

Supplementary Materials

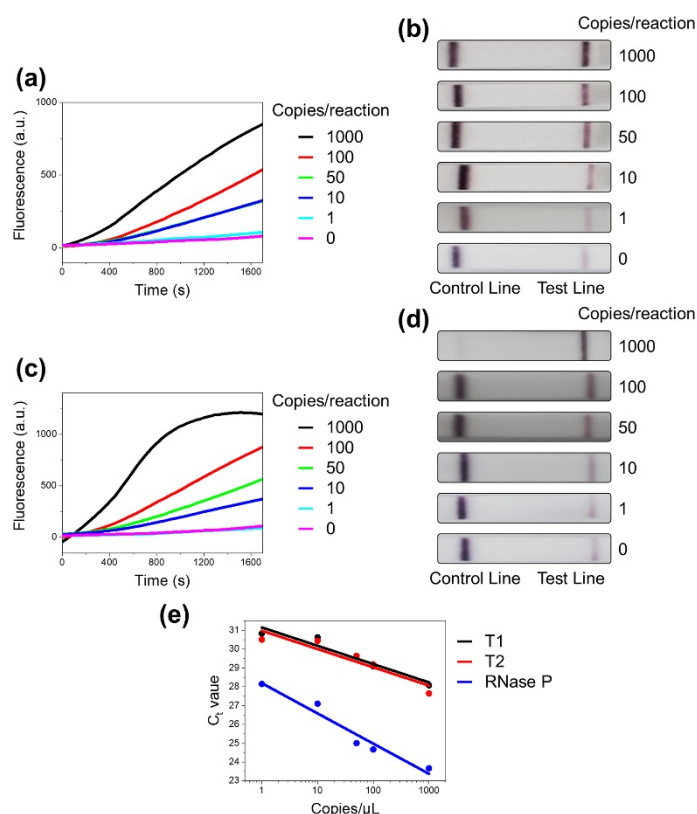


Figure S1. (a) Fluorescence and (b) LFA detection results of synthetic S gene of SARS-CoV-2 (T1) using CRISPR-Cas12-based assay. (c) Fluorescence and (d) LFA detection results of synthetic RNase P gene using CRISPR-Cas12-based assay. Copy number of T2 and RNase P was varied from 1000 to 1 copy/reaction. (e) PCR results of synthetic S gene of SARS-CoV-2 (T1 and T2) and RNase P gene. Copy numbers were varied from 1000 to 1 copy/reaction.

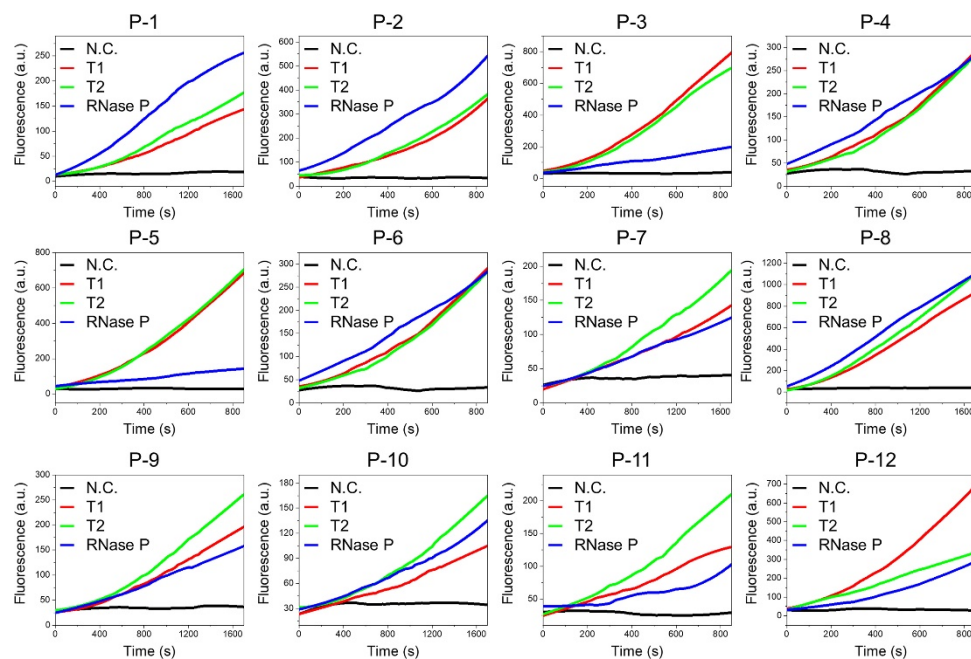


Figure S2. Fluorescence detection results of SARS-CoV-2 in COVID-19 patient samples using CRISPR-Cas12-based assay.

