

CLAIMS

1. A PCR primer set for a target region, the PCR primer set comprising a forward primer selected from the group consisting of SEQ ID No. 1, SEQ ID No. 9, SEQ ID No. 10, and SEQ ID No. 11, and a reverse primer of SEQ ID No. 2 when one of
5 SEQ ID No. 1, SEQ ID No. 9, or SEQ ID No. 10 is selected as the forward primer or SEQ ID No. 12 when SEQ ID No. 11 is selected as the forward primer.
2. The PCR primer set according to claim 1 wherein the forward primer is SEQ ID No. 1 and the reverse primer is SEQ ID No. 2.
3. The PCR primer set according to any one of claims 1 to 2 wherein both SEQ ID
10 No. 1 and SEQ ID No. 9 are selected as the forward primers.
4. The PCR primer set according to any one of claims 1 to 3 further comprising a TaqMan probe that anneals to part of the target region.
5. The PCR primer set according to claim 4 wherein the TaqMan probe comprises SEQ ID No. 3 when one of SEQ ID No. 1, SEQ ID No. 9, or SEQ ID No. 10 is
15 selected as the forward primer or SEQ ID No. 13 when SEQ ID No. 11 is selected as the forward primer, a fluorophore and a quencher.
6. The PCR primer set according to claim 5 wherein the fluorophore is selected from the group consisting of 6-carboxyfluorescein, tetrachlorofluorescein, 6-Carboxy-4',5'-Dichloro-2',7'-Dimethoxyfluorescein, hexachlorofluorescein,
20 carboxyrhodamine, Cy3, and Cy5.
7. The PCR primer set according to any one of claims 5 to 6 wherein the quencher is selected from BHQ-1, BHQ-2, BHQ-3, DABCYL, and TAMRA.
8. A method of detecting the presence of a coronavirus in a sample, the method comprises:
25 providing a PCR primer set, the PCR primer set comprising a forward primer selected from the group consisting of SEQ ID No. 1, SEQ ID No. 9, SEQ ID No. 10, and SEQ ID No. 11, and a reverse primer of SEQ ID No. 2 when one of SEQ ID No. 1, SEQ ID No. 9, or SEQ ID No. 10 is selected as the forward primer or SEQ ID No. 12 when SEQ ID No. 11 is selected as the forward primer;
30 testing a sample with the PCR primer set using a reverse transcription polymerase chain reaction to amplify a target region of the coronavirus DNA present in the sample; and

measuring a level of the target region to determine if the coronavirus DNA is present in the sample.

9. The method according to claim 8 wherein the forward primer is SEQ ID No. 1 and the reverse primer is SEQ ID No. 2.
- 5 10. The method according to any one of claims 8 to 9 wherein both SEQ ID No. 1 and SEQ ID No. 9 are selected as the forward primers.
11. The method according to any one of claims 8 to 10 wherein the PCR primer set further comprises a TaqMan probe.
12. The method according to claim 11 wherein the TaqMan probe comprises SEQ ID
10 No. 3 when one of SEQ ID No. 1, SEQ ID No. 9, or SEQ ID No. 10 is selected as the forward primer or SEQ ID No. 13 when SEQ ID No. 11 is selected as the forward primer, a fluorophore and a quencher.
13. The method according to claim 12 wherein the fluorophore is selected from the group consisting of 6-carboxyfluorescein, tetrachlorofluorescein, 6-Carboxy-4',5'-
15 Dichloro-2',7'-Dimethoxyfluorescein, hexachlorofluorescein, carboxyrhodamine, Cy3, and Cy5.
14. The method according to any one of claims 12 to 13 wherein the quencher is selected from BHQ-1, BHQ-2, BHQ-3, DABCYL, and TAMRA.
15. A kit comprising a forward primer selected from the group consisting of SEQ ID
20 No. 1, SEQ ID No. 9, SEQ ID No. 10, and SEQ ID No. 11, and a reverse primer of SEQ ID No. 2 when one of SEQ ID No. 1, SEQ ID No. 9, or SEQ ID No. 10 is selected as the forward primer or SEQ ID No. 12 when SEQ ID No. 11 is selected as the forward primer, wherein the forward primer and the reverse primer bound a target region; a first TaqMan probe that anneals to part of the target region; a set of
25 internal control primers to target an internal control template sequence, and a second TaqMan probe that anneals to part of the internal control template sequence.
16. The kit according to claim 15 wherein the forward primer is SEQ ID No. 1 and the reverse primer is SEQ ID No. 2.
- 30 17. The kit according to any one of claims 15 to 16 wherein both SEQ ID No. 1 and SEQ ID No. 9 are selected as the forward primers.
18. The kit according to any one of claims 15 to 17 wherein the TaqMan probe comprises SEQ ID No. 3 when one of SEQ ID No. 1, SEQ ID No. 9, or SEQ ID

No. 10 is selected as the forward primer or SEQ ID No. 13 when SEQ ID No. 11 is selected as the forward primer, a fluorophore and a quencher

19. The kit according to any one of claims 15 to 18 wherein the primers and TaqMan probes are in solution with an identical concentration.
- 5 20. The kit according to any one of claims 15 to 19 further comprising at least one of the following: Taq DNA polymerase, deoxyribonucleotides, magnesium chloride, the internal control template sequence, and nuclease free water.