

WHAT IS CLAIMED IS:

1. A kit for detecting SARS-CoV-2, comprising a first primer set and a second primer set,

wherein the first primer set is selected from the group consisting of:

- (a) primers comprising nucleotide sequences of SEQ ID NOs: 1 to 4, ~~or nucleotide sequences having at least 90% identity to SEQ ID NOs: 1 to 4;~~
- (b) primers comprising nucleotide sequences of SEQ ID NOs: 7 to 10, ~~or nucleotide sequences having at least 90% identity to SEQ ID NOs: 7 to 10;~~
- (c) primers comprising nucleotide sequences of SEQ ID NOs: 13 to 16, ~~or nucleotide sequences having at least 90% identity to SEQ ID NOs: 13 to 16;~~
- (d) primers comprising nucleotide sequences of SEQ ID NOs: 19 to 22, ~~or nucleotide sequences having at least 90% identity to SEQ ID NOs: 19 to 22;~~ and
- (e) primers comprising nucleotide sequences of SEQ ID NOs: 25 to 28, ~~or nucleotide sequences having at least 90% identity to SEQ ID NOs: 25 to 28;~~

wherein the second primer set is selected from the group consisting of:

- (f) primers comprising nucleotide sequences of SEQ ID NOs: 31 to 34, ~~or nucleotide sequences having at least 90% identity to SEQ ID NOs: 31 to 34;~~
- (g) primers comprising nucleotide sequences of SEQ ID NOs: 37 to 40, ~~or nucleotide sequences having at least 90% identity to SEQ ID NOs: 37 to 40;~~ and

(h) primers comprising nucleotide sequences of SEQ ID NOs: 43 to 46, ~~or~~  
~~nucleotide sequences having at least 90% identity to SEQ ID NOs: 43~~  
~~to 46.~~

2. The kit according to claim 1, wherein the primer set (a) further includes  
primers comprising nucleotide sequences of SEQ ID NOs: 5 and 6, ~~or~~  
~~nucleotide sequences having at least 90% identity to SEQ ID NOs: 5 and 6.~~

3. The kit according to claim 1, wherein the primer set (b) further includes  
primers comprising nucleotide sequences of SEQ ID NOs: 11 and 12, ~~or~~  
~~nucleotide sequences having at least 90% identity to SEQ ID NOs: 11 and 12.~~

4. The kit according to claim 1, wherein the primer set (c) further includes  
primers comprising nucleotide sequences of SEQ ID NOs: 17 and 18, ~~or~~  
~~nucleotide sequences having at least 90% identity to SEQ ID NOs: 17 and 18.~~

5. The kit according to claim 1, wherein the primer set (d) further includes  
primers comprising nucleotide sequences of SEQ ID NOs: 23 and 24, ~~or~~  
~~nucleotide sequences having at least 90% identity to SEQ ID NOs: 23 and 24.~~

6. The kit according to claim 1, wherein the primer set (e) further includes  
primers comprising nucleotide sequences of SEQ ID NOs: 29 and 30, ~~or~~  
~~nucleotide sequences having at least 90% identity to SEQ ID NOs: 29 and 30.~~

7. The kit according to claim 1, wherein the primer set (f) further includes  
primers comprising nucleotide sequences of SEQ ID NOs: 35 and 36, ~~or~~  
~~nucleotide sequences having at least 90% identity to SEQ ID NOs: 35 and 36.~~

8. The kit according to claim 1, wherein the primer set (g) further includes  
primers comprising nucleotide sequences of SEQ ID NOs: 41 and 42, ~~or~~  
~~nucleotide sequences having at least 90% identity to SEQ ID NOs: 41 and 42.~~

9. The kit according to claim 1, wherein the primer set (h) further includes  
primers comprising nucleotide sequences of SEQ ID NOs: 47 and 48, ~~or~~

~~nucleotide sequences having at least 90% identity to SEQ ID NOs: 47 and 48.~~

10. A method for detecting SARS-CoV-2, comprising the steps of:

- (a) contacting a biological sample with the kit of claim 1;
- (b) amplifying nucleic acids of SARS-CoV-2, if present, from the biological sample by reverse transcription loop-mediated isothermal amplification; and
- (c) detecting a presence of amplified nucleic acids of SARS-CoV-2.

