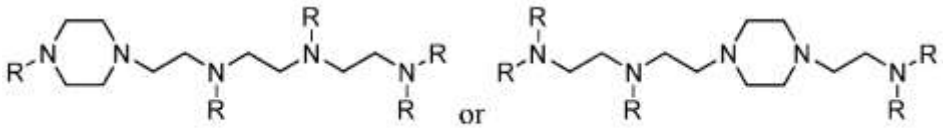
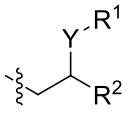
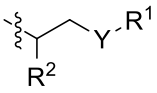
CLAIMS

1. A composition, the composition comprising a sterol; a neutral lipid; a PEG or a PEG-modified lipid; and a lipid of formula (III), (IV) or a mixture thereof,



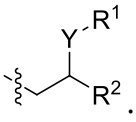
formula (III) or formula (IV),

wherein,

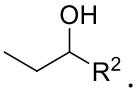
each R is independently , or  ; $R^1$is H;

R^2, for each occurrence, is independently, alkyl, alkenyl, alkynyl, heteroalkyl, heteroalkenyl, or heteroalkynyl; each of which is optionally substituted with one or more substituent; and

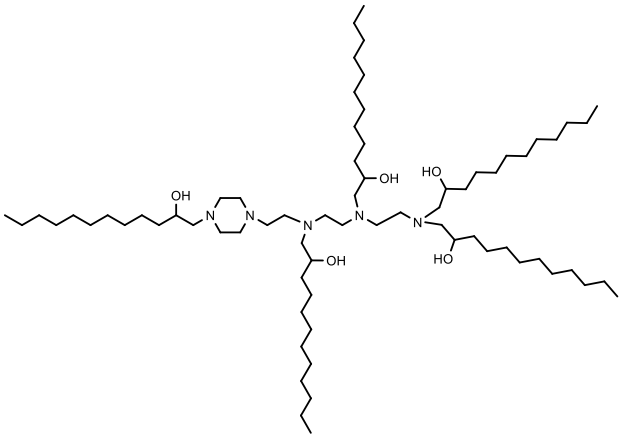
Y is O.

2. The composition of claim 1, wherein R, for at least 3 occurrences, is .

3. The composition of claim 1, wherein R^2 is alkyl, alkenyl, or alkynyl.

4. The composition of claim 1, wherein R for at least 3 occurrences is .

5. The composition of claim 1, comprising a compound of formula (VI)



.

6. The composition of claim 1, wherein the sterol is cholesterol.

7. The composition of claim 1, wherein the composition comprises about 50% of the compound of formula (III), or (IV), or mixture thereof, about 38.5% of the sterol, and about 1.5% of the PEG or PEG-modified lipid, and about 10% of the neutral lipid.

8. The composition of claim 1, further comprising a targeting lipid comprising N-acetyl galactosamine as a targeting moiety.

9. The composition of claim 1, wherein the composition is an association complex.

10. The composition of claim 1, wherein the composition is a liposome.

11. The composition of claim 1, further comprising a nucleic acid agent.

12. The composition of claim 1, further comprising at least one apolipoprotein.