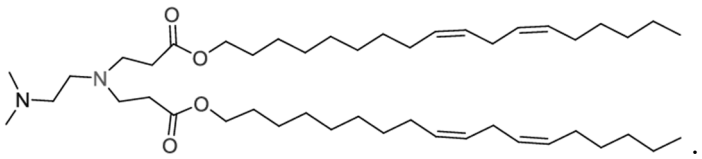
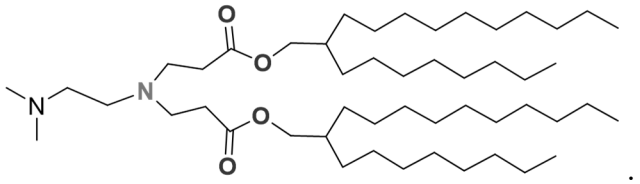
## CLAIMS

What is claimed is:

1. A compound, wherein the compound has the following structure:



2. A compound, wherein the compound has the following structure:



3. A Lipid Nanoparticle comprising:

i) a compound of claim 1;

ii) a second lipid, for example, a neutral or zwitterionic lipid;

iii) a steroid;

iv) a polymer conjugated lipid; and

v) a therapeutic or prophylactic agent, or a pharmaceutically acceptable salt thereof, encapsulated within or associated with the lipid nanoparticle.

4. A Lipid Nanoparticle comprising:

i) a compound of claim 2;

ii) a second lipid, for example, a neutral or zwitterionic lipid;

iii) a steroid;

iv) a polymer conjugated lipid; and

v) a therapeutic or prophylactic agent, or a pharmaceutically acceptable salt thereof, encapsulated within or associated with the lipid nanoparticle.

5. The lipid nanoparticle of claim 3 or 4 for use in therapy.

6. Use of the lipid nanoparticle of claim 3 or 4 in the manufacture of a medicament for treating or preventing a disease or disorder selected from the group consisting of cancer, an infectious disease, an allergic disease, and an autoimmune disease.

7. The lipid nanoparticle for use according to claim 5 or the use of the lipid nanoparticle according to claim 6, wherein the therapeutic or prophylactic agent comprises a nucleic acid.