11. The method according to claim 10 further comprising a step of extracting nucleic acids from the biological sample before the step (a).

~~12. The method according to claim 10, wherein in the step (b), the nucleic acids are amplified by reverse transcription loop-mediated isothermal amplification.~~

~~13~~12. A kit for detecting SARS-CoV-2, comprising a first primer set and a second primer set, wherein the first primer set includes primers comprising nucleotide sequences of SEQ ID NOs: 25 to 28, ~~or nucleotide sequences having at least 90% identity to SEQ ID NOs: 25 to 28~~, and the second primer set includes primers comprising nucleotide sequences of SEQ ID NOs: 43 to 46, ~~or nucleotide sequences having at least 90% identity to SEQ ID NOs: 43 to 46~~.

~~14~~13. The kit according to claim ~~13~~12, wherein the first primer set further includes primers comprising nucleotide sequences of SEQ ID NOs: 29 and 30, ~~or nucleotide sequences having at least 90% identity to SEQ ID NOs: 29 and 30~~, and the second primer set further includes primers comprising nucleotide sequences of SEQ ID NOs: 47 and 48, ~~or nucleotide sequences having at least 90% identity to SEQ ID NOs: 47 and 48~~.

~~15~~14. A method for detecting SARS-CoV-2, comprising the steps of:

- (a) contacting a biological sample with the kit of claim ~~13~~12;
- (b) amplifying nucleic acids of SARS-CoV-2, if present, from the

biological sample by reverse transcription loop-mediated isothermal amplification; and

(c) detecting a presence of amplified nucleic acids of SARS-CoV-2.

~~16~~15. The method according to claim ~~15~~14 further comprising a step of extracting nucleic acids from the biological sample before the step (a).

~~17. The method according to claim 15, wherein in the step (b), the nucleic acids are amplified by reverse transcription loop-mediated isothermal amplification.~~

~~18~~16. A kit for detecting SARS-CoV-2, comprising ~~at least one of a first primer set and or~~ a second primer set,

wherein the first primer set is selected from the group consisting of:

(a) primers comprising nucleotide sequences of SEQ ID NOs: 1 to 4, ~~or nucleotide sequences having at least 90% identity to SEQ ID NOs: 1 to 4~~;

(b) primers comprising nucleotide sequences of SEQ ID NOs: 7 to 10, ~~or nucleotide sequences having at least 90% identity to SEQ ID NOs: 7 to 10~~;

(c) primers comprising nucleotide sequences of SEQ ID NOs: 13 to 16, ~~or nucleotide sequences having at least 90% identity to SEQ ID NOs: 13 to 16~~;

(d) primers comprising nucleotide sequences of SEQ ID NOs: 19 to 22, ~~or nucleotide sequences having at least 90% identity to SEQ ID NOs: 19 to 22~~; and

(e) primers comprising nucleotide sequences of SEQ ID NOs: 25 to 28, ~~or nucleotide sequences having at least 90% identity to SEQ ID NOs: 25 to 28~~;

wherein the second primer set is selected from the group consisting of:

- (f) primers comprising nucleotide sequences of SEQ ID NOs: 31 to 34, ~~or~~  
~~nucleotide sequences having at least 90% identity to SEQ ID NOs: 31~~  
~~to 34;~~
- (g) primers comprising nucleotide sequences of SEQ ID NOs: 37 to 40, ~~or~~  
~~nucleotide sequences having at least 90% identity to SEQ ID NOs: 37~~  
~~to 40;~~ and
- (h) primers comprising nucleotide sequences of SEQ ID NOs: 43 to 46, ~~or~~  
~~nucleotide sequences having at least 90% identity to SEQ ID NOs: 43~~  
~~to 46.~~

1917. A method for detecting SARS-CoV-2, comprising the steps of:

- (a) contacting a biological sample with the kit of claim 1816;
- (b) amplifying nucleic acids of SARS-CoV-2, if present, from the  
biological sample by reverse transcription loop-mediated isothermal  
amplification; and
- (c) detecting a presence of amplified nucleic acids of SARS-CoV-2.