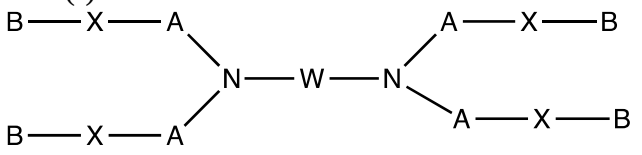
WHAT IS CLAIMED:

1. A compound of formula (I):



(I)

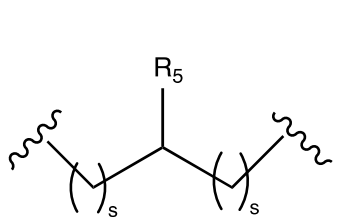
a pharmaceutically acceptable salt thereof, or a stereoisomer of any of the foregoing, wherein

each **A** is independently C_1-C_{16} branched or unbranched alkyl or C_1-C_{16} branched or unbranched alkenyl, optionally interrupted with one or more heteroatoms or substituted with heteroatom or substituted with OH, SH, or halogen;

each **B** is independently C_1-C_{20} branched or unbranched alkyl or C_1-C_{20} branched or unbranched alkenyl, optionally substituted with heteroatom or substituted with OH, SH, or halogen;

each **X** is independently a biodegradable moiety; and

W is



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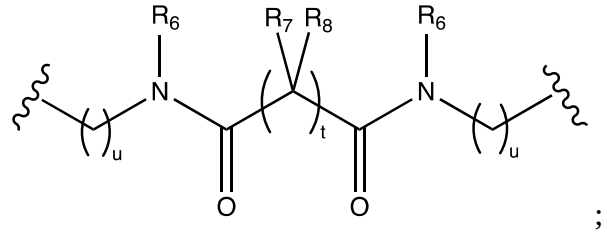

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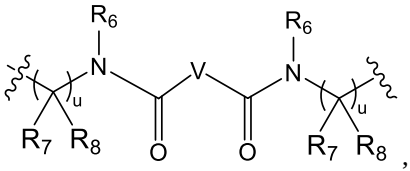

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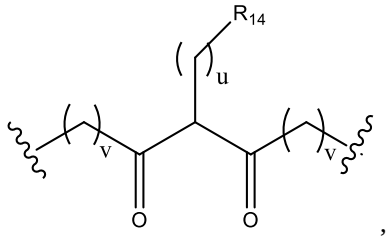

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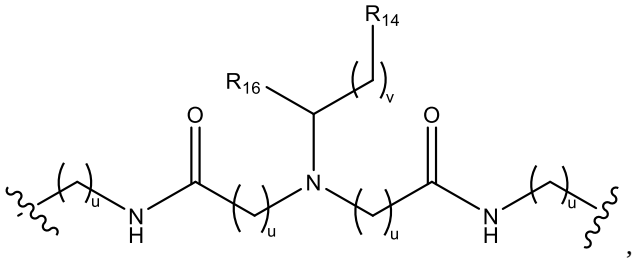

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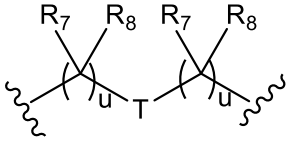

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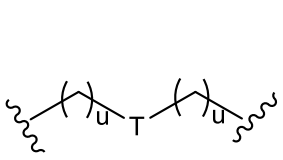

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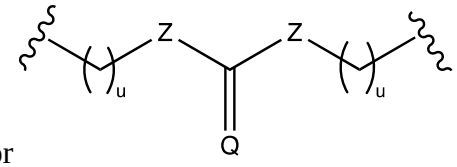


,

wherein

R_5 is $(CH_2)_sOH$, OH, SH, N**R_{10}****R_{11}**;

each **R_6** is independently H, C_1-C_3 branched or unbranched alkyl, C_2-C_3 branched or unbranched alkenyl, or cycloalkyl;

each **R_7** and each **R_8** is independently H, C_1-C_3 branched or unbranched alkyl, C_2-C_3 branched or unbranched alkenyl, halogen, OH, SH, $(CH_2)_sR_{17}$, N**R_{10}****R_{11}**,

each **R_{10}** and **R_{11}** is independently H, C_1-C_3 alkyl, or **R_{10}** and **R_{11}** are taken together to form a heterocyclic ring;

each **s** is independently 1, 2, 3, 4, or 5;

each **u** is independently 1, 2, 3, 4, or 5;

each v is independently 0, 1, 2, 3, 4, or 5;

t is 1, 2, 3, 4 or 5;

each **Z** is independently absent, O, S, N**R12** , or a divalent heterocyclic, wherein **R12** is H, C_1-C_7 branched or unbranched alkyl, or C_2-C_7 branched or unbranched alkenyl, provided that when Z is not absent, the adjacent **R1** and **R2** cannot be OH, N**R10R11**, or SH;

V is branched or unbrachned C_2-C_{10} alkylene, C_2-C_{10} alkenylene, C_2-C_{10} alkynylene, or C_2-C_{10} heteroalkylene, optionally substituted with one or more OH, SH, and/or halogen groups;

T is –NHC(O)O-, –OC(O)NH-, or a divalent heterocyclic optionally substituted with one or more -$(CH_2)_v$OH, -$(CH_2)_v$SH, and/or -$(CH_2)_v$-halogen groups;

R14 is a heterocyclic, N**R10R11**, C(O)N**R10R11**, or C(S)N**R10R11**;

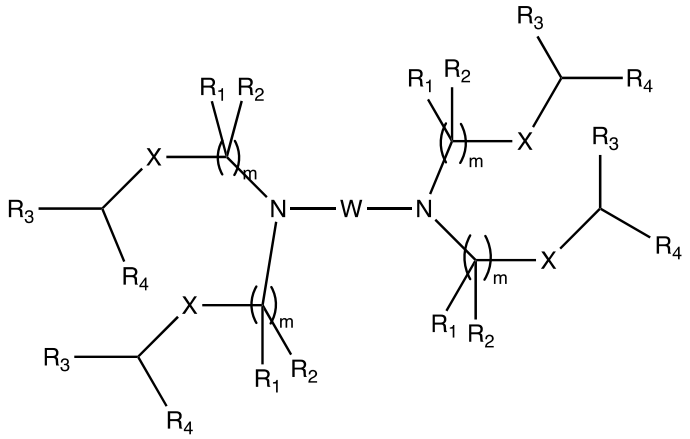
R16 is H, =O, =S, or CN;

R17 is OH, SH, or $N(CH_3)_2$; and

Q is O, S, CH_2, or NH.

