CLAIMS

1. A circular polyribonucleotide comprising an open reading frame encoding a coronavirus immunogen, wherein the coronavirus immunogen comprises an amino acid sequence having at least 95% sequence identity with the amino acid sequence of any one of SEQ ID NOs: 63-111 and 283-291, wherein the open reading frame encoding the coronavirus immunogen encodes an influenza immunogen.

2. The circular polyribonucleotide of claim 1, wherein the coronavirus immunogen is a RBD immunogen having at least 95% identity with the amino acid sequence of any one of SEQ ID NOs: 63-68, 74, 79, 81-86, and 98-111.

3. The circular polyribonucleotide of claim 1, wherein the coronavirus immunogen is a Spike immunogen having at least 95% identity with the amino acid sequence of any one of SEQ ID NOs: 69-73, 75-78, 80, 87-97 and 283-286.

4. The circular polyribonucleotide of claim 1, wherein the coronavirus immunogen is a nonstructural protein (nsp) having at least 95% identity with the amino acid sequence of any one of SEQ ID NOs: 291-295.

5. The circular polyribonucleotide of claim 1, wherein the open reading frame comprises a nucleic acid sequence having at least 95% sequence identity with the nucleic acid sequence of any one of SEQ ID NOs: 112-174 and 292-300.

6. The circular polyribonucleotide of claim 6, wherein the coronavirus immunogen is a RBD immunogen having at least 95% identity with the nucleic acid sequence of any one of SEQ ID NOs: 112-117, 123, 128, 133-138, and 163-174.

7. The circular polyribonucleotide of claim 6, wherein the coronavirus immunogen is a Spike immunogen having at least 95% identity with the nucleic sequence of any one of SEQ ID NOs: 118-122, 124-127, 129-132, 139-162, and 287-291.

8. The circular polyribonucleotide of claim 6, wherein the coronavirus immunogen is a nsp having at least 95% identity with the nucleic sequence of any one of SEQ ID NOs: 296-300.

9. A circular polyribonucleotide comprising a first sequence encoding a first coronavirus immunogen, having at least 95% sequence identity with the amino acid sequence of any one of SEQ ID NOs: 63-111 and 283-291 and a second coronavirus immunogen.

10. A circular polyribonucleotide comprising a first sequence encoding a coronavirus immunogen having at least 95% sequence identity with the amino acid sequence of any one of SEQ ID NOs: 63-111 and 283-291 and a second sequence encoding a polypeptide adjuvant and/or multimerization domain.

11. An immunogenic composition comprising the circular polyribonucleotide of any one of claims 1, 9, or 10 and a pharmaceutically acceptable carrier or excipient.

12. The immunogenic composition of claim 11, wherein the composition further comprises a second circular polyribonucleotide.

13. The immunogenic composition of claim 12, wherein the second circular polyribonucleotide comprises an open reading frame encoding a second polypeptide immunogen and/or a polypeptide adjuvant.

14. A linear polyribonucleotide comprising an open reading frame encoding a coronavirus immunogen, wherein the coronavirus immunogen comprises an amino acid sequence having at least 95% sequence identity with the amino acid sequence of any one of SEQ ID NOs: 63-111 and 283-291, wherein the open reading frame encoding the coronavirus immunogen encodes an influenza immunogen.

15. The linear polyribonucleotide of claim 14, wherein the open reading frame comprises a nucleic acid sequence having at least 95% sequence identity with the nucleic acid sequence of any one of SEQ ID NOs: 112-174 and 292-300.

16. A linear polyribonucleotide comprising a first sequence encoding a coronavirus immunogen having at least 95% sequence identity with the amino acid sequence of any one of SEQ ID NOs: 63-111 and 283-291 and a second sequence encoding a multimerization domain, a second coronavirus immunogen, and/or polypeptide adjuvant.

17. An immunogenic composition comprising the linear polyribonucleotide of claim 14 or 16 and a pharmaceutically acceptable carrier or excipient.

18. The immunogenic composition of claim 17, wherein the composition further comprises a second linear polyribonucleotide, wherein the second linear polyribonucleotide comprises an open reading frame encoding a second polypeptide immunogen and/or polypeptide adjuvant.

19. Use of the circular polyribonucleotide or linear polyribonucleotide of any one of claims 1, 9, 10, 14, or 16, in the manufacture of a medicament for inducing an immune response in a subject against SARS-CoV-2.

20. Use of the circular polyribonucleotide or linear polyribonucleotide of any one of claims 1, 9, 10, 14 or 16, in the manufacture of a medicament for preventing a SARS-CoV-2 infection in a subject.