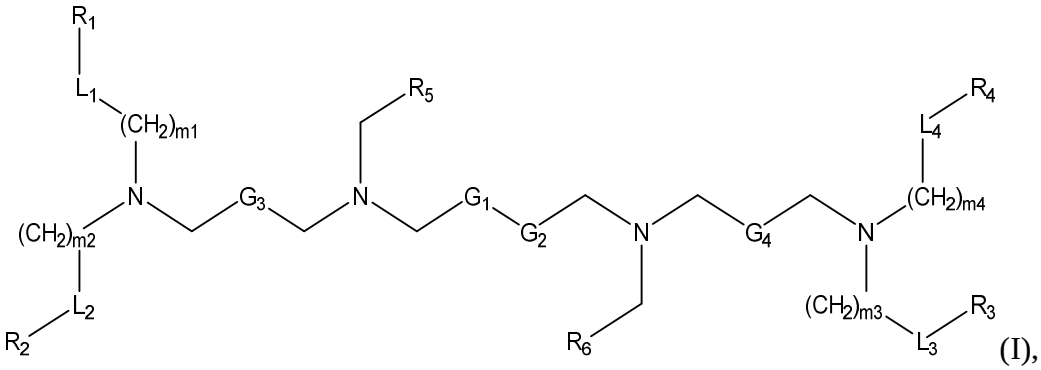
CLAIMS

1. A compound of Formula (I):



(I),

or a pharmaceutically acceptable salt thereof, wherein

m1, m2, m3, and m4 are each independently selected from 1, 2, 3, 4, or 5;

$L_1$, $L_2$, $L_3$, and $L_4$ are each independently selected from -CH(OH)-, -C(=O)-, -C(=O)O-, -OC(=O)-, -C(=O)S-, -SC(=O)-, -C(=O)$NR_a$-, -$NR_a$C(=O)-, -$NR_a$C(=O)O-, -OC(=O)$NR_a$-, -O-, -O-O-, -S-, -S-S-, -S-S-S-, -CH(OH)$CH_2$O-, -CH(OH)$CH_2$S-, or absent, wherein

each $R_a$ is independently –H or optionally substituted $C_1$-$C_6$ alkyl;

$R_1$, $R_2$, $R_3$, and $R_4$ are each independently selected from optionally substituted $C_6$-$C_{30}$ alkyl, optionally substituted $C_6$-$C_{30}$ alkenyl, or optionally substituted $C_6$-$C_{30}$ alkynyl;

$G_1$, $G_2$, $G_3$ and $G_4$ are each independently selected from -$R_c$-, -$R_c$CH(OH)$R_d$-, -$R_c$C(=O)$R_d$-, -$R_c$C(=O)O$R_d$-, -$R_c$OC(=O)$R_d$-, -$R_c$C(=O)S$R_d$-, -$R_c$SC(=O)$R_d$-, -$R_c$C(=O)N($R_b$)$R_d$-, -$R_c$N($R_b$)C(=O)$R_d$-, -$R_c$N($R_b$)C(=O)O$R_d$-, -$R_c$OC(=O)N($R_b$)$R_d$-, -$R_c$O$R_d$-, -$R_c$-O-O-$R_d$-, -$R_c$S$R_d$-, -$R_c$-S-S-$R_d$-, -$R_c$-S-S-S-$R_d$-, or absent; wherein

each $R_b$ is independently –H or optionally substituted $C_1$-$C_6$ alkyl;

each $R_c$ and $R_d$ are independently -$(CH_2)_n$-, and n is 0, 1, 2, 3, or 4;

$R_5$ and $R_6$ are each independently selected from -H, -OH, or optionally substituted $C_1$-$C_6$ alkyl.

2. The compound of claim 1 or a pharmaceutically acceptable salt thereof, wherein

i) $G_1$ and $G_2$ are each independently -$R_c$-, $G_3$ and $G_4$ are each independently selected from -$R_c$-, -$R_c$C(=O)$R_d$-, -$R_c$C(=O)O$R_d$-, -$R_c$OC(=O)$R_d$-, -$R_c$C(=O)N($R_b$)$R_d$-, -$R_c$N($R_b$)C(=O)$R_d$-, -$R_c$N($R_b$)C(=O)O$R_d$-, -$R_c$OC(=O)N($R_b$)$R_d$-, or absent;

each $R_b$ is independently –H or $C_1$-$C_6$ alkyl;

each $R_c$ and $R_d$ are independently -$(CH_2)_n$-, and n is 0, 1, 2, 3, or 4.; or

3. The compound of claim 2 or a pharmaceutically acceptable salt thereof, wherein

ii) $G_1$ and $G_2$ are each independently -$R_c$-, $G_3$ and $G_4$ are each independently selected from -$R_c$-, -$R_c$C(=O)O$R_d$-, -$R_c$OC(=O)$R_d$-, -$R_c$C(=O)N($R_b$)$R_d$-, -$R_c$N($R_b$)C(=O)$R_d$-, or absent;

each $R_b$ is independently –H or $C_1$-$C_2$ alkyl;

each $R_c$ and $R_d$ are independently -$(CH_2)_n$- or absent, and n is 0, 1 or 2.

43. The compound of claim 32 or a pharmaceutically acceptable salt thereof, wherein

$G_1$ and $G_2$ are absent, $G_3$ and $G_4$ are each independently selected from -$CH_2$-, -$CH_2$C(=O)O$CH_2$-, -$CH_2$OC(=O)$CH_2$-, -$CH_2$C(=O)N$HCH_2$-, -$CH_2$NHC(=O)$CH_2$-, or absent.

54. The compound of claim 1 or a pharmaceutically acceptable salt thereof, wherein

i) $G_3$ and $G_4$ are each independently -$R_c$-, $G_1$ and $G_2$ are each independently selected from -$R_c$-, -$R_c$C(=O)$R_d$-, -$R_c$C(=O)O$R_d$-, -$R_c$OC(=O)$R_d$-, -$R_c$C(=O)N($R_b$)$R_d$-, -$R_c$N($R_b$)C(=O)$R_d$-, -$R_c$N($R_b$)C(=O)O$R_d$-, -$R_c$OC(=O)N($R_b$)$R_d$-, or absent;

each $R_b$ is independently –H or $C_1$-$C_6$ alkyl;

each $R_c$ and $R_d$ are independently -$(CH_2)_n$-, and n is 0, 1, 2, 3, or 4; or.

6. The compound of claim 5 or a pharmaceutically acceptable salt thereof, wherein

ii) $G_3$ and $G_4$ are each independently -$R_c$-, $G_1$ and $G_2$ are each independently selected from -$R_c$-, -$R_c$C(=O)O$R_d$-, -$R_c$OC(=O)$R_d$-, -$R_c$C(=O)N($R_b$)$R_d$-, -$R_c$N($R_b$)C(=O)$R_d$-, or absent;

each $R_b$ is independently –H or $C_1$-$C_2$ alkyl;

each $R_c$ and $R_d$ are independently -$(CH_2)_n$- or absent, and n is 0, 1 or 2; or.

7. The compound of claim 6 or a pharmaceutically acceptable salt thereof, wherein

iii) $G_3$ and $G_4$ are absent, $G_1$ and $G_2$ are each independently selected from -$CH_2$-,

-$CH_2C(=O)O(CH_2)_{1\text{ or }2}$-, -$(CH_2)_{1\text{ or }2}OC(=O)CH_2$-, -$CH_2C(=O)N(R_b)CH_2$-, -$CH_2N(R_b)C(=O)CH_2$-, or absent;

each $R_b$ is independently –H or $C_1$-$C_2$ alkyl.

~~8~~5. The compound of any one of claims 1-~~7~~4 or a pharmaceutically acceptable salt thereof, wherein

i) $L_1$, $L_2$, $L_3$, and $L_4$ are each independently selected from -CH(OH)-, -C(=O)-, -C(=O)O-, -OC(=O)-, -C(=O)$NR_a$-, -$NR_a$C(=O)-, -$NR_a$C(=O)O-, -OC(=O)$NR_a$-, -O-, -S-, -CH(OH)$CH_2$O-, -CH(OH)$CH_2$S-, or absent; or~~.~~

~~9. The compound of any one of claims 1-7 or a pharmaceutically acceptable salt thereof, wherein~~

ii) $L_1$, $L_2$, $L_3$, and $L_4$ are each independently selected from -CH(OH)-, -C(=O)-, -C(=O)O-, -OC(=O)-, -C(=O)$NR_a$-, -$NR_a$C(=O)-, -O-, -S-, or absent; each $R_a$ is independently –H or $C_1$-$C_2$ alkyl.