2. The compound of claim 1, wherein **B** is C_3-C_{20} alkyl.

3. A compound of formula (II):



(II)

a pharmaceutically acceptable salt thereof, or a stereoisomer of any of the foregoing, wherein

each **R1** and each **R2** is independently H, C_1-C_3 branched or unbranched alkyl, OH, halogen, SH, or N**R10R11**, or

each **R1** and each **R2** are independently taken together with the carbon atom(s) to which they are attached to form a cyclic ring;

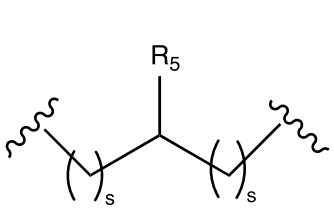
each **R10** and **R11** is independently H, C_1-C_3 branched or unbranched alkyl, or **R10** and **R11** are taken together to form a heterocyclic ring;

m is 1, 2, 3, 4, 5, 6, 7, 8, 9 or 10;

each **X** is independently a biodegradable moiety;

each **R3** and each **R4** is independently H, C_3-C_{10} branched or unbranched alkyl, or C_3-C_{10} branched or unbranched alkenyl; provided that at least one of **R3** and **R4** is not H;

W is



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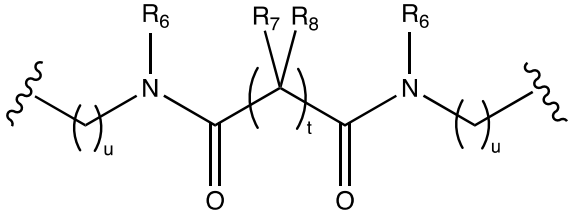

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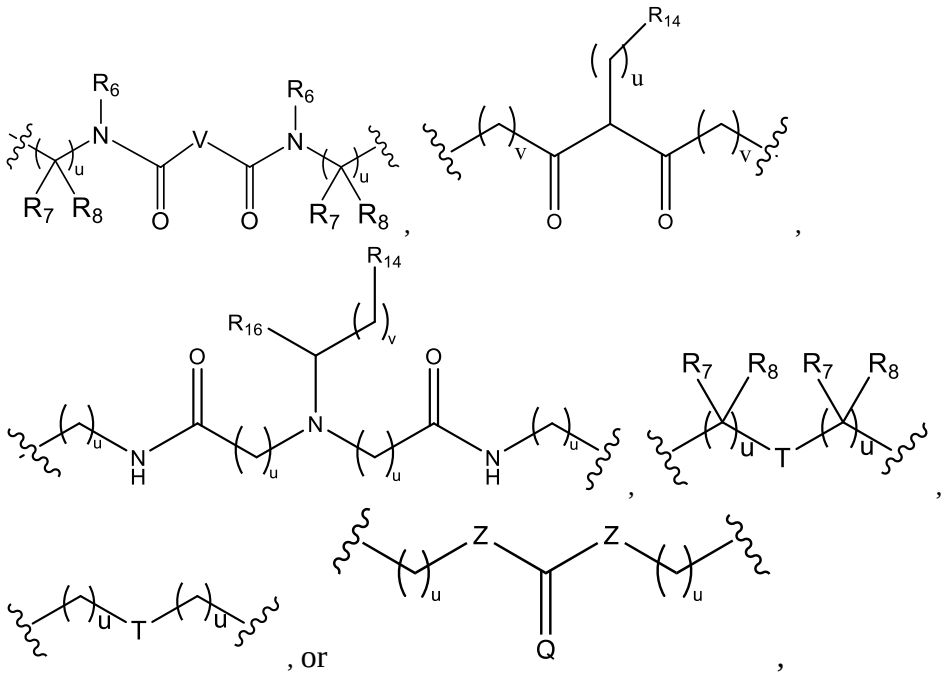


wherein

R_5 is $(CH_2)_sOH$, OH, SH, N**$R_{10}R_{11}$**;

each **R_6** is independently H, C_1-C_3 branched or unbranched alkyl, C_2-C_3 branched or unbranched alkenyl, or cycloalkyl;

each **R_7** and each **R_8** is independently H, C_1-C_3 branched or unbranched alkyl, C_2-C_3 branched or unbranched alkenyl, halogen, OH, SH, $(CH_2)_sR_{17}$, N**$R_{10}R_{11}$**, wherein each **R_{10}** and **R_{11}** is independently H, C_1-C_3 alkyl, or each **R_{10}** and each **R_{11}** are taken together with the carbon atom(s) to which they are attached to form a heterocyclic ring; or **R_7** and **R_8** are taken together to form a ring;

each **s** is independently 1, 2, 3, 4, or 5;

each **u** is independently 1, 2, 3, 4, or 5;

each v is independently 0, 1, 2, 3, 4, or 5;

t is 1, 2, 3, 4 or 5;

each **Z** is independently absent, O, S, N**R_{12}** , or a divalent heterocyclic, wherein **R_{12}** is H, C_1-C_7 branched or unbranched alkyl, or C_2-C_7 branched or unbranched alkenyl;

V is branched or unbrachned C_2-C_{10} alkylene, C_2-C_{10} alkenylene, C_2-C_{10} alkynylene, or C_2-C_{10} heteroalkylene, optionally substituted with one or more OH, SH, and/or halogen groups;

T is –NHC(O)O-, –OC(O)NH-, or a divalent heterocyclic optionally substituted with one or more -$(CH_2)_v$OH, -$(CH_2)_v$SH, and/or -$(CH_2)_v$-halogen groups;

R_{14} is a heterocyclic, N**$R_{10}R_{11}$**, C(O)N**$R_{10}R_{11}$**, or C(S)N**$R_{10}R_{11}$**;

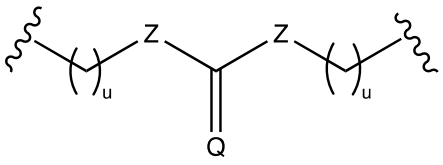
R_{16} is H, =O, =S, or CN;

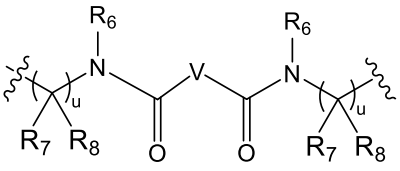
R_{17} is OH, SH, or $N(CH_3)_2$; and

Q is O, S, CH_2, or N**R_{13}**, wherein each **R_{13}** is H, C_1-C_5 alkyl..

4. The compound of claim 1 or 3, wherein **X** is -OCO-, -COO-, -NHCO-, -CONH-, -C(O-**R_{13}**)-O-, -$COO(CH_2)_r$-, -$CONH(CH_2)_r$-, or -C(O-**R_{13}**)-O-$(CH_2)_r$-, -O(CO)O-, wherein **R_{13}** is C_3-C_{10} branched or unbranched alkyl and **r** is 1, 2, 3, 4, or 5.

5. The compound of claim 1 or 3, wherein **X** is -OCO- or -COO-.

6. The compound of claim 1 or 3, wherein W is , and **Z** is absent, O, S, or NH.

7. The compound of claim 1 or 3, wherein W is , and **V** is C_2-C_{10} alkenylene, C_2-C_{10} alkenylene, or C_2-C_{10} heteroalkylene.

