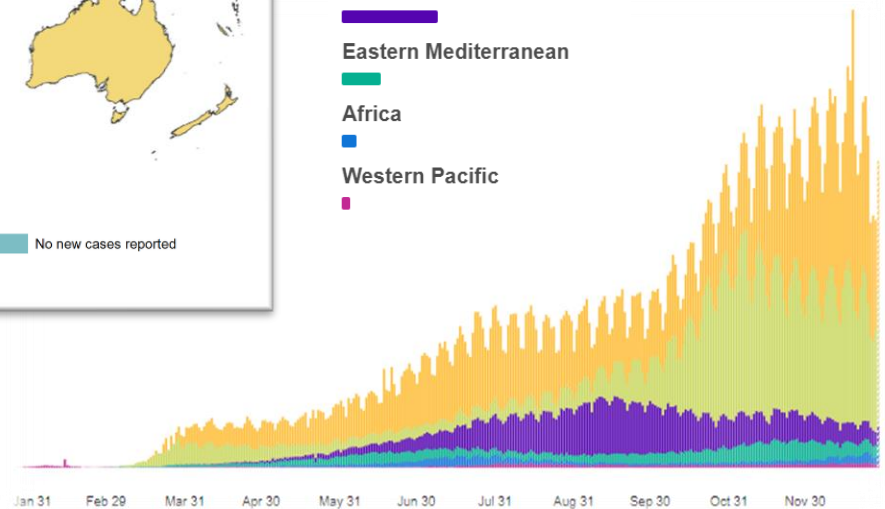
Europe

South-East Asia

Eastern Mediterranean

Africa

Western Pacific



- Rapid increase since Aug
- Over 70% of Outbreaks are in the US and Europe
- Vaccination Start in the US and Europe

# Product Overview

## Malang Malang™ SARS-CoV-2 Neutralization Antibody ELISA Kit



Safer

No live virus,  
No BSL (Biosafety level) 3 lab

Faster  
Easier

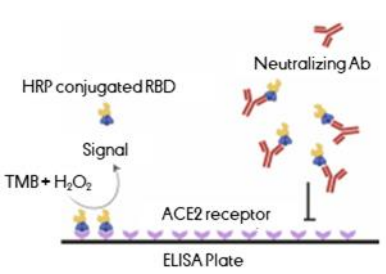
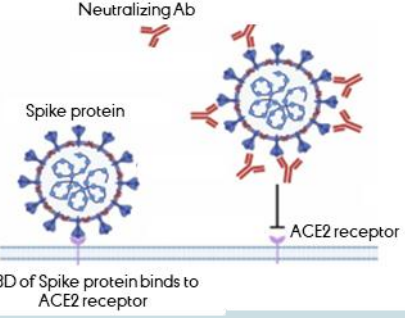
Within 2 hours,  
No highly skilled operators

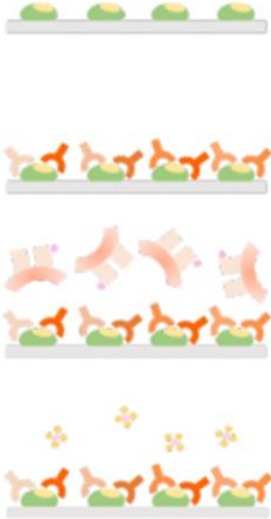
More  
scalable

High throughput,  
90 samples at once

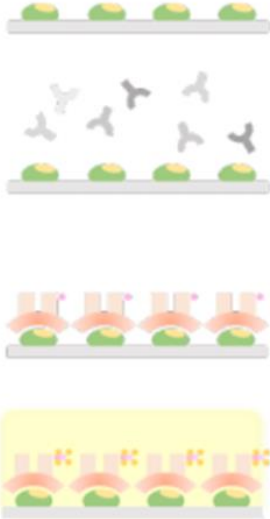
- This product is developed to detect neutralizing antibodies semi-quantitatively in the patients infected with SARS-CoV-2 previously or in the vaccinated group.

