

CLAIMS

1. A circular polyribonucleotide comprising a plurality of sequences, each sequence encoding a polypeptide immunogen, wherein at least two of the polypeptide immunogens identify different targets, wherein each target is a different pathogen.
2. The circular polyribonucleotide of claim 1, wherein each target is, independently, a virus, a bacterium, a fungus, or a parasite.
3. The circular polyribonucleotide of claim 2, wherein each target is a different virus.
4. The circular polyribonucleotide of claim 2, wherein each target is a different bacterium.
5. The circular polyribonucleotide of claim 2, wherein the targets include a virus and a bacterium.
6. A circular polyribonucleotide comprising a plurality of sequences, each sequence encoding a polypeptide immunogen, wherein at least two of the polypeptide immunogens identify different proteins, wherein each of the different proteins identifies the same target.
7. The circular polyribonucleotide of claim 6, wherein the target is a pathogen.
8. The circular polyribonucleotide of claim 6, wherein the pathogen is a virus, a bacterium, a fungus, or a parasite.
9. The circular polyribonucleotide of claim 6, wherein the target is a cancer cell.
10. The circular polyribonucleotide of claim 9, wherein each of the different proteins is a different tumor antigen associated with the cancer cell.
11. The circular polyribonucleotide of claim 6, wherein the target is an allergen or a toxin.
12. The circular polyribonucleotide of any one of claim 1-11, wherein the circular polyribonucleotide comprises at least three, at least four, at least five, at least six, at least seven, at least eight, or at least nine sequences, each sequence encoding a polypeptide immunogen.
13. The circular polyribonucleotide of any one of claims 1-11, wherein the circular polyribonucleotide comprises between two and three, between two and five, or between five and ten sequences, each sequence encoding a polypeptide immunogen.
14. The circular polyribonucleotide of any one of claims 1-13, wherein each of the polypeptide immunogens is encoded by a single open-reading frame operably linked to a single IRES, wherein the

expression of the open reading frame produces a polypeptide comprising the amino acid sequence of each of the polypeptide immunogens.

15. The circular polyribonucleotide of claim 14, wherein the polypeptide immunogens are each separated by a polypeptide linker.

16. The circular polyribonucleotide of claim 14, wherein the polypeptide immunogens are each separated by a cleavage domain.

17. The circular polyribonucleotide of any one of claims 1-13, wherein the circular polyribonucleotide comprises a plurality of IRESs.

18. The circular polyribonucleotide of claim 17, wherein each IRES is operably linked to an open reading frame comprising a sequence encoding a polypeptide immunogen.

19. An immunogenic composition comprising a plurality of circular polyribonucleotides, each comprising a sequence encoding a polypeptide immunogen, wherein the composition comprises (a) at least a first circular polyribonucleotide comprising a sequence encoding a first polypeptide immunogen and (b) at least a second circular polyribonucleotide comprising a sequence encoding a second polypeptide immunogen, wherein the first and second polypeptide immunogens identify different proteins, wherein each different protein identifies the same target.

20. The immunogenic composition of claim 19, wherein the target is a virus, a bacterium, a fungus, or a parasite.

21. The immunogenic composition of claim 20, wherein the target is a cancer cell, an allergen, or a toxin.

22. An immunogenic composition comprising a plurality of circular polyribonucleotides, each comprising a sequence encoding a polypeptide immunogen, wherein the composition comprises (a) at least a first circular polyribonucleotide comprising a sequence encoding a first polypeptide immunogen and (b) at least a second circular polyribonucleotide comprising a sequence encoding a second polypeptide immunogen, wherein the first polypeptide immunogens identifies a first target and the second polypeptide immunogen identifies a second target.

23. The immunogenic composition of claim 22, wherein each target is, independently, a cancer cell, a virus, a bacterium, a fungus, a parasite, a toxin, or an allergen.

24. A pharmaceutical composition comprising the circular polyribonucleotide of any one of claims 1-18 or the immunogenic composition of any one of claims 19-23, and a pharmaceutically acceptable excipient.

25. The pharmaceutical composition of claim 24, further comprising an adjuvant.

26. Use of the circular polyribonucleotide of any one of claims 1-18, the immunogenic composition of any one of claims 19-23, or the pharmaceutical composition of claim 24 or 25, in the manufacture of a medicament for treating or preventing a disease, disorder, or condition in a subject.

27. Use of the circular polyribonucleotide of any one of claims 1-18, the immunogenic composition of any one of claims 19-23, or the pharmaceutical composition of claim 24 or 25, in the manufacture of a medicament for inducing an immune response in a subject.

28. The use of claim 26 or 27, wherein an adjuvant is to be further administered to the subject.

29. The use of any one of claims 26-28, wherein the circular polyribonucleotide of any one of claims 1-18, the immunogenic composition of any one of claims 19-23, or the pharmaceutical composition of claim 24 or 25 is to be administered to the subject two or more times.

30. The use of any one of claims 26-29, wherein a polypeptide immunogen is to be further administered to the subject.