8. The compound of any one of claims 1, 3, and 7, wherein at least one of $\mathbf{R_7}$ and $\mathbf{R_8}$ is H.

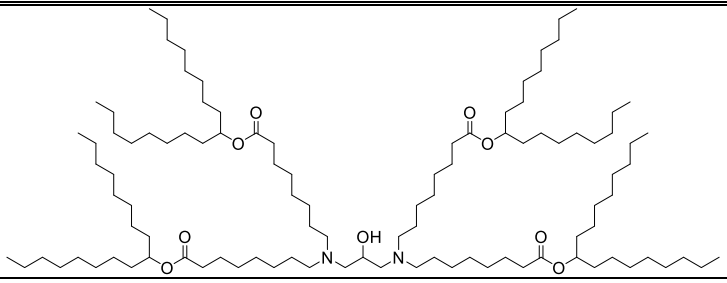
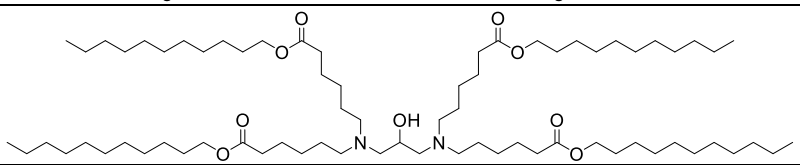
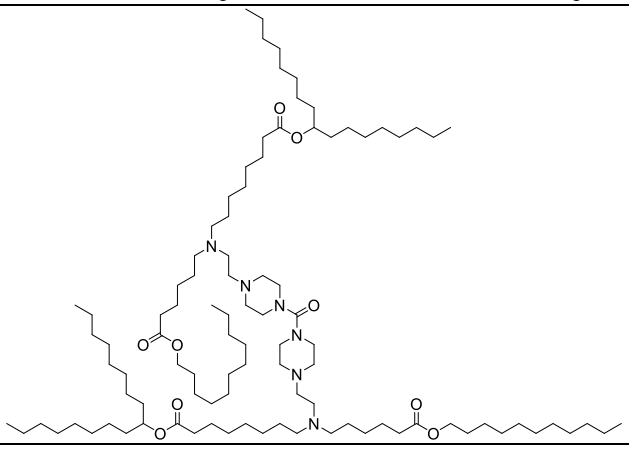
9. The compound of any one of claims 3-8, wherein **m** is 5, 6, 7, 8 or 9.

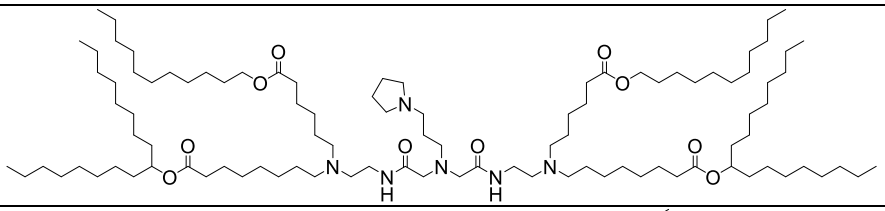
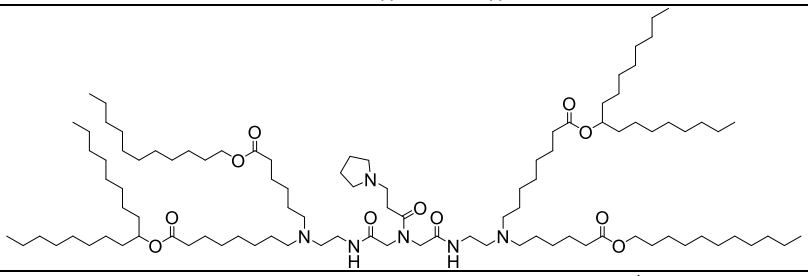
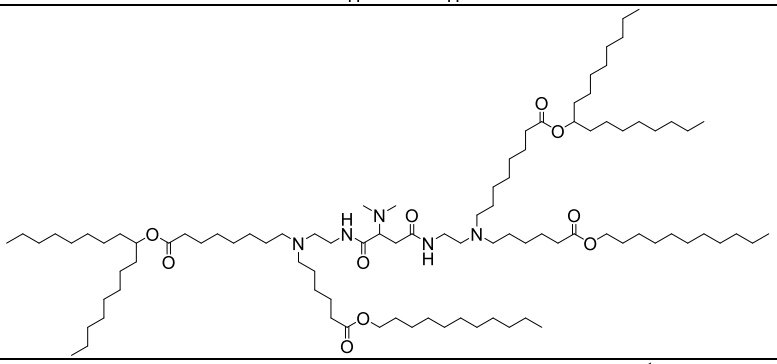
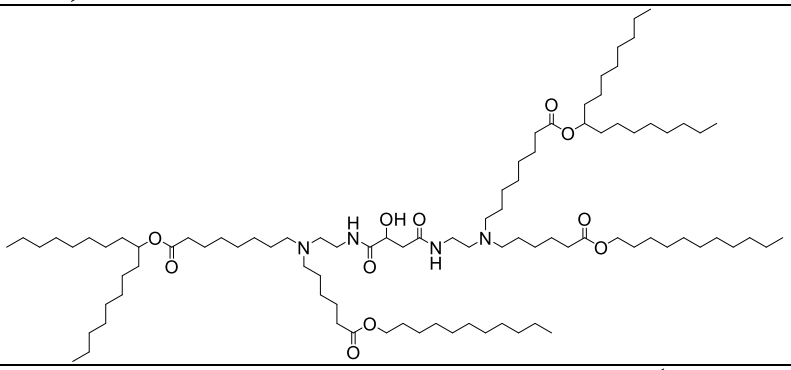
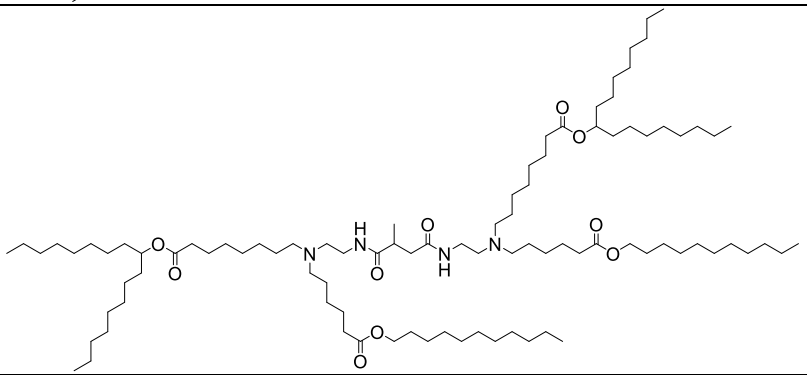
10. The compound of any one of claims 3-9, wherein **s** is 1 or 2.