~~10~~6. The compound of any one of claims 1-~~9~~5 or a pharmaceutically acceptable salt thereof, wherein m1, m2, m3, and m4 are each independently selected from 1 or 2.

~~11~~7. The compound of any one of claims 1-~~10~~6 or a pharmaceutically acceptable salt thereof, wherein

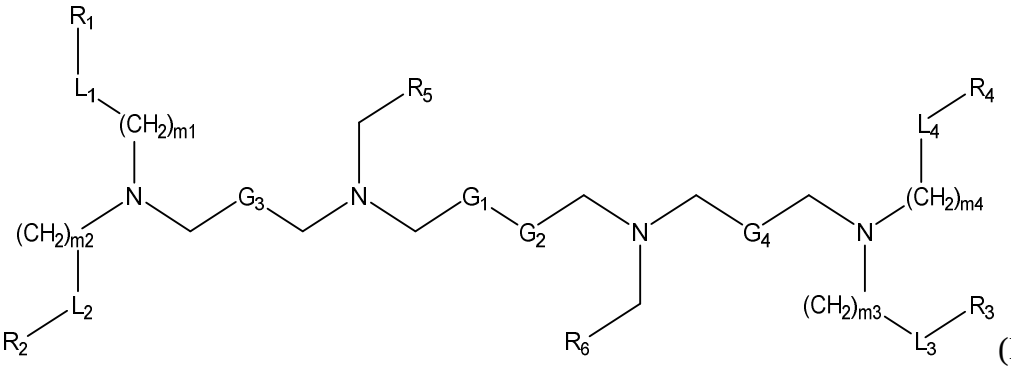
i) $R_1$, $R_2$, $R_3$, and $R_4$ are each independently selected from $C_6$-$C_{18}$ alkyl, $C_6$-$C_{18}$ alkenyl, or $C_6$-$C_{18}$ alkynyl, wherein said $C_6$-$C_{18}$ alkyl, $C_6$-$C_{18}$ alkenyl, or $C_6$-$C_{18}$ alkynyl is optionally substituted one to three groups selected from halogen, OH, or =O; or~~.~~

~~12. The compound of any one of claims 1-10 or a pharmaceutically acceptable salt thereof, wherein~~

ii) $R_1$, $R_2$, $R_3$, and $R_4$ are each independently selected from $C_6$-$C_{18}$ alkyl.

~~138~~. The compound of any one of claims 1-~~12~~7 or a pharmaceutically acceptable salt thereof, wherein $R_5$ and $R_6$ are each independently selected from -H, -OH, or $C_1$-$C_4$ alkyl optionally substituted with -OH.

~~149~~. A compound of Formula (I-1):



(I-1),

or a pharmaceutically acceptable salt thereof, wherein

m1, m2, m3, and m4 are the same, all of which are 1, 2, 3, 4, or 5;

$L_1$, $L_2$, $L_3$, and $L_4$ are the same, all of which are selected from -CH(OH)-, -C(=O)-, ^-C(=O)O-^^, ^-OC(=O)-^^, ^-C(=O)S-^^, ^-SC(=O)-^^, ^-C(=O)$NR_a$-^^, ^-$NR_a$C(=O)-^^, ^-$NR_a$C(=O)O-^^, ^-OC(=O)$NR_a$-^^, -O-, -O-O-, -S-, -S-S-, -S-S-S-, ^-CH(OH)$CH_2$O-^^, ^-CH(OH)$CH_2$S-^^ or absent, wherein

^- represents the point which attaches to $R_{1\text{-}4}$; -^^ represents the point which attaches to -$(CH_2)_{m1\text{-}m4}$-; and

each $R_a$ is independently –H or optionally substituted $C_1$-$C_6$ alkyl;

$R_1$, $R_2$, $R_3$, and $R_4$ are the same, all of which are selected from optionally substituted $C_6$-$C_{30}$ alkyl, optionally substituted $C_6$-$C_{30}$ alkenyl, or optionally substituted $C_6$-$C_{30}$ alkynyl;

$G_1$ and $G_2$ are the same, and $G_3$ and $G_4$ are the same,

when $G_1$ and $G_2$ are -$R_c$-, $G_3$ and $G_4$ are selected from -$R_c$-, *-$R_c$CH(OH)$R_d$-**, *-$R_c$C(=O)$R_d$-**, *-$R_c$C(=O)O$R_d$-**, *-$R_c$OC(=O)$R_d$-**, *-$R_c$C(=O)S$R_d$-**, *-$R_c$SC(=O)$R_d$-**, *-$R_c$C(=O)N($R_b$)$R_d$-**, *-$R_c$N($R_b$)C(=O)$R_d$-**, *-$R_c$N($R_b$)C(=O)O$R_d$-**, *-$R_c$OC(=O)N($R_b$)$R_d$-**, *-$R_c$O$R_d$-**, *-$R_c$-O-O-$R_d$-**, *-$R_c$S$R_d$-**, **-$R_c$-S-S-$R_d$-**, *-$R_c$-S-S-S-$R_d$-**, or absent; wherein

*- represents the point which attaches to the -$CH_2$- group next to the terminal tertiary amine atom as shown in Formula (I); -** represents the point

which attaches to the -$CH_2$- group next to the middle tertiary amine atom as shown in Formula (I);

when $G_3$ and $G_4$ are -$R_c$-, $G_1$ and $G_2$ are selected from -$R_c$-, $^{\#}$-$R_cCH(OH)R_d$-$^{\#\#}$, $^{\#}$-$R_cC(=O)R_d$-$^{\#\#}$, $^{\#}$-$R_cC(=O)OR_d$-$^{\#\#}$, $^{\#}$-$R_cOC(=O)R_d$-$^{\#\#}$, $^{\#}$-$R_cC(=O)SR_d$-$^{\#\#}$, $^{\#}$-$R_cSC(=O)R_d$-$^{\#\#}$, $^{\#}$-$R_cC(=O)N(R_b)R_d$-$^{\#\#}$, $^{\#}$-$R_cN(R_b)C(=O)R_d$-$^{\#\#}$, $^{\#}$-$R_cN(R_b)C(=O)OR_d$-$^{\#\#}$, $^{\#}$-$R_cOC(=O)N(R_b)R_d$-$^{\#\#}$, $^{\#}$-$R_cOR_d$-$^{\#\#}$, $^{\#}$-$R_c$-O-O-$R_d$-$^{\#\#}$, $^{\#}$-$R_cSR_d$-$^{\#\#}$, $^{\#}$-$R_c$-S-S-$R_d$-$^{\#\#}$, $^{\#}$-$R_c$-S-S-S-$R_d$-$^{\#\#}$, or absent;

wherein

$^{\#}$- represents the point which attaches to the -$CH_2$- group next to the middle tertiary amine atom as shown in Formula (I); -$^{\#\#}$ represents the point connecting $G_1$ and $G_2$; and

each $R_b$ is independently –H or optionally substituted $C_1$-$C_6$ alkyl;

each $R_c$ and $R_d$ are independently -$(CH_2)_n$-, and n is 0, 1, 2, 3, or 4;

$R_5$ and $R_6$ are the same, both of which are selected from -H, -OH, or optionally substituted $C_1$-$C_6$ alkyl.

~~15~~10. The compound of claim ~~14~~9 or a pharmaceutically acceptable salt thereof, wherein

i) $G_1$ and $G_2$ are -$R_c$-, $G_3$ and $G_4$ are selected from -$R_c$-, *-$R_cC(=O)R_d$-**, *-$R_cC(=O)OR_d$-**, *-$R_cOC(=O)R_d$-**, *-$R_cC(=O)N(R_b)R_d$-**, *-$R_cN(R_b)C(=O)R_d$-**, *-$R_cN(R_b)C(=O)OR_d$-**, *-$R_cOC(=O)N(R_b)R_d$-**, or absent;

each $R_b$ is independently –H or $C_1$-$C_6$ alkyl;

each $R_c$ and $R_d$ are independently -$(CH_2)_n$-, and n is 0, 1, 2, 3, or 4;~~.~~

~~16. The compound of claim 15 or a pharmaceutically acceptable salt thereof, wherein~~

ii) $G_1$ and $G_2$ are -$R_c$-, $G_3$ and $G_4$ are selected from *-$R_cC(=O)OR_d$-**, *-$R_cOC(=O)R_d$-**, *-$R_cC(=O)N(R_b)R_d$-**, *-$R_cN(R_b)C(=O)R_d$-**, or absent;

each $R_b$ is independently –H or $C_1$-$C_2$ alkyl;

each $R_c$ and $R_d$ are independently -$(CH_2)_n$- or absent, and n is 0, 1 or 2;~~.~~