# Product Principle







| cVNT  | sVNT  |
|---|---|
|   |    |
| <h3>Conventional Viral Neutralization Test</h3>   | <h3>Surrogate Viral Neutralization Test</h3>  |
| <p>If there are Neutralizing Abs in the serum in the patients, it inhibit physiological interaction between the RBD and ACE2 receptor. So, the activity of viral infection is neutralized. (Ex) pRNT Assay.</p> | <ul style="list-style-type: none"> <li>- Biochemical simulation of virus-receptor interaction.</li> <li>- Antibody-mediated neutralization</li> <li>- FDA EUA product, Genscript cPass™ SARS-CoV-2 Neutralization Antibody Kit</li> </ul> |



Detect Neutralizing Ab

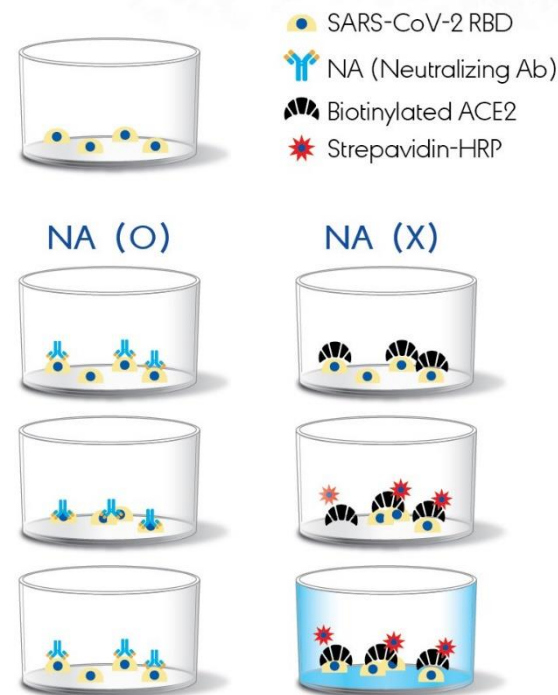
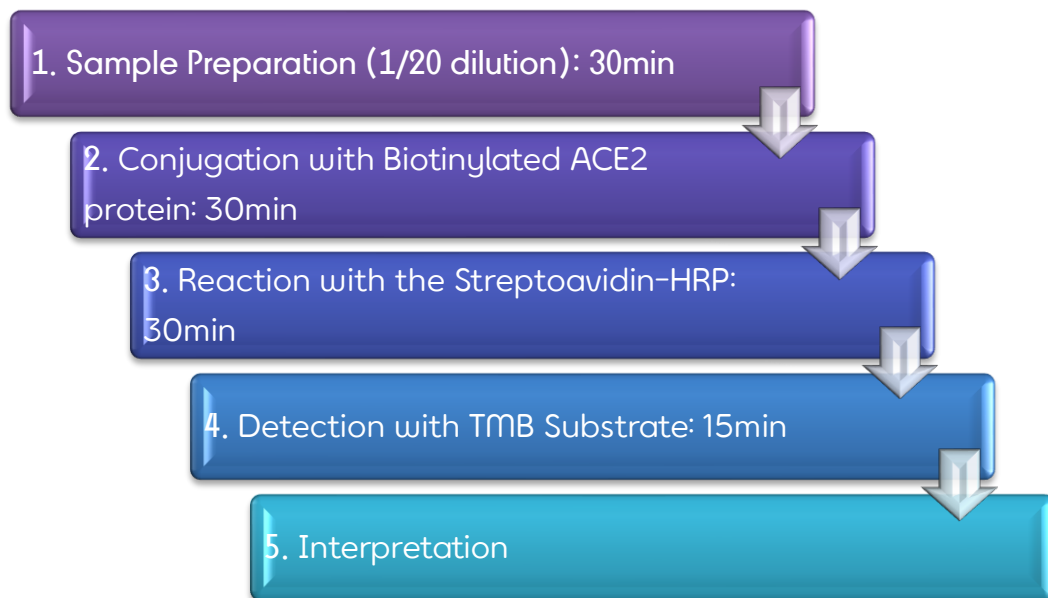