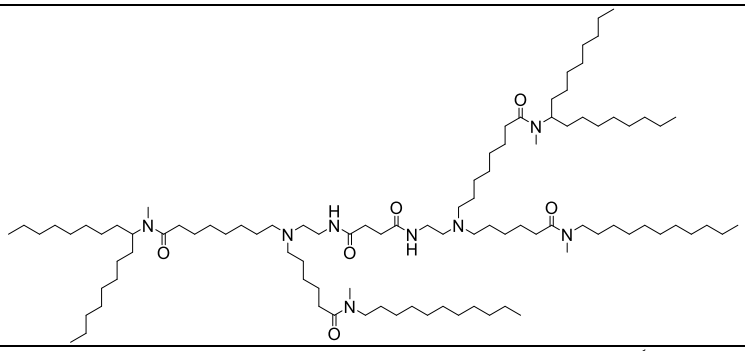
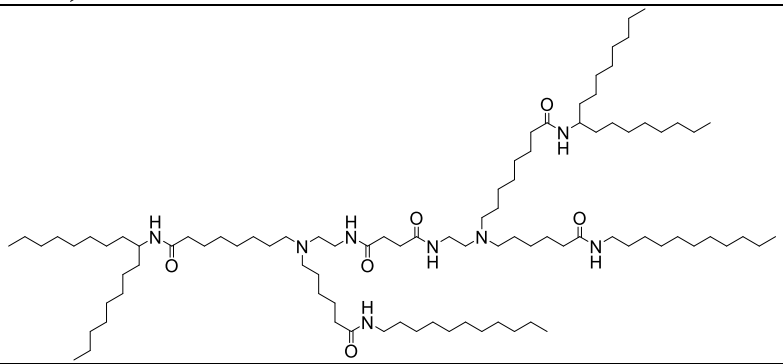
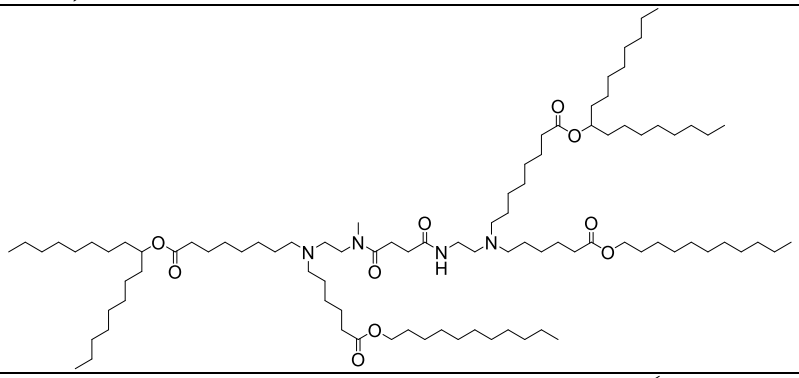
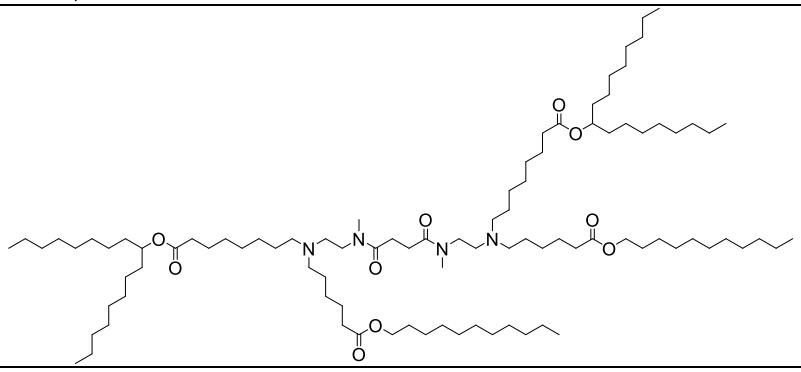
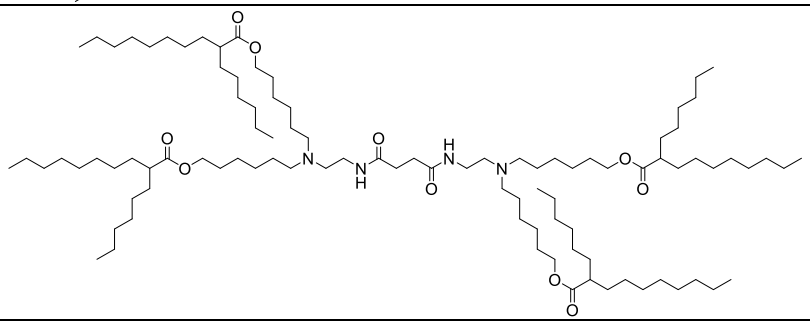
11. The compound of any one of claims 3-10, wherein **u** is 1 or 2.

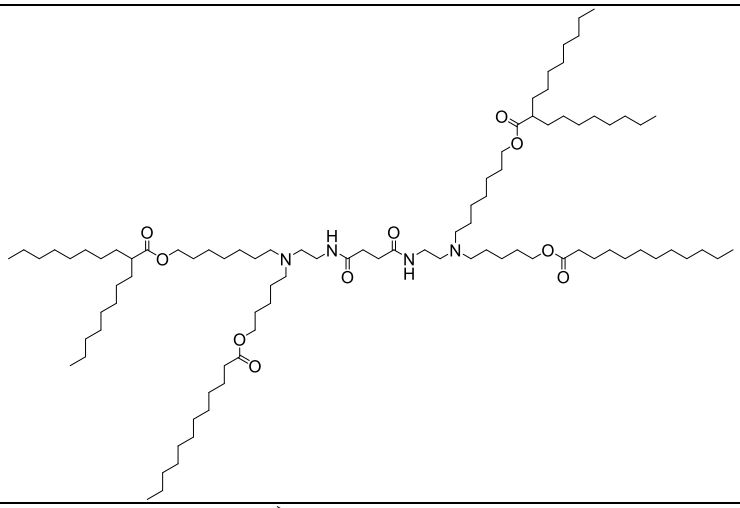
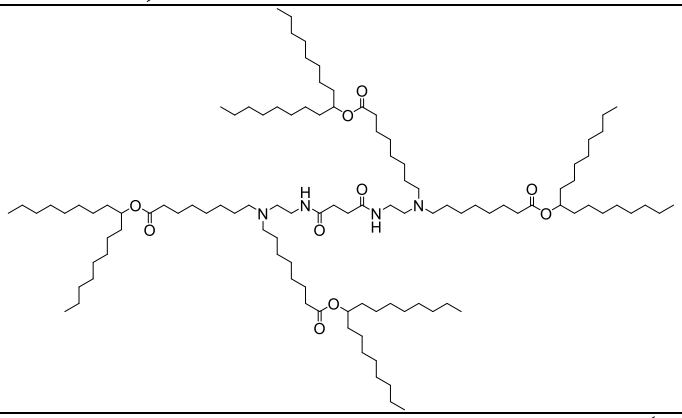
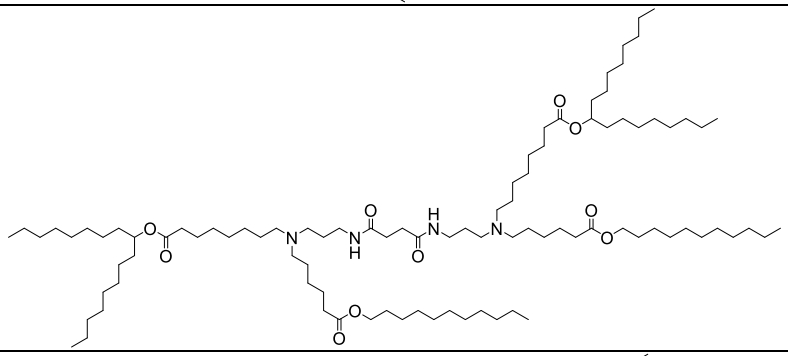
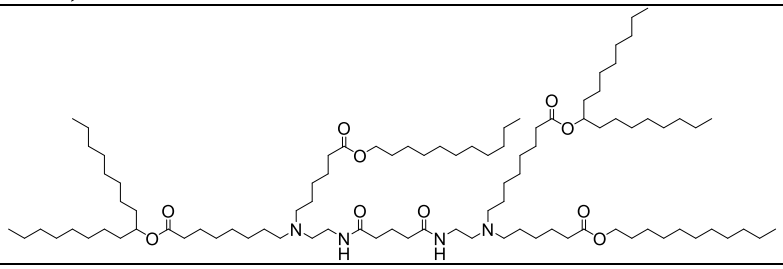
12. The compound of any one of the preceding claims, wherein the pKa of the protonated form of the compound is from about 5.1 to about 8.0.