~~17. The compound of claim 16 or a pharmaceutically acceptable salt thereof, wherein~~

iii) $G_1$ and $G_2$ are absent, $G_3$ and $G_4$ are selected from -$CH_2$-, *-$CH_2C(=O)OCH_2$-**, *-$CH_2OC(=O)CH_2$-**, *-$CH_2C(=O)NHCH_2$-**, *-$CH_2NHC(=O)CH_2$-**, or absent;~~.~~

~~18. The compound of claim 14 or a pharmaceutically acceptable salt thereof, wherein~~

iv) $G_3$ and $G_4$ are -$R_c$-, $G_1$ and $G_2$ are selected from -$R_c$-, $^{\#}$-$R_cC(=O)R_d$-$^{\#\#}$, $^{\#}$-$R_cC(=O)OR_d$-$^{\#\#}$, $^{\#}$-$R_cOC(=O)R_d$-$^{\#\#}$, $^{\#}$-$R_cC(=O)N(R_b)R_d$-$^{\#\#}$, $^{\#}$-$R_cN(R_b)C(=O)R_d$-$^{\#\#}$, $^{\#}$-$R_cN(R_b)C(=O)OR_d$-$^{\#\#}$, $^{\#}$-$R_cOC(=O)N(R_b)R_d$-$^{\#\#}$, or absent;

each $R_b$ is independently –H or $C_1$-$C_6$ alkyl;

each $R_c$ and $R_d$ are independently -$(CH_2)_n$-, and n is 0, 1, 2, 3, or 4;~~.~~

~~19. The compound of claim 18 or a pharmaceutically acceptable salt thereof, wherein~~

v) $G_3$ and $G_4$ are -$R_c$-, $G_1$ and $G_2$ are selected from -$R_c$-, $^{\#}$-$R_cC(=O)OR_d$-$^{\#\#}$, $^{\#}$-$R_cOC(=O)R_d$-$^{\#\#}$, $^{\#}$-$R_cC(=O)N(R_b)R_d$-$^{\#\#}$, $^{\#}$-$R_cN(R_b)C(=O)R_d$-$^{\#\#}$, or absent;

each $R_b$ is independently –H or $C_1$-$C_2$ alkyl;

each $R_c$ and $R_d$ are independently -$(CH_2)_n$- or absent, and n is 0, 1 or 2; or~~.~~

~~20. The compound of claim 19 or a pharmaceutically acceptable salt thereof, wherein~~

vi) $G_3$ and $G_4$ are absent, $G_1$ and $G_2$ are selected from -$CH_2$-, $^{\#}$-$CH_2C(=O)O(CH_2)_{1\text{ or }2}$-$^{\#\#}$, $^{\#}$-$(CH_2)_{1\text{ or }2}OC(=O)CH_2$-$^{\#\#}$, $^{\#}$-$CH_2C(=O)N(R_b)CH_2$-$^{\#\#}$, $^{\#}$-$CH_2N(R_b)C(=O)CH_2$-$^{\#\#}$, or absent;

each $R_b$ is independently –H or $C_1$-$C_2$ alkyl.

~~21~~11. The compound of ~~any one of claims 14-20~~ claim 9 or 10 or a pharmaceutically acceptable salt thereof, wherein

i) $L_1$, $L_2$, $L_3$, and $L_4$ are the same, all of which are selected from -CH(OH)-, -C(=O)-, ^-C(=O)O-^^, ^-OC(=O)-^^, ^-C(=O)$NR_a$-^^, ^-$NR_a$C(=O)-^^, ^-$NR_a$C(=O)O-^^, ^-OC(=O)$NR_a$-^^, -O-, -S-, ^-$CH(OH)CH_2O$-^^, ^-$CH(OH)CH_2S$-^^, or absent; or~~.~~

~~22. The compound of any one of claims 14-20 or a pharmaceutically acceptable salt thereof, wherein~~

ii) $L_1$, $L_2$, $L_3$, and $L_4$ are the same, all of which are selected from -CH(OH)-, -C(=O)-, ^-C(=O)O-^^, ^-OC(=O)-^^, ^-C(=O)$NR_a$-^^, ^-$NR_a$C(=O)-^^, -O-, -S-, or absent; each $R_a$ is independently –H or $C_1$-$C_2$ alkyl.

~~23~~12. The compound of any one of claims ~~14-22~~ 9-11 or a pharmaceutically acceptable salt thereof, wherein m1, m2, m3, and m4 are the same, all of which are 1 or 2.

~~24~~13. The compound of any one of claims ~~14-23~~ 9-12 or a pharmaceutically acceptable salt thereof, wherein

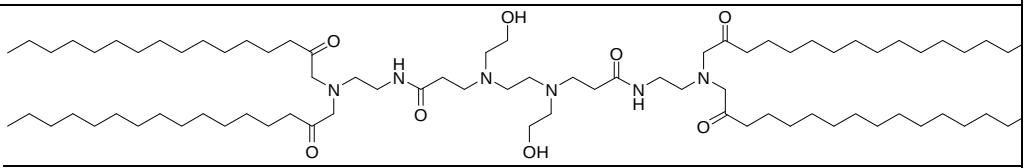
i) $R_1$, $R_2$, $R_3$, and $R_4$ are the same, all of which are selected from $C_6$-$C_{18}$ alkyl, $C_6$-$C_{18}$ alkenyl, or $C_6$-$C_{18}$ alkynyl, wherein said $C_6$-$C_{18}$ alkyl, $C_6$-$C_{18}$ alkenyl, or $C_6$-$C_{18}$ alkynyl is optionally substituted one to three groups selected from halogen, OH, or =O; or~~.~~

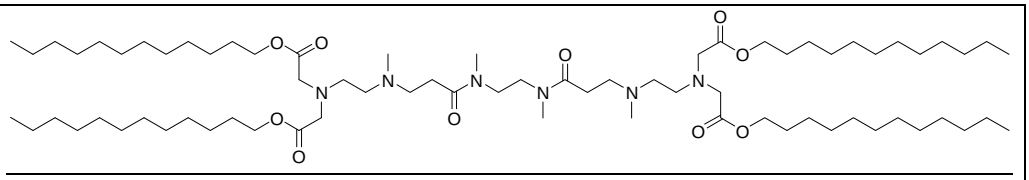
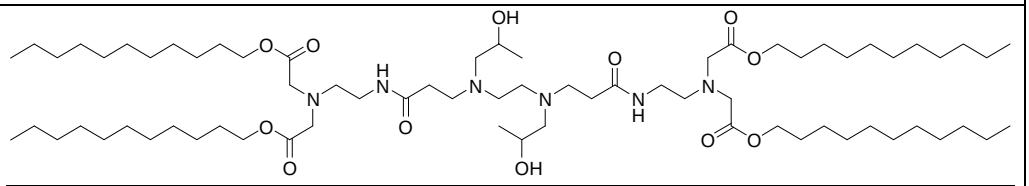
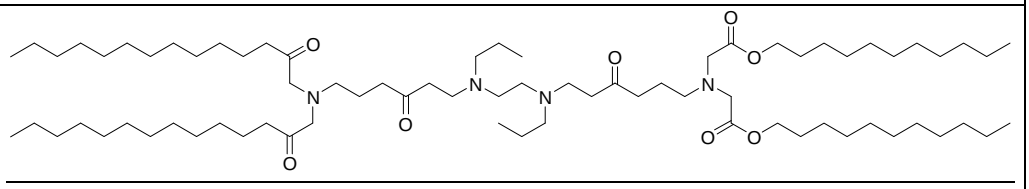
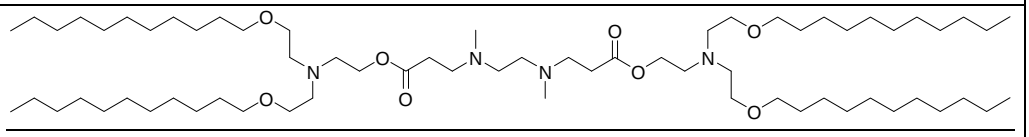
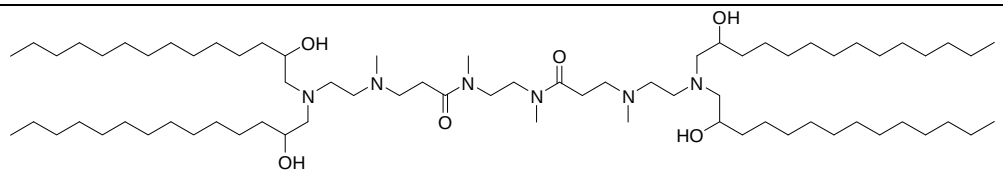
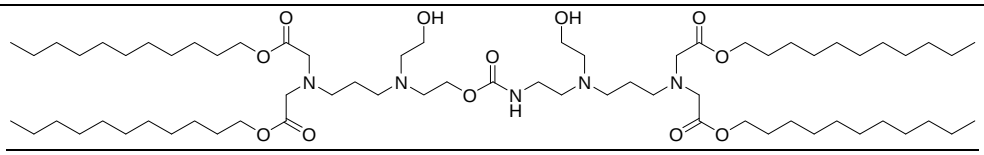
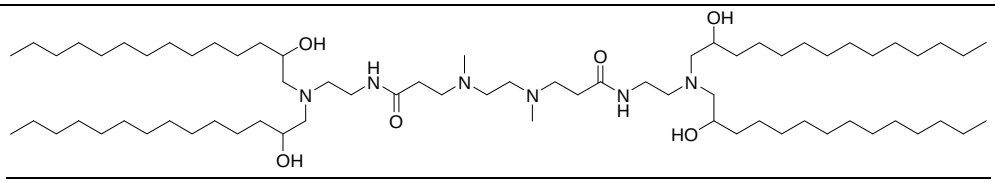
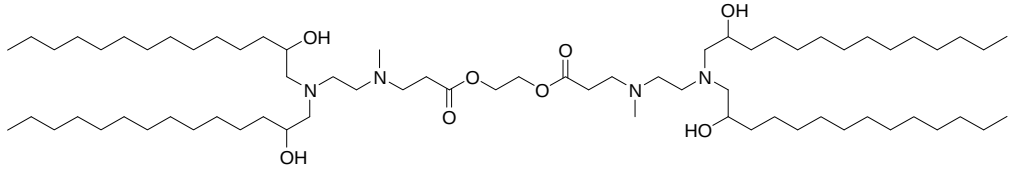
~~25. The compound of any one of claims 14-23 or a pharmaceutically acceptable salt thereof, wherein~~