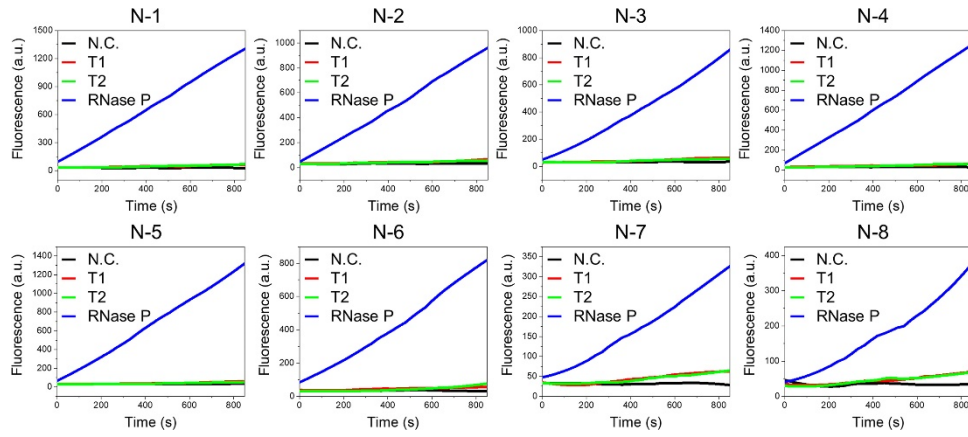


Figure S3. Fluorescence detection results of SARS-CoV-2 in healthy people samples using CRISPR-Cas12-based assay.

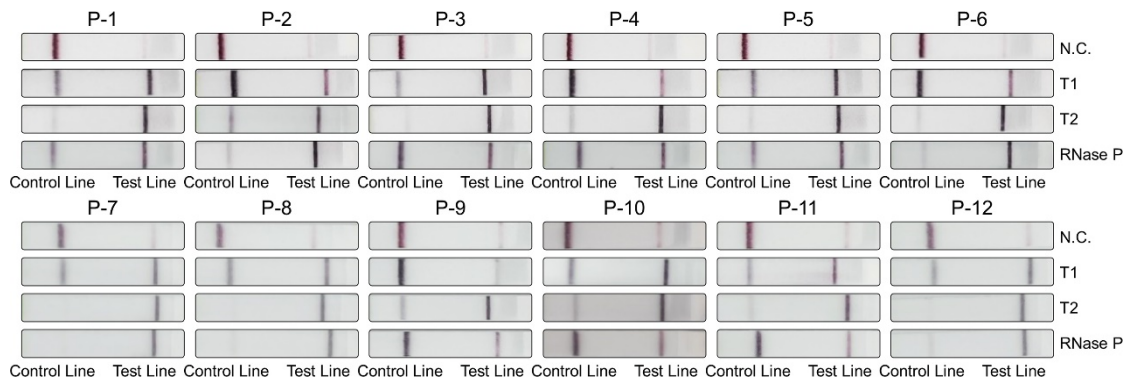


Figure S4. LFA detection results of SARS-CoV-2 in COVID-19 patient samples using CRISPR-Cas12-based assay.

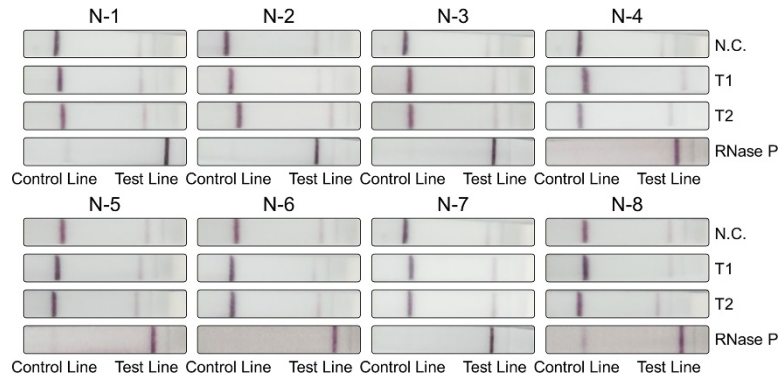


Figure S5. LFA detection results of SARS-CoV-2 in healthy people samples using CRISPR-Cas12-based assay.

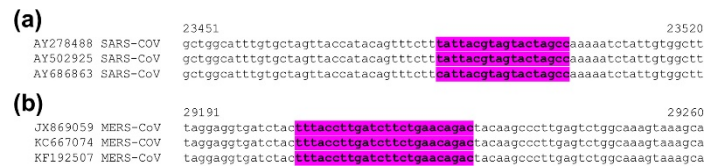


Figure S6. Sequence alignment of (a) S gene in SARS-CoV and (b) N gene of MERS-CoV. Regions colored in magenta are the selected target regions for the detection.

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22881                                22960
MZ344997_alpha attctaacaatcttgattctaaggttggtggttaattataattacctgtatagattgtttaggaagtctaatctcaaacct
MW598419_beta attctaacaatcttgattctaaggttggtggttaattataattacctgtatagattgtttaggaagtctaatctcaaacct
MZ169911_gamma attctaacaatcttgattctaaggttggtggttaattataattacctgtatagattgtttaggaagtctaatctcaaacct
MZ359841_delta attctaacaatcttgattctaaggttggtggttaattataattaccggtatagattgtttaggaagtctaatctcaaacct
.....