Not detect Neutralizing Ab

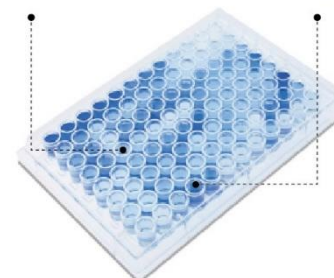
-  SARS-Cov-2 RBD
-  Neutralizing Ab
-  Non-neutralizing Ab
-  Biotinylated ACE2
-  Streptavidin-HRP
-  TMB substrate

- This Surrogate Virus Neutralization Test is similar to standard ELISA using competition reaction of ACE2 cell receptor protein and Neutralizing Ab in the ELISA plate pre-coated with RBD (Receptor Bind Domain) protein.

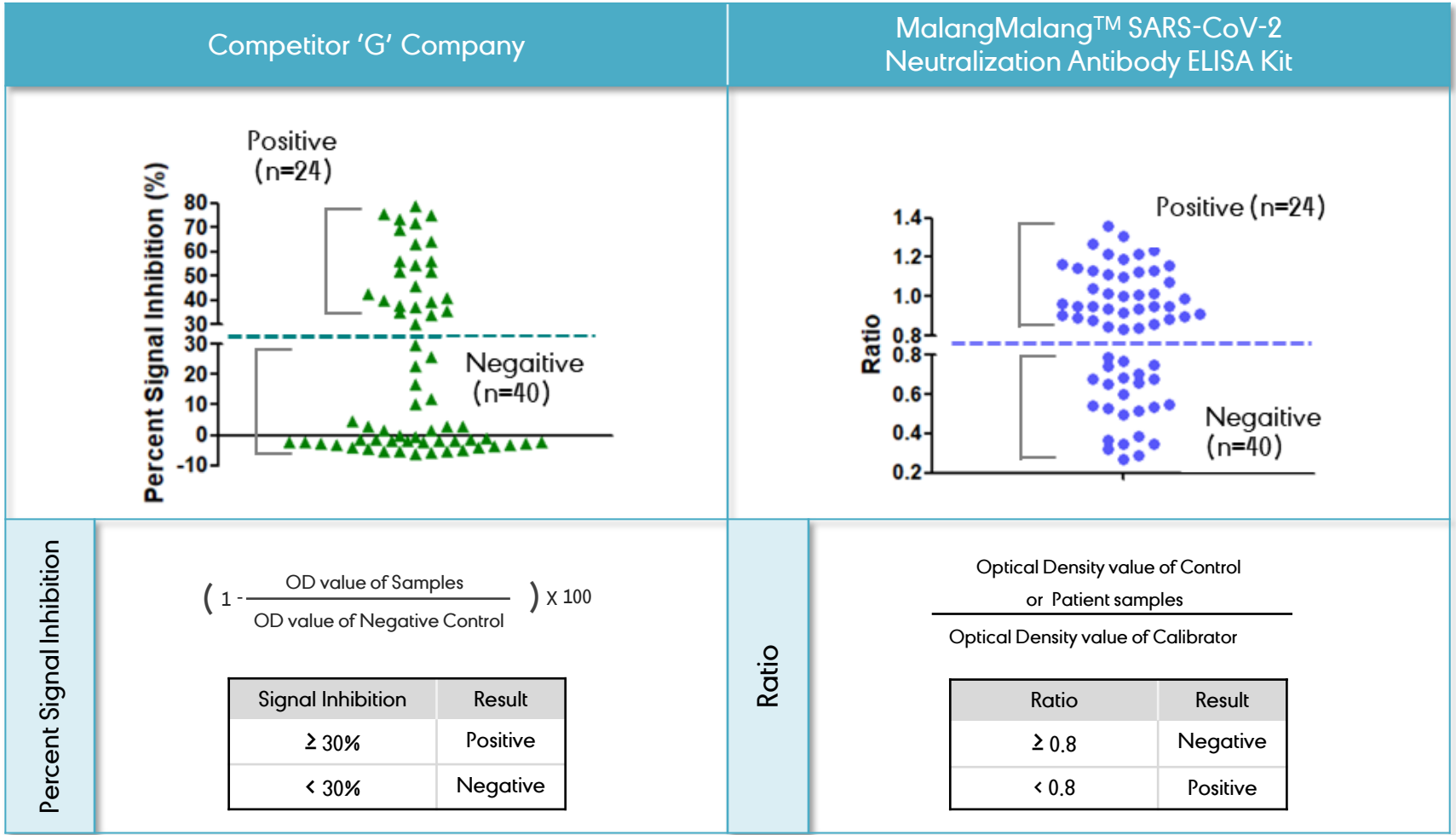
# Test procedure



| Test Sample                   | NA (O)      | NA (X)        |
|-------------------------------|-------------|---------------|
| Block of the Binding RBD-ACE2 | O.K         | Not           |
| TMB Substrate                 | No Reaction | Turn the Blue |



# Clinical Performance



# Clinical Performance

| Correlation Table  |                            | Competition 'G' Company        |                                |
|--|----------------------------|--------------------------------|--------------------------------|
|  |                            | Positive (n=24)                | Negative (n=40)                |
| Malang Malang™<br>SARS-CoV-2<br>Neutralization Antibody<br>ELISA Kit | Positive                   | 24                             | 0                              |
|  | Negative                   | 0                              | 40                             |
|  | Positive Percent Agreement | 99.9%<br>(95% CI 86.3% - 100%) |                                |
|  | Negative Percent Agreement |                                | 99.9%<br>(95% CI 91.2% - 100%) |
|  | Overall Percent Agreement  | 100 x [(24+40)/64] = 100%      |                                |

- **Samples:** The test was validated using previously frozen samples, 24 SARS-CoV-2-positive serum samples and 40 SARS-CoV-2-negative serum samples confirmed through a nucleic acid amplification test (NAAT).
- **'Positive':** Neutralizing antibodies for SARS-CoV-2 are detected
- **'Negative':** Neutralizing antibodies for SARS-CoV-2 are not detected

# Method Comparison Table

|                      | cVNT       | pVNT                | sVNT      |           |                  |