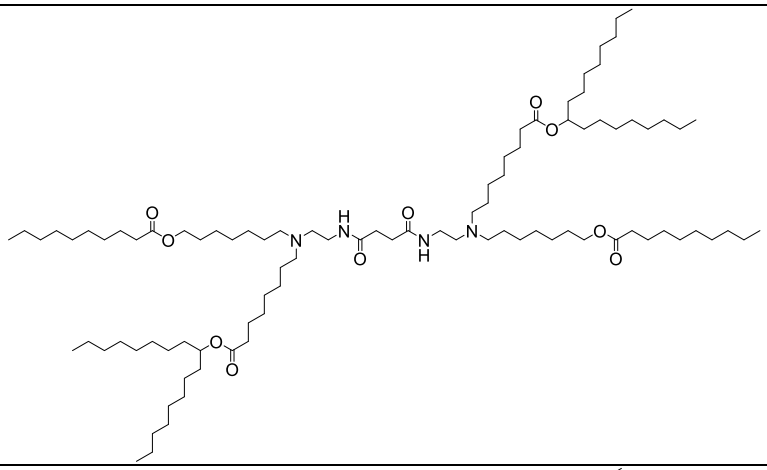
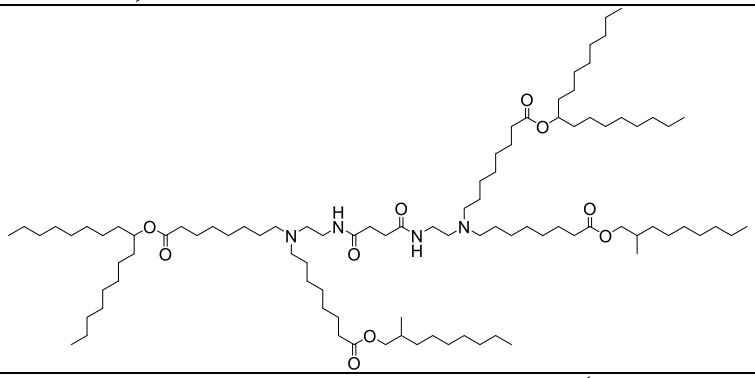
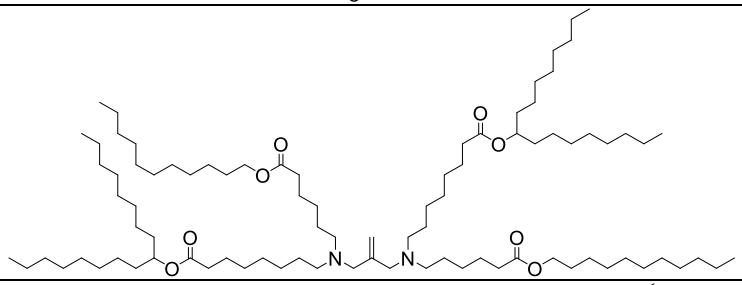
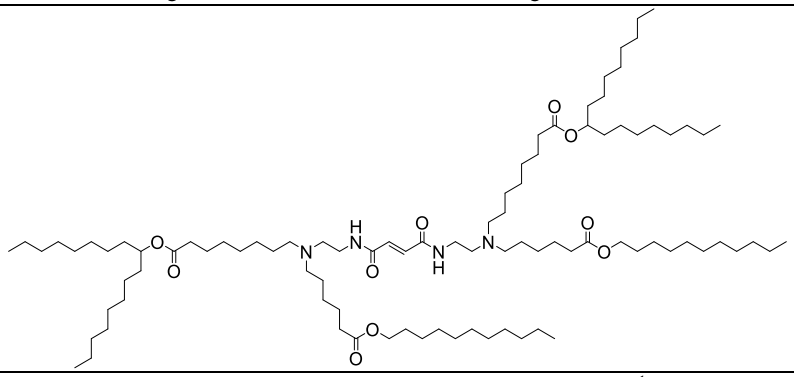
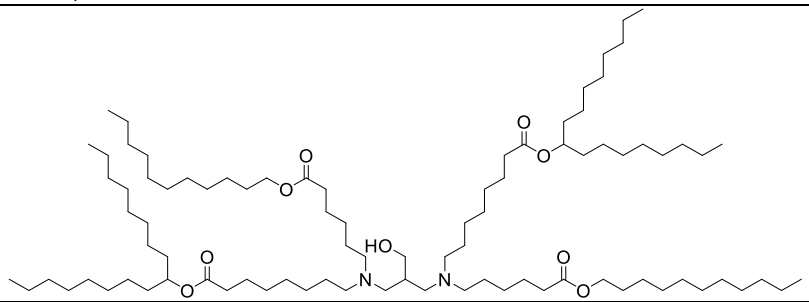
13. The compound of claim 1, wherein the compound is one of the following:

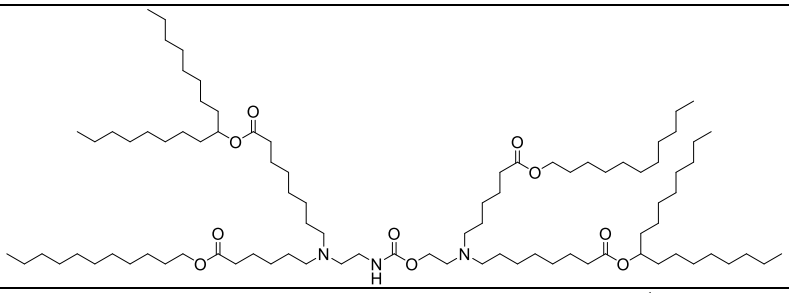
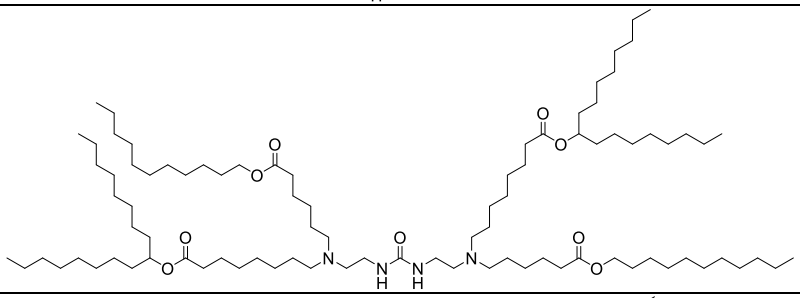
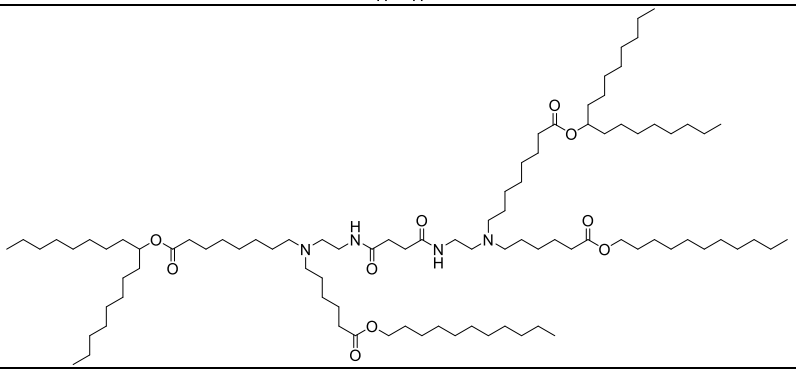
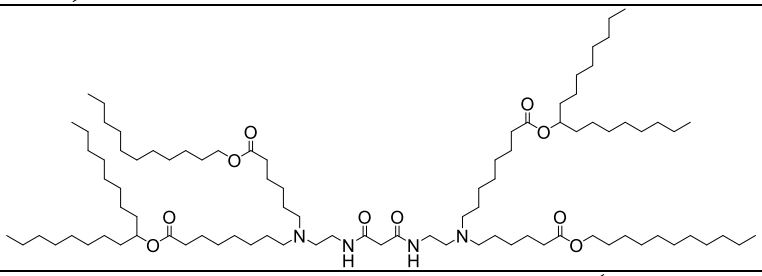
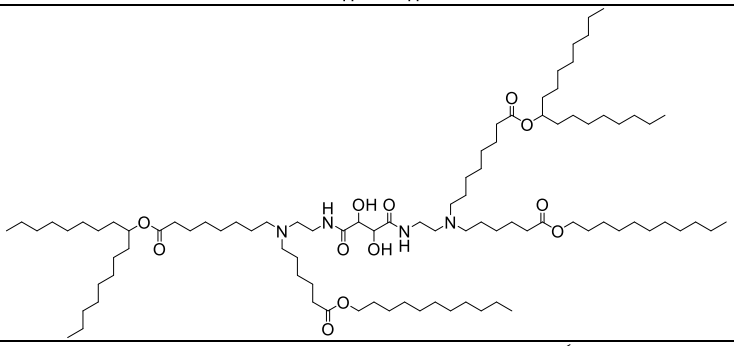
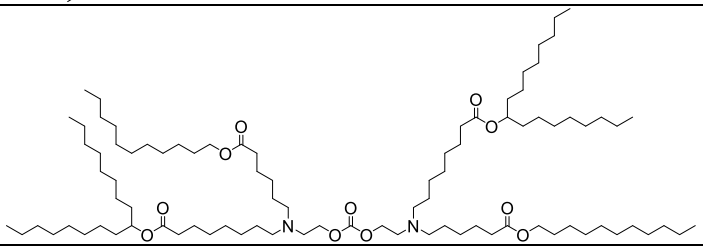
Lipid No.	Structure
2303	
2302	
2299	

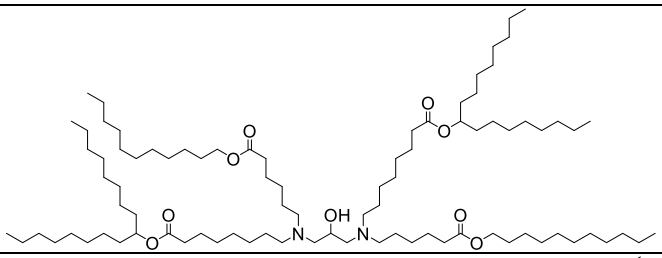
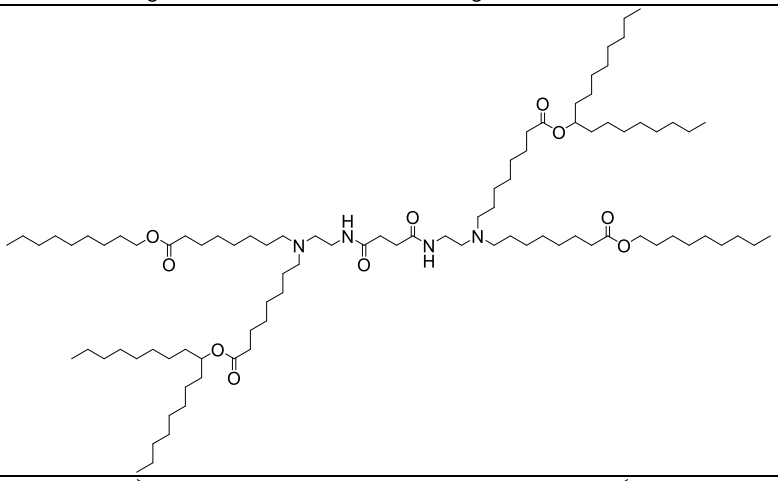
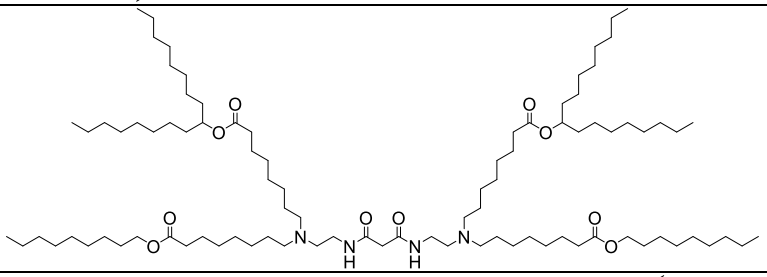
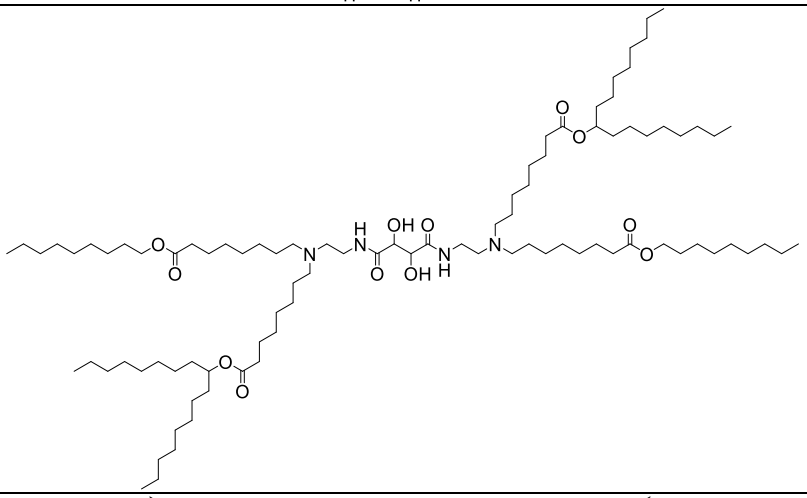
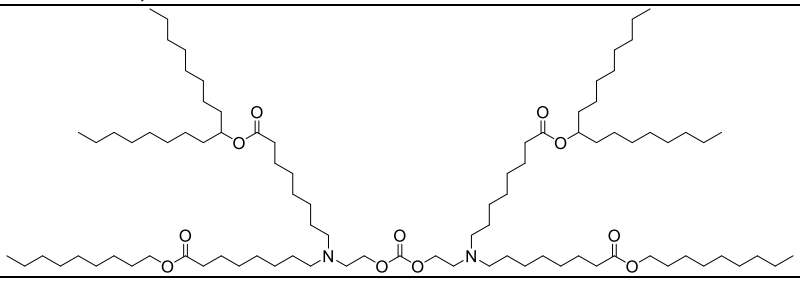
2289	
2288	
2286	
2285	
2284	

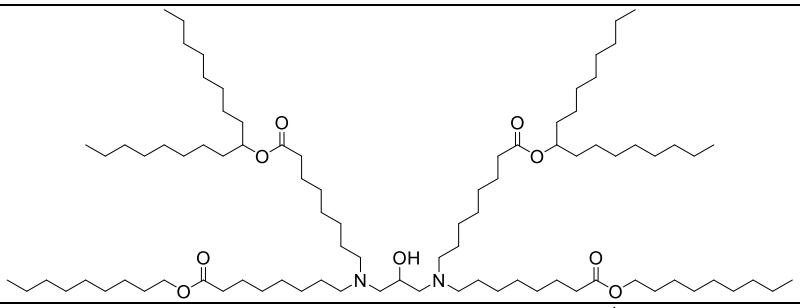
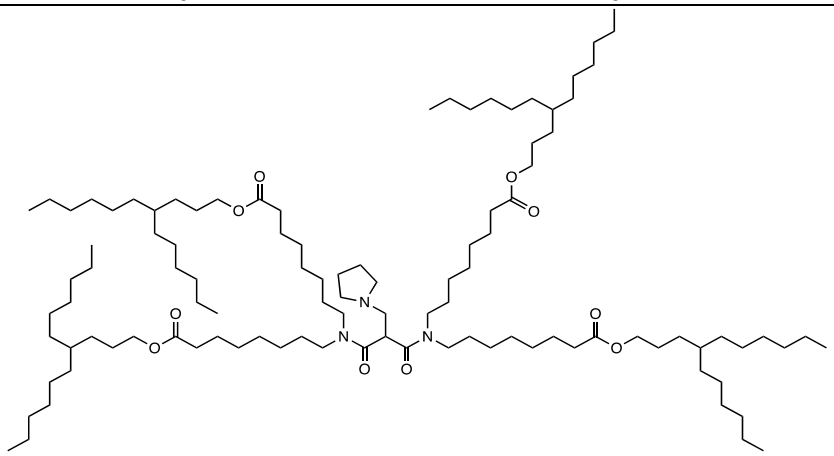
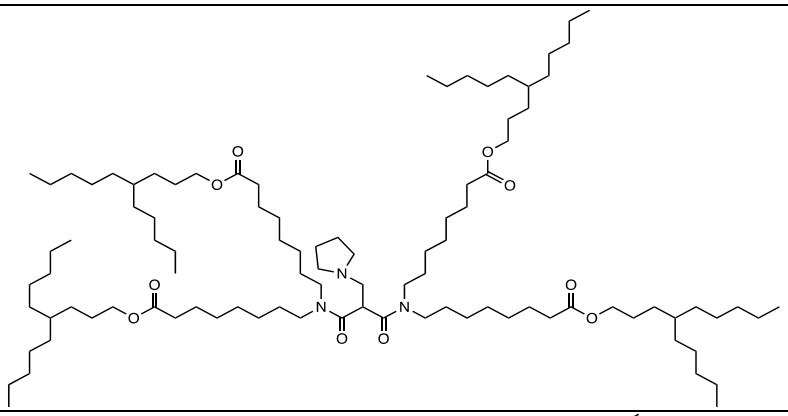
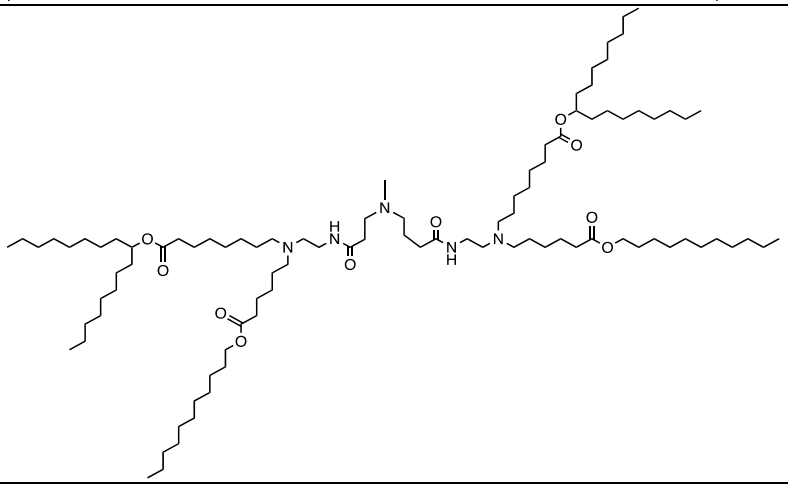
2283	
2282	
2281	
2280	
2279	

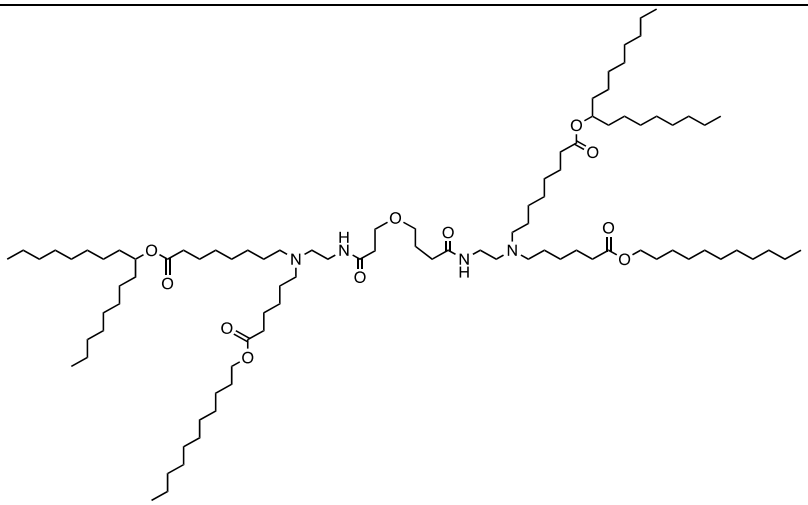
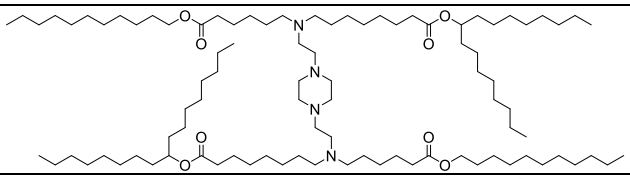
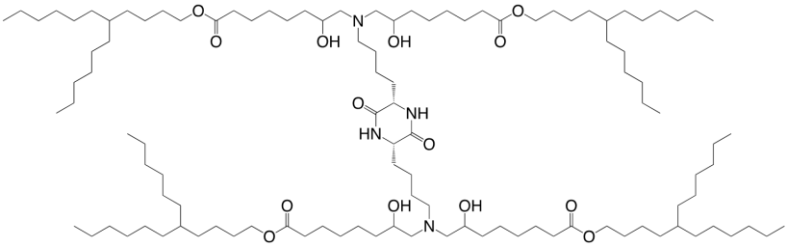
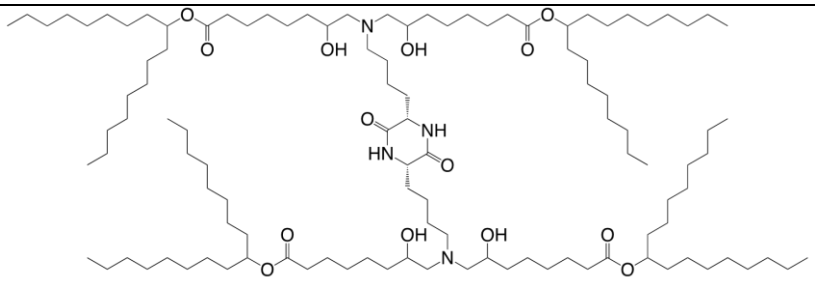
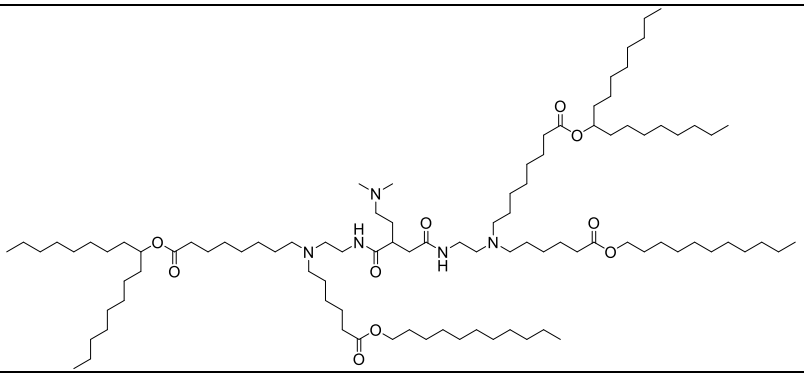
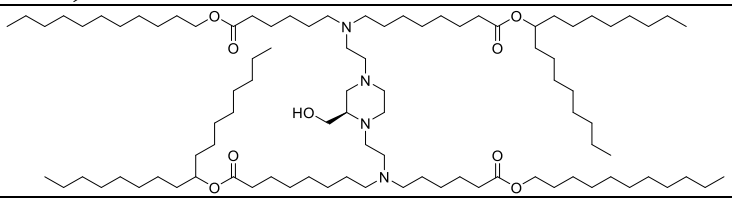
2278	
2275	
2274	
2273	

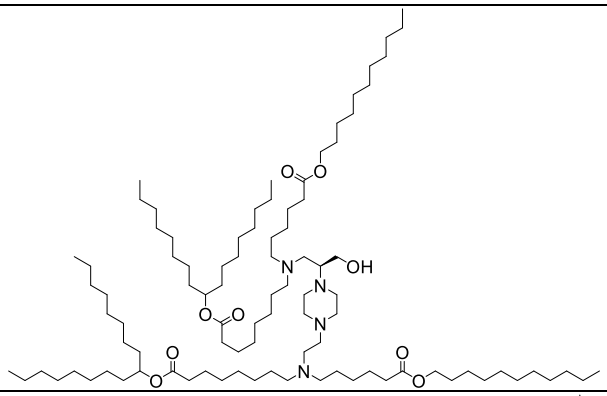
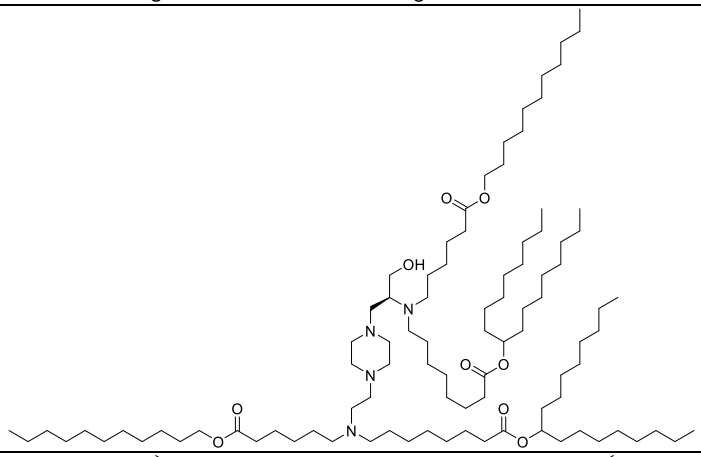
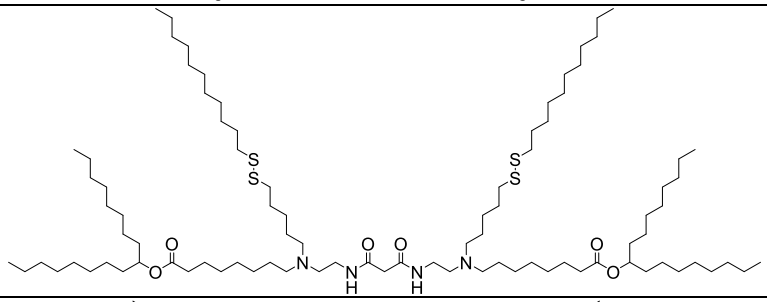
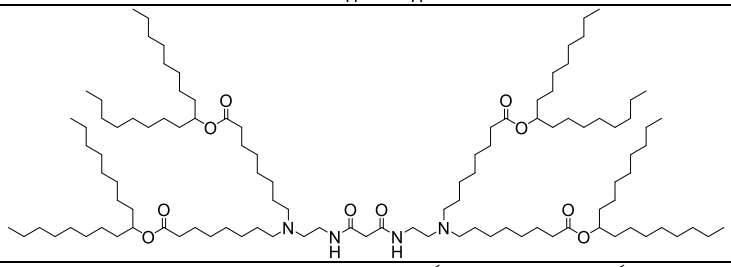
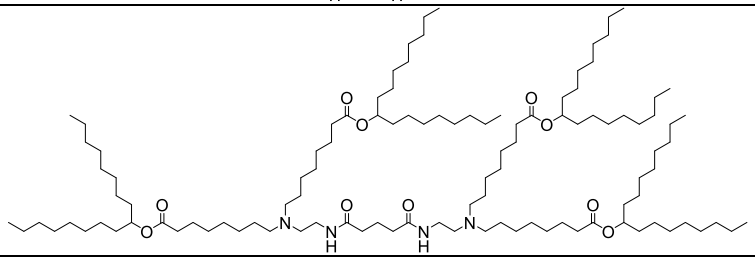
2272	
2271	
2253	
2252	
2251	

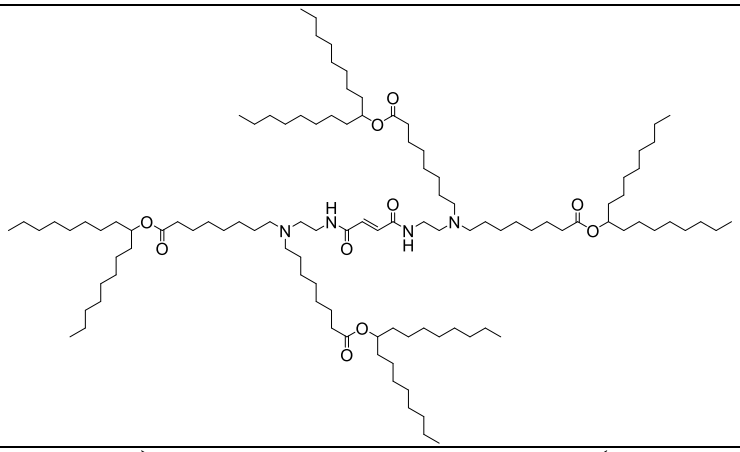