22961                                23040
MZ344997_alpha tttgagagagatatttcaactgaaatctatcaggccggtagcacaccttgtaattggtgttgaaggttttaattgttactt
MW598419_beta tttgagagagatatttcaactgaaatctatcaggccggtagcacaccttgtaattggtgttgaaggttttaattgttactt
MZ169911_gamma tttgagagagatatttcaactgaaatctatcaggccggtagcacaccttgtaattggtgttgaaggttttaattgttactt
MZ359841_delta tttgagagagatatttcaactgaaatctatcaggccggtagcaaaccttgtaattggtgttgaaggttttaattgttactt
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Figure S7. Sequence alignment of S gene in SARS-CoV-2 variants. Regions colored in yellow and skyblue indicate SARS-CoV-2 specific T1 and T2, respectively, next to PAM sequence marked in red.

Table S1. Primer list.

Name	Sequence
SARS-CoV-2 S FP	ACAGGCTGCGTTATAGCTTGGAATTCTAAC
SARS-CoV-2 S RP	CCTTCAACACCATTACAAGGTGTGCTACCG
SARS-CoV S FP	TGAGTGCGACATTCCTATTGGAGCTGGCAT
SARS-CoV S RP	GTAGGTATAGCAATGGTGTTATTAGAG-TAA
MERS-CoV N FP	G TTCACAAGGTTCAAGATCAG-GAAACTCTA
MERS-CoV N RP	TTCTTAGTGATTACTTTTGGCTGCGATTGC
RNase P FP	GTGGAGCTTGTTGATGAGCTG-GAGCCAGAG
RNase P RP	TCCGAGGTCCAGTACTCAGCATGCGAA-GAG

Table S2. gRNA list.

Name	Sequence
SARS-CoV-2 T1 gRNA	UAAUUUCUACUAAGUGUAGAUGGAA- GUCUAAUCUCAACCU
SARS-CoV-2 G2 gRNA	UAAUUUCUACUAAGUGUAGAU- AACUGAAAUCUAUCAGGCCG
RNase P gRNA	UAAUUUCUACUAAGUGUAGAUAAUUAC- UUGGGUGUGACCCU
Ascpf1 T1 gRNA	UAAUUUCUACUUUGUAGAUGGAAGUCU- AAUCUCAACCU
Eecpf1 T1 gRNA	UAAUUUCUACUUUGUAGAUGGAAGUCU- AAUCUCAACCU
MERS-CoV N gRNA	UAAUUUCUACUAAGUGUAGAC- CUUGAUCUUCUGAACAGAC
SARS-CoV S gRNA	UAAUUUCUACUAAGUGUAGAU- UUAUUACGUAGUACUAGCC

Table S3. dsDNA gene fragments.

Name	Sequence
SARS-CoV-2 S gene	GAAATTAATACGACTCACTATAGGGGATGATTTTACAGGCTGCGTTATAGCTT- GGAATTCTAACAATCTTGATTCTAAGGTTGGTGGTAATTATAATTACCTGTAT AGATTGTTTAGGAAGTCTAATCTCAAACCTTTTGAGAGAGA- TATTTCAACTGAAATCTATCAGGCCGGTAGCACACCTTGTAATGGTGTGAA GGTTTAAATTGTTACT
SARS-CoV S gene	GAAATTAATACGACTCACTATAGGGCGACACTTCTTATGAGTGCGACATTCC- TATTGGAGCTGGCATTGTGTCTAGTTACCATACAGTTTCTTTATTACGTAGTAC TAGCCAAAAATCTATTGTGGCTTATACTATGTCTTTAGGTGCTGA- TAGTTCAATT- GCTTACTCTAATAACACCATTGCTATACCTACTAACTTTTCAATTAG
MERS-CoV N gene	GAAATTAATACGACTCACTATAGGGCAGATCTAGTTCACAAGGTTCAA- GATCAGGAAACTC- TACCCGCGGCACTTCTCCAGGTCCATCTGGAATCGGAGCAGTAGGAGGTGAT CTACTTTACCTTGATCTTCTGAACAGACTACAAGCCCTTGAGTCTGG- CAAAGTAAAGCAATCGCAGCCAAAAGTAATCACTAAGAAAGATGCTGCT

Table S4. PCR results of clinical samples.

Sample number	Sample type	Ct value
1	Nasopharyngeal aspirates	20.85
2	Sputum	24.67
3	Nasopharyngeal aspirates	14.41
4	Nasopharyngeal aspirates	29.75
5	Sputum	20.66
6	Nasopharyngeal aspirates	18.91
7	Sputum	17.86
8	Nasopharyngeal aspirates	19.61
9	Sputum	23.27
10	Nasopharyngeal aspirates	25.93
11	Sputum	23.99
12	Sputum	22.43