

WHAT IS CLAIMED:

1. An immunogenic composition comprising:
one or more nucleic acids each comprising a different sequence, wherein each different sequence is selected from the group consisting of SEQ ID NOs: 139–147; and
the one or more nucleic acids are encapsulated in a lipid nanoparticle.
2. The immunogenic composition of claim 1, further comprising a T cell attracting chemokine, wherein the T cell attracting chemokine is CCL5, CXCL9, CXCL10, or CXCL11, or a combination thereof.
3. The immunogenic composition of claim 1 or claim 2, further comprising a composition that promotes T cell proliferation and T cell memory, wherein the composition that promotes T cell proliferation and T cell memory is IL-7, IL-2, or IL-15.
4. The immunogenic composition of claim 1, wherein the lipid nanoparticle has a mean diameter of 50–200 nm.
5. The immunogenic composition of claim 1, wherein the lipid nanoparticles comprise a cationic lipid, a PEG-modified lipid, a sterol or a non-cationic lipid.
6. The immunogenic composition of claim 5, wherein the cationic lipid is an ionizable cationic lipid and the non-cationic lipid is a neutral lipid, and the sterol is cholesterol.
7. The immunogenic composition of claim 5 or claim 6, wherein the cationic lipid is selected from the group consisting of 2,2-dilinoleyl-4-dimethylaminoethyl-[1,3]-dioxolane, dilinoleyl-methyl-4-dimethylaminobutyrate, and di((Z)-non-2-en-1-yl) 9-((4-(dimethylamino)butanoyl)oxy)heptadecanedioate.
8. An immunogenic composition, comprising: at least one protein selected from a protein having a sequence consisting of SEQ ID NO: 186 or a protein comprising a sequence, wherein said sequence is selected from the group consisting of SEQ ID NOs: 191-196, or a protein comprising a sequence encoded by a nucleic acid wherein the nucleic acid is selected from the group consisting of SEQ ID NO: 182, SEQ ID NO: 183, SEQ ID NO: 185, and SEQ ID NOs: 148–159; and
the at least one protein is encapsulated in a lipid nanoparticle, wherein the lipid nanoparticle comprises a cationic lipid, a PEG-modified lipid, a sterol or a non-cationic lipid.
9. The immunogenic composition of claim 8, further comprising a T cell attracting chemokine, wherein the T cell attracting chemokine is CCL5, CXCL9, CXCL10, or CXCL11, or a combination thereof.
10. The immunogenic composition of claim 8 or claim 9, further comprising a composition that promotes T cell proliferation and T-cell memory, wherein the composition that promotes T cell proliferation and T cell memory is IL-7, IL-2, or IL-15.
11. The immunogenic composition of claim 8, wherein the lipid nanoparticle has a mean diameter of 50–200 nm.
12. The immunogenic composition of claim 8, wherein the lipid nanoparticle comprises a molar ratio of 20–60% cationic lipid, 0.5–15% PEG-modified lipid, 25–55% sterol, and 25% non-cationic lipid.

13. The immunogenic composition of claim 8, wherein the cationic lipid is an ionizable cationic lipid and the non-cationic lipid is a neutral lipid, and the sterol is cholesterol.
14. The immunogenic composition of claim 13, wherein the cationic lipid is selected from the group consisting of 2,2-dilinoleyl-4-dimethylaminoethyl-[1,3]-dioxolane, dilinoleyl-methyl-4-dimethylaminobutyrate, and di((Z)-non-2-en-1-yl) 9-((4-(dimethylamino)butanoyl)oxy)heptadecanedioate.
15. A messenger ribonucleic acid encoded by a sequence, wherein said sequence is selected from the group consisting of SEQ ID NO: 139-147.