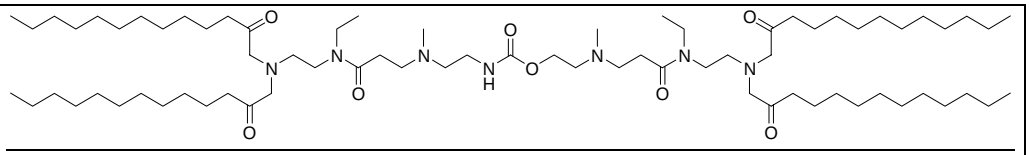
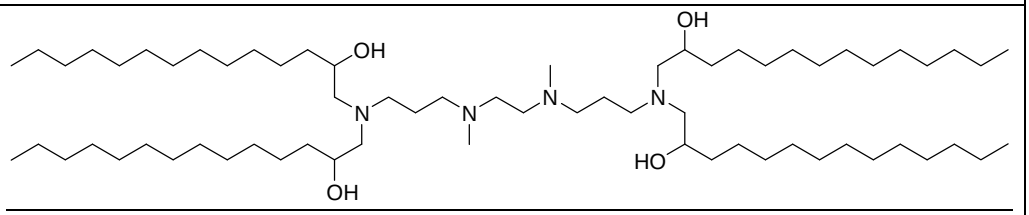
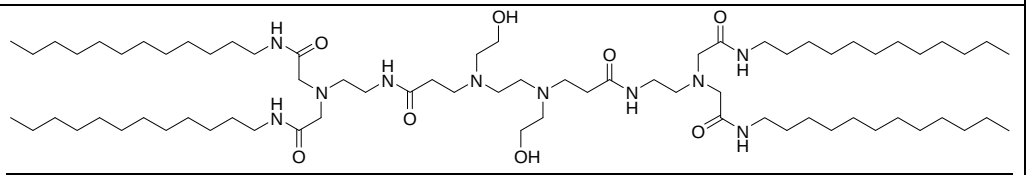
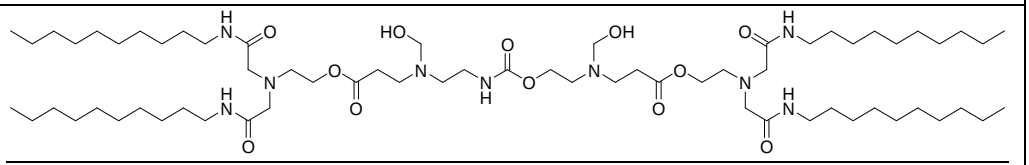
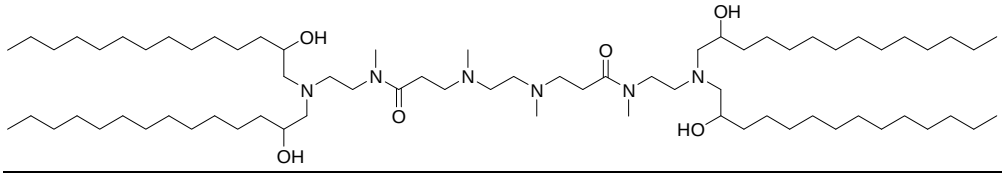
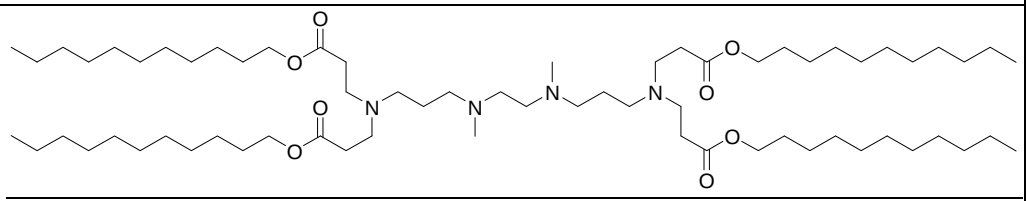
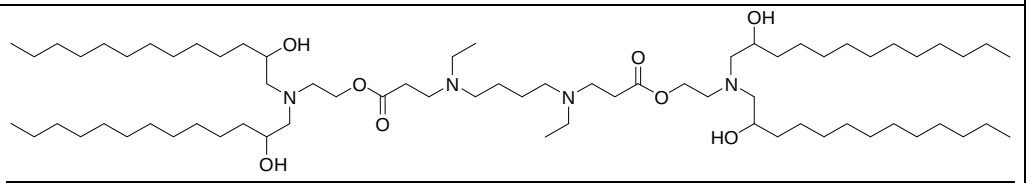
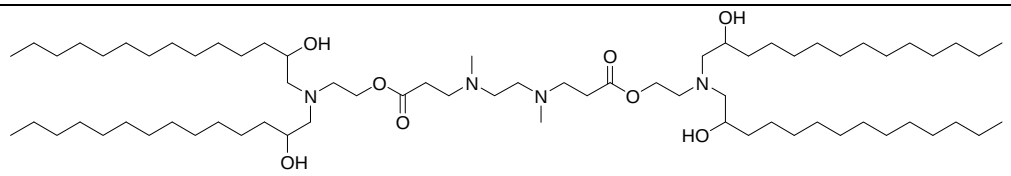
ii) $R_1$, $R_2$, $R_3$, and $R_4$ are the same, all of which are selected from $C_6$-$C_{18}$ alkyl.

