

# One step closer to anti-COVID-19 life with The FREND<sup>TM</sup> COVID-19 SP

Microfluidic Qualitative and Semi-Quantitative Immunoassay



The FREND<sup>™</sup> COVID-19 SP is a point-of-care testing (POCT) that **qualitatively & semi-quantitatively detects IgG and IgM antibodies to the S1 subunit of the spike protein (SP)** of the SARS-CoV-2 in patients confirmed with the COVID-19 using a fluorescence immunoassay (FIA). The FREND<sup>™</sup> COVID-19 SP may provide the measurement of neutralizing antibodies (Nab) in faster and easier way with only 35 uL of sample. The FREND<sup>™</sup> COVID-19 SP is intended to measure both the IgG and IgM to check for the immune response developed in COVID-19 patients and indicate recent or prior infection of the virus.



\* IgG and IgM targeting S1subunit

# MINING The FREND™ COVID-19 SP Can Offer You a Fast Track to Vaccine Passport



Like the existing immunization certificates as a proof of immunizations, a vaccine passport is actively considered worldwide.<sup>1</sup> It will serve as a tool proving that a vaccinated person has enough Nab so that they are at a low risk of getting infected by the virus. As the presence of IgG are critical after vaccination, the FREND<sup>™</sup> COVID-19 SP could provide meaningful data for the efficacy and effectiveness of vaccination.

# Related studies on the anti-SP and neutralizing antibody

• "Numerous neutralizing antibodies have been found to target the RBDs of SARS-CoV... target the COVID-19 virus RBD is a priority."

Science

 "...the S- and RBD (receptor binding domain)-specific IgG level was much higher in recovered COVID-19 patients who were SARS-CoV-2 negative, indicating that antibodies play an important role in viral clearance."

## A Relativity High Correlation between the S-specific IgG and RBD-specific IgG





Fig.2<sup>(3)</sup>

Fig.1<sup>(3)</sup>

The data from the Nature shows that the patients with mild/moderate condition were found to have the highest level of S-specific IgG, followed by the RBD-specific IgG. As the condition got worse, the level of RBD-specific IgG was the highest, followed by the S-specific IgG.



## **Clinical Performance Evaluation**



A total of 88 clinical samples (34 positive and 54 negative) confirmed with RT-PCR were tested with the FREND<sup>™</sup> COVID-19 SP, demonstrating 97.06% PPA\* and 96.30% NPA\*.

\*Positive Percent Agreement (PPA), Negative Percent Agreement (NPA)



Upon comparison with the USA EUA approved SARS-CoV-2 neutralizing antibody detection kit, 93% PPA (IgG only) and 100% NPA were demonstrated.

## **Prepare a Daily Life Against COVID-19**

The FREND<sup>™</sup> COVID-19 SP detects, not just any antibodies, but both IgG and IgM that are specific to the spike proteins of the SARS-CoV-2. As the spike-specific antibodies have relatively high correlation with the neutralizing antibodies, the FREND<sup>™</sup> COVID-19 SP may also provide a fast, qualitative and quantitative measurement of neutralizing antibodies after vaccination.

#### Reference

1) "People Who Get the COVID Vaccine Might Be given 'Immunity Passports' – Here's How This Could Make Life More Normal Again." Health.com, 10 Dec. 2020, www.health.com/condition/infectious-diseases/coronavirus/covid-immunity-passport.

2) Wu, Yan, et al. "A Noncompeting Pair of Human Neutralizing Antibodies Block COVID-19 Virus Binding to Its Receptor ACE2."

Science, 13 May 2020, science.sciencemag.org/content/early/2020/05/12/science.abc2241, 10.1126/science.abc2241.

 Li, K., Huang, B., Wu, M. et al. Dynamic changes in anti-SARS-CoV-2 antibodies during SARS-CoV-2 infection and recovery from COVID-19. Nat Commun 11, 6044 (2020). https://doi.org/10.1038/s41467-020-19943-y

Specification				COVID-19 SP
Item	Specification			
Assay principle	Fluorescence immunoassay		The the sol	Con
Specimen	Serum or Plasma			as and a set of the set
Sample volume	35 µL	Ordering Information		
Reaction time	3~4 minutes	Product	Cat. No.	
Quantity	20 tests/kit	FREND <sup>™</sup> System	F10	-
Storage condition	4~30°C (39~86°F)	FREND™ COVID-19 SP	FRCOS 020	_

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