|----------------------|------------|---------------------|-----------|-----------|------------------|
|                      |            |                     | G Company | A Company | HANCOM           |
| Type                 | pRNT       | Pseudovirus         | ELISA     |           |                  |
| Facility             | BSL3       | BSL2                | -         | -         | -                |
| Cells                | ○          | ○                   | -         | -         | -                |
| Live virus           | SARS-CoV-2 | Lenti or VSVG virus | -         | -         | -                |
| Time                 | 3 -4 days  | 3 - 4 days          | 90 mins   | 120 mins  | 90 mins          |
| Reaction temperature | 37°C       | 37°C                | 37°C      | 37°C      | Room Temperature |
| High throughput      | -          | ○                   | ○         | ○         | ○                |

- MalangMalang™ SARS-CoV-2 Neutralization Antibody ELISA Kit is possible to test in room temperature.



# Product component / Data Reference

| Components               | Quantity | Storage |
|--------------------------|----------|---------|
| RBD Coated Microplate    | 1 plate  | 4°C     |
| Calibrator, Ready-to-use | 2 vials  | 4°C     |
| Positive Control         | 2 vials  | 4°C     |
| Negative Control         | 2 vials  | 4°C     |
| 100x Detector            | 1 vial   | 4°C     |
| 100x SA-HRP              | 1 vial   | 4°C     |
| 10x Assay buffer         | 1 bottle | 4°C     |
| 20x Wash buffer          | 1 bottle | 4°C     |
| TMB Solution             | 1 bottle | 4°C     |
| Stop Solution            | 1 bottle | 4°C     |
| Plate Covers             | 2 ea     | -       |

## Reference

1. *VanBlargan LA, Goo L, Pierson TC. Deconstructing the Antiviral Neutralizing-Antibody Response: Implications for Vaccine Development and Immunity. Microbiol. Mol. Biol. Rev. (2016).*
2. *Tan CW, Chia WN, Qin X, et al. A SARS-CoV-2 surrogate virus neutralization test based on antibody-mediated blockage of ACE2-spike protein-protein interaction. Nat. Biotechnol. (2020).0*



Together, we are working toward the better your life.  
Thank you