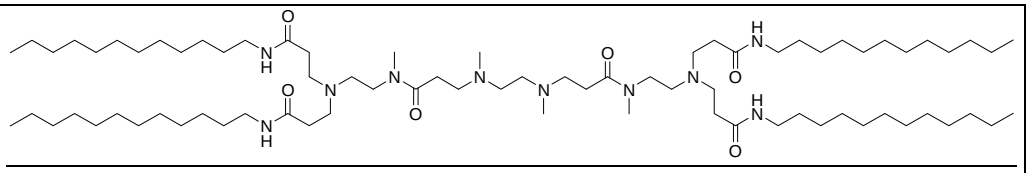
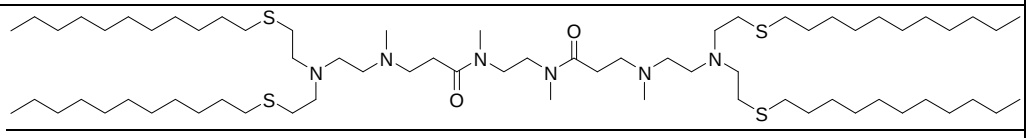
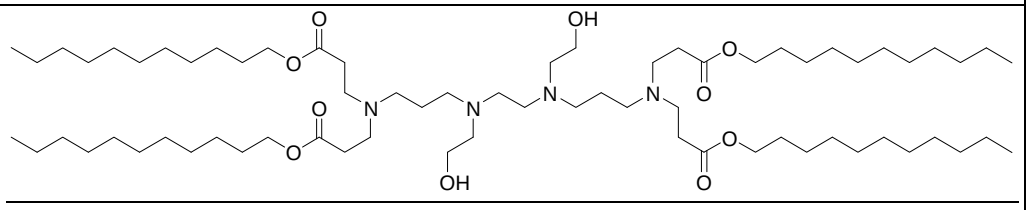
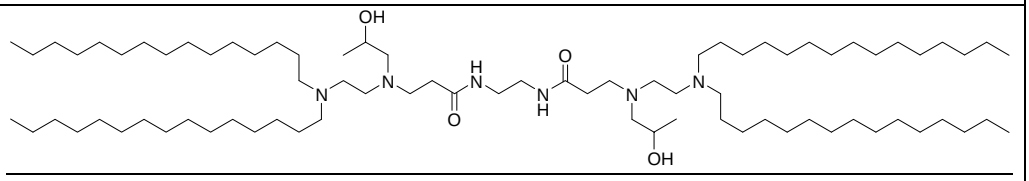
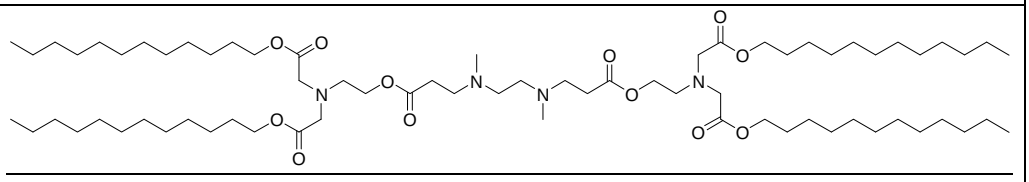
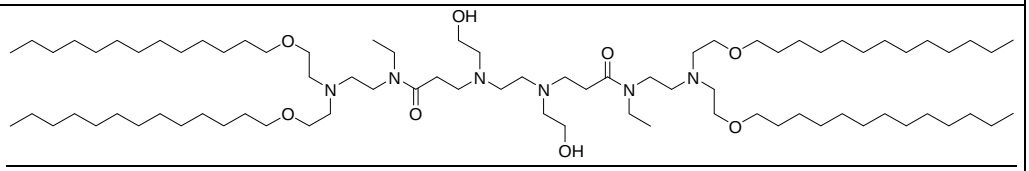
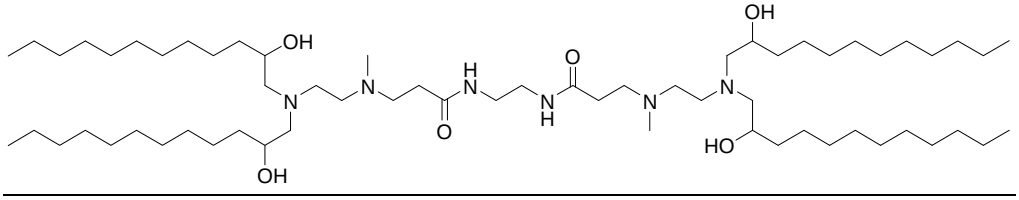
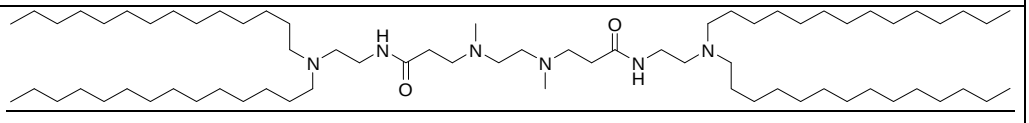
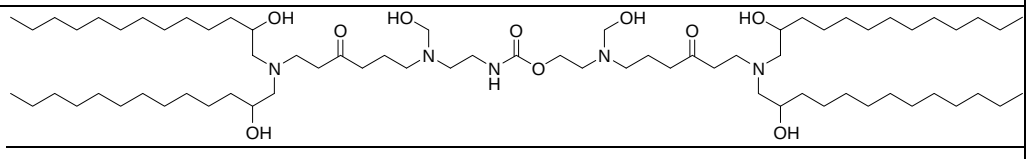
~~26~~14. The compound of any one of claims ~~14-25~~ 9-13 or a pharmaceutically acceptable salt thereof, wherein $R_5$ and $R_6$ are the same, both of which are selected from -H, -OH, or $C_1$-$C_4$ alkyl optionally substituted with -OH.

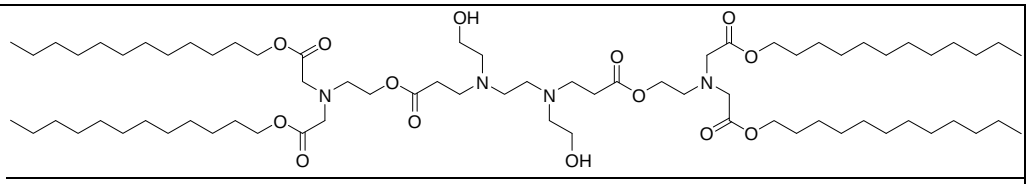
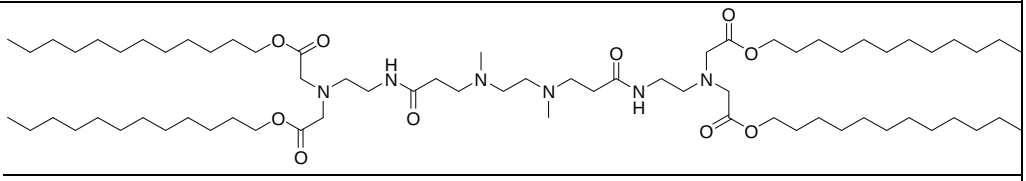
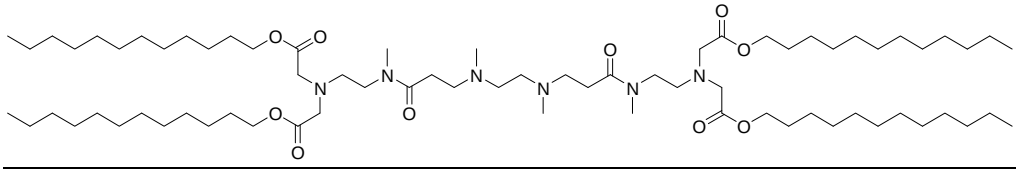
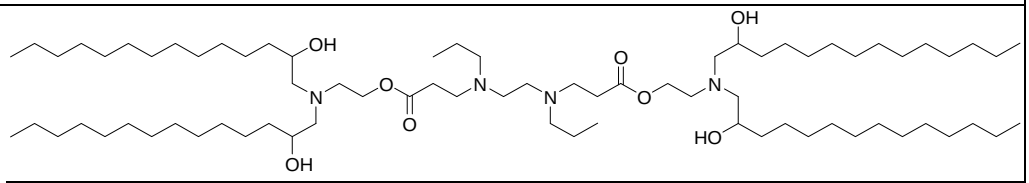
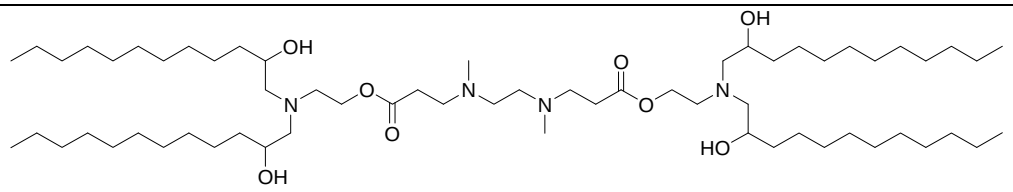
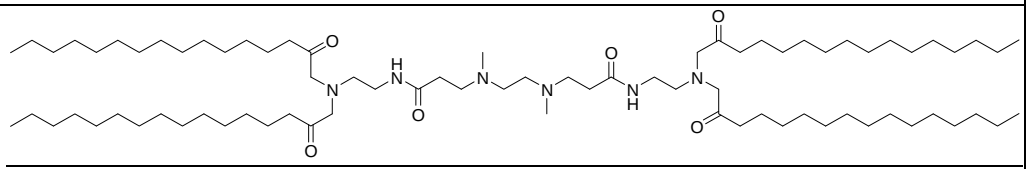
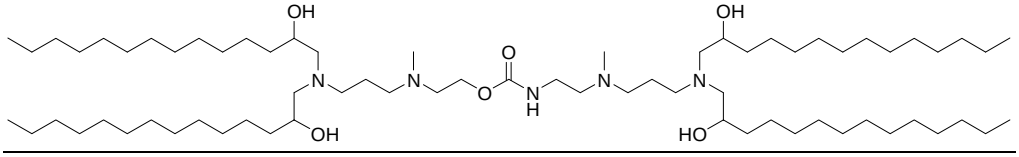
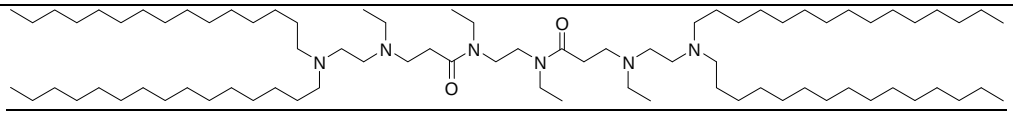
~~27~~15. A compound ~~of Table 1~~, or a pharmaceutically acceptable salt thereof, wherein the compound is selected from the compounds below,

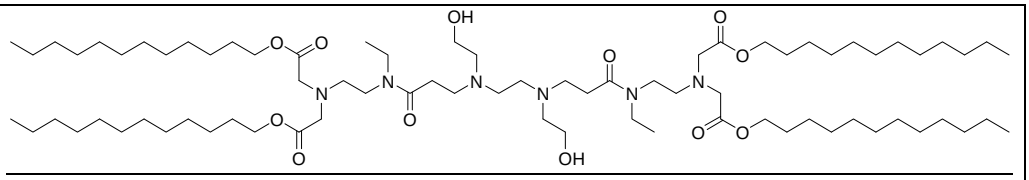
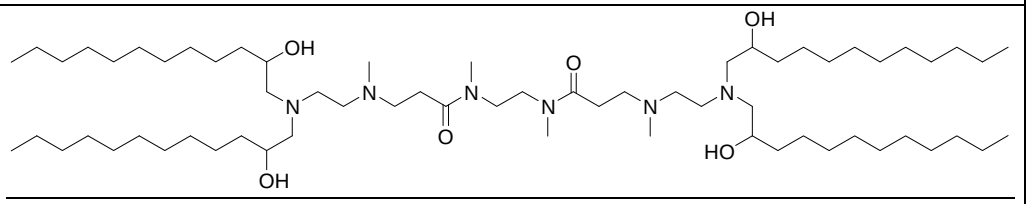
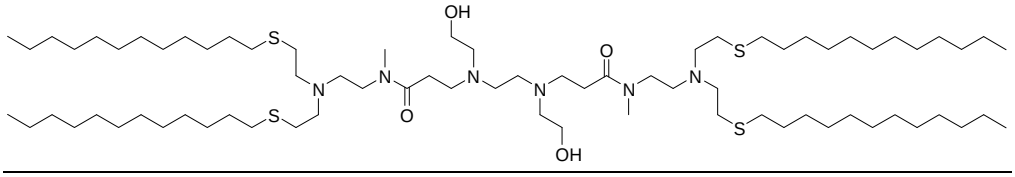
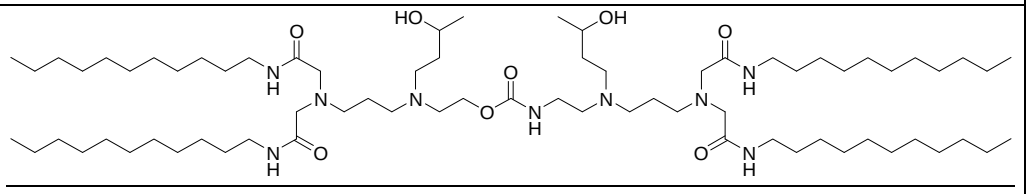
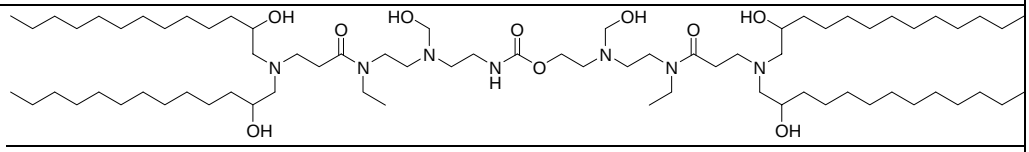
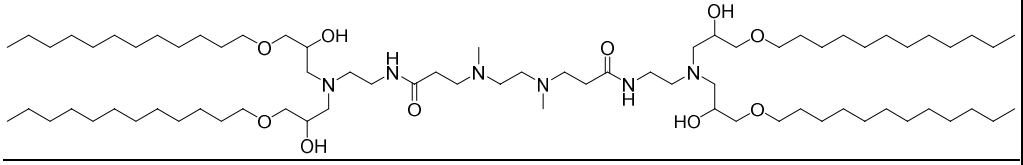
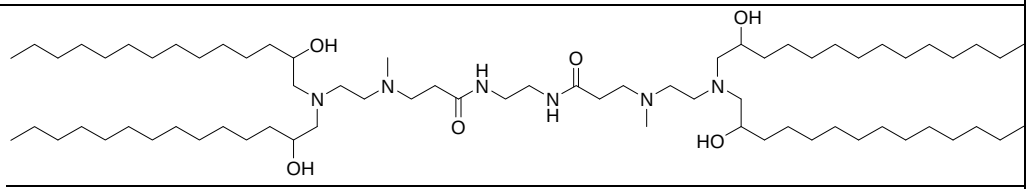
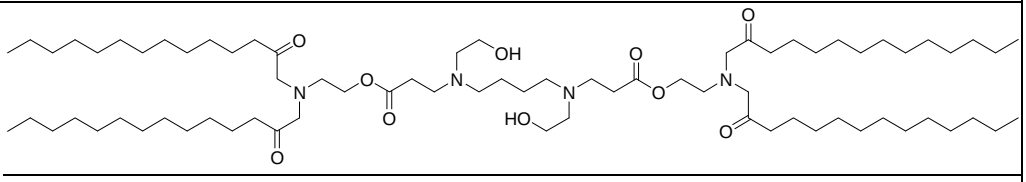
| Number | Code | Chemical formula |
|---|---|---|
| 1 | II-1 |  |

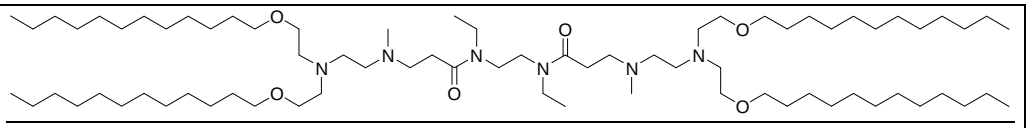
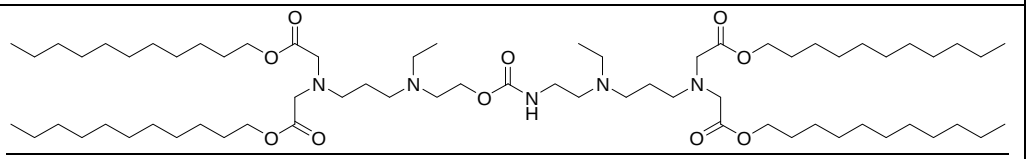
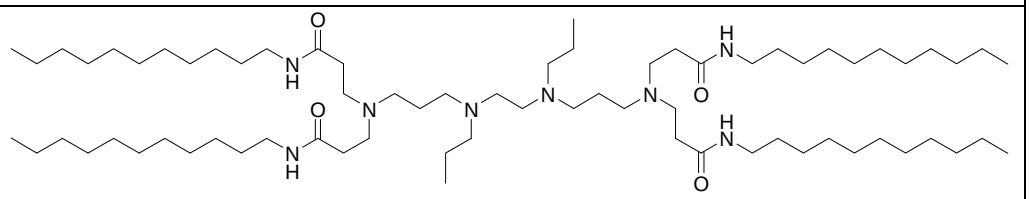
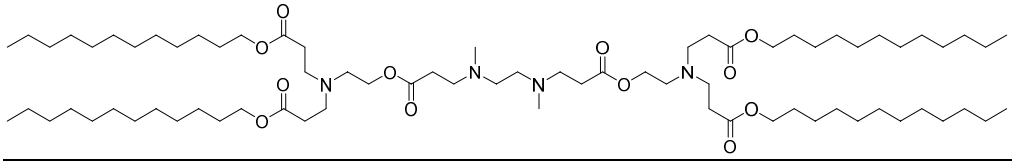
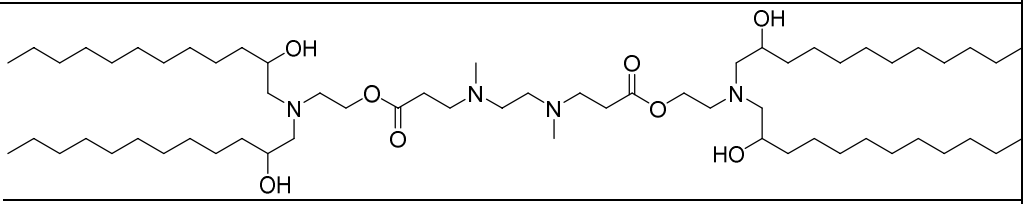
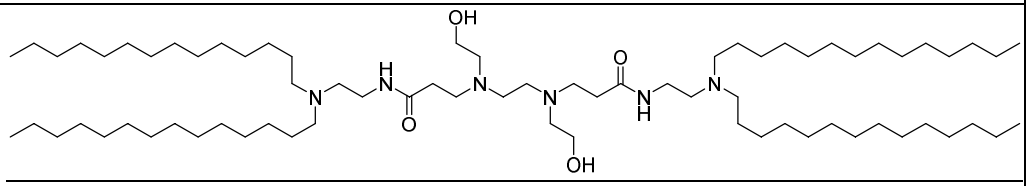
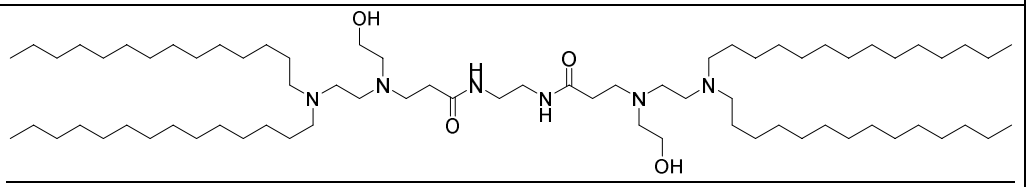
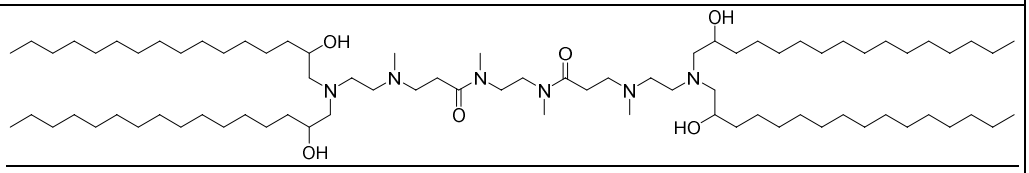
| | | |
|---|---|---|
| 2 | III-1 |  |
| 3 | II-2 |  |
| 4 | II-3 |  |
| 5 | II-4 |  |
| 6 | III-2 |  |
| 7 | V-1 |  |
| 8 | II-5 |  |
| 9 | III-3 |  |

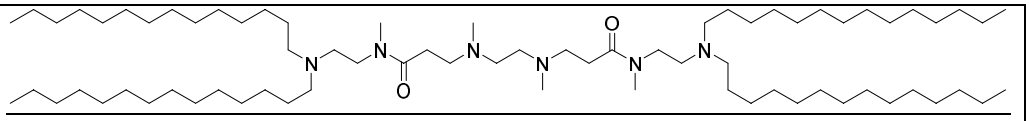
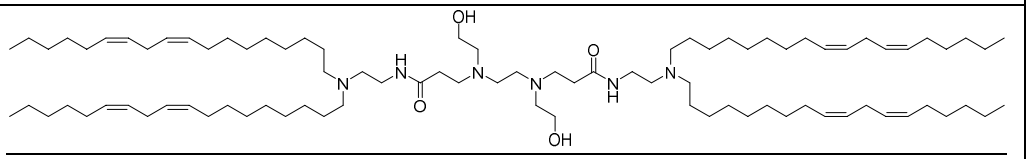
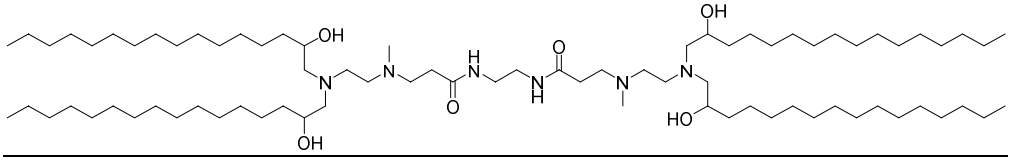
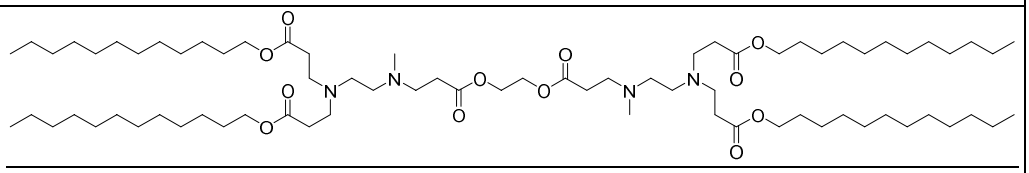
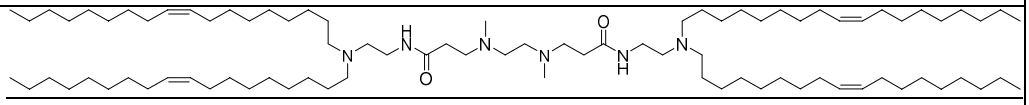
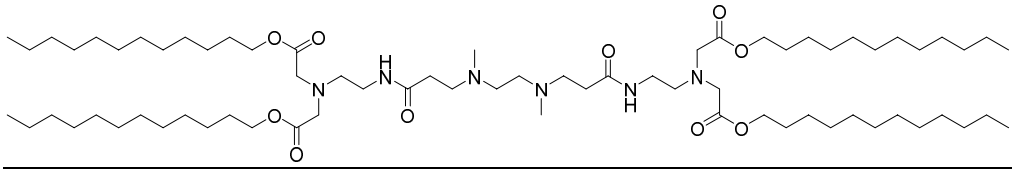
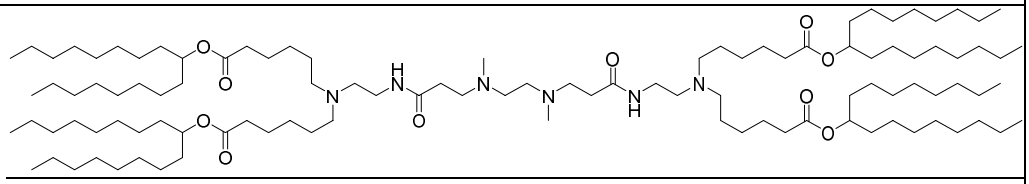
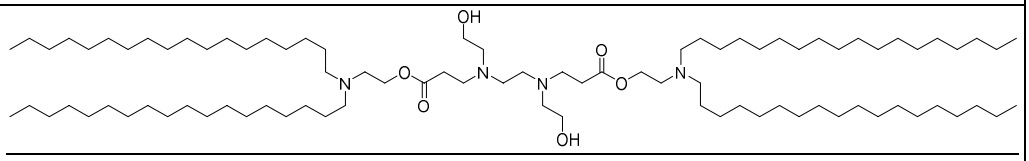
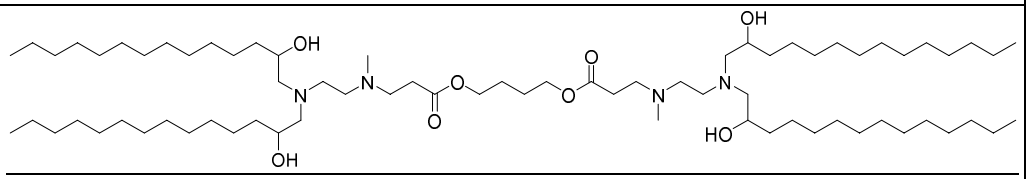
| | | |
|---|---|---|
| 10 | IV-1 |  |
| 11 | VI-1 |  |
| 12 | II-6 |  |
| 13 | IV-2 |  |
| 14 | II-7 |  |
| 15 | VI-2 |  |
| 16 | II-8 |  |
| 17 | II-9 |  |

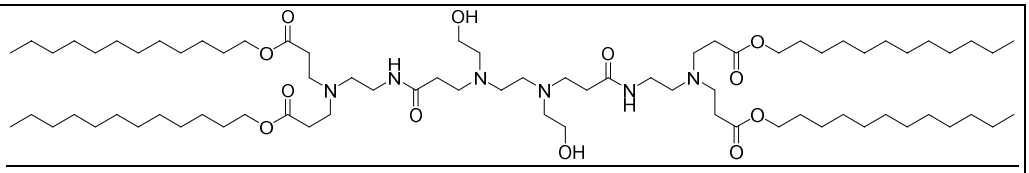
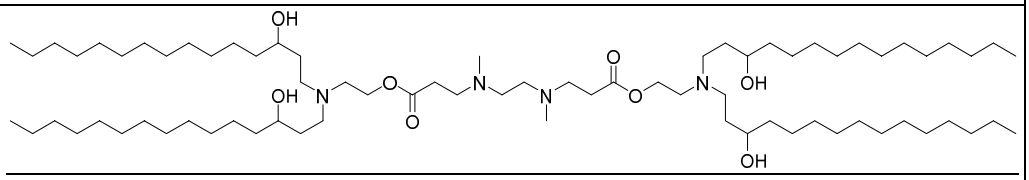
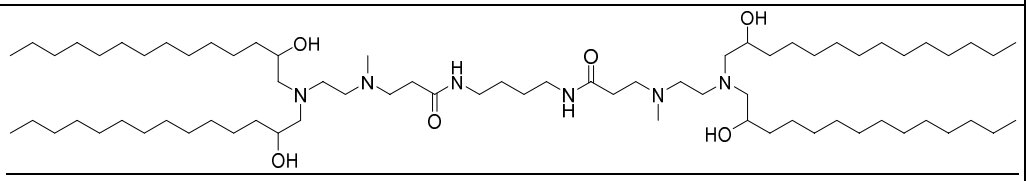
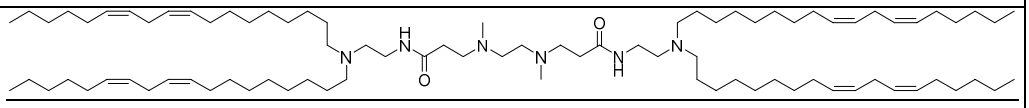
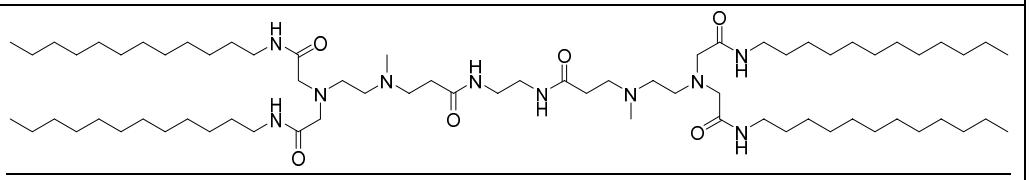
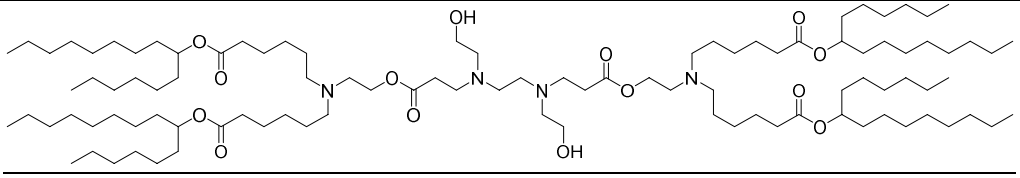
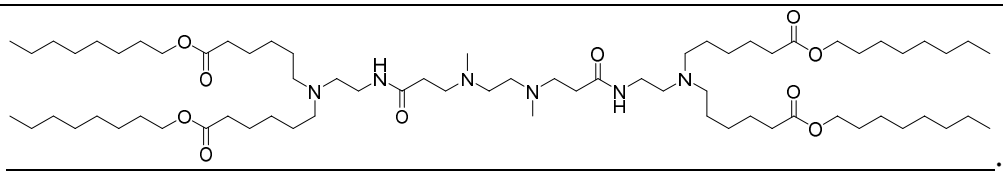
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|---|---|---|
| 18 | II-10 |  |
| 19 | III-4 |  |
| 20 | VI-3 |  |
| 21 | III-5 |  |
| 22 | II-11 |  |
| 23 | II-12 |  |
| 24 | III-6 |  |
| 25 | II-13 |  |
| 26 | IV-3 |  |

| | | |
|---|---|---|
| 27 | II-14 |  |
| 28 | II-15 |  |
| 29 | II-16 |  |
| 30 | II-17 |  |
| 31 | II-18 |  |
| 32 | II-19 |  |
| 33 | V-2 |  |
| 34 | III-7 |  |

| | | |
|---|---|---|
| 35 | II-20 |  |
| 36 | III-8 |  |
| 37 | II-21 |  |
| 38 | V-3 |  |
| 39 | IV-4 |  |
| 40 | II-22 |  |
| 41 | III-9 |  |
| 42 | II-23 |  |

| | | |
|---|---|---|
| 43 | III-10 |  |
| 44 | V-4 |  |
| 45 | VI-4 |  |
| 46 | II-24 |  |
| 47 | II-25 |  |
| 48 | II-26 |  |
| 49 | III-11 |  |
| 50 | III-12 |  |

| | | |
|---|---|---|
| 51 | II-27 |  |
| 52 | II-28 |  |
| 53 | III-13 |  |
| 54 | III-14 |  |
| 55 | II-29 |  |
| 56 | II-30 |  |
| 57 | II-31 |  |
| 58 | II-32 |  |
| 59 | III-15 |  |

| | | |
|---|---|---|
| 60 | II-33 |  |
| 61 | II-34 |  |
| 62 | II-35 |  |
| 63 | II-36 |  |
| 64 | III-16 |  |
| 65 | II-37 |  |
| 66 | II-38 |  |

~~28~~16. The compound of any one of claims 1-~~27~~15, wherein the compound is in the form of a pharmaceutically acceptable salt.

~~29~~17. A pharmaceutical composition comprising the compound of any one of claims 1-~~27~~15, or a pharmaceutically acceptable salt thereof, and a nucleic acid drug.

~~30~~18. The pharmaceutical composition of claim ~~29~~17, wherein the composition further comprises at least one excipient selected from a neutral phospholipid, a steroid, and a polyethylene glycol lipid.

~~31~~19. The pharmaceutical composition of claim ~~30~~18, wherein i) the neutral phospholipid is selected from DOPE, DSPC, DOPC, DSPE, DMPC, DMPE, DPPC, DPPE, DEPC, HSPC, POPC or a combination thereof; or~~.~~

~~32. The pharmaceutical composition of claim 31, wherein~~ ii) the neutral phospholipid is DOPE.

~~33~~20. The pharmaceutical composition of claim ~~30~~18, wherein i) the mole ratio of the compound : the neutral phospholipid is 1:1~ 5:1; or ii) the mole ratio of the compound: the steroid is 1:2 ~ 2:1.

~~34~~21. The pharmaceutical composition of any one of claims ~~30~~18-~~33~~20, wherein i) the steroid is selected from cholesterol, sitosterol, soybean sterol, wool sterol, ergosterol or a combination thereof; or~~.~~

~~35. The pharmaceutical composition of claim 34, wherein~~ ii) the steroid is cholesterol.

~~36. The pharmaceutical composition of any one of claims 30-35, wherein the mole ratio of the compound: the steroid is 1:2 ~ 2:1.~~

~~37~~22. The pharmaceutical composition of any one of claims ~~30~~18-~~36~~21, wherein i) the polyethylene glycol lipid is selected from DMG-PEG, DSPE-PEG or a combination thereof; or~~.~~

~~38. The pharmaceutical composition of any one of claims 30-36, wherein~~ ii) the polyethylene glycol lipid is DMG-PEG2000.

~~39~~23. The pharmaceutical composition of any one of claims ~~30~~18-~~38~~22, wherein i) the mole ratio of the compound: the polyethylene glycol lipid is 5:1~100:1; or~~.~~

~~40. The pharmaceutical composition of any one of claims 30-39, wherein~~ ii) the mole ratio of the compound: the polyethylene glycol lipid is 10:1 ~ 20:1.

~~41~~24. The pharmaceutical composition of any one of claims ~~30~~18-~~40~~23, wherein i) the nucleic acid drug is selected from DNA, ASO, siRNA, miRNA, mRNA, ribozyme, aptamer or a combination thereof; or~~, preferably, mRNA.~~

~~42. The pharmaceutical composition of any one of claims 30-41, wherein~~ ii) the pharmaceutical composition is prepared into lipid nanoparticles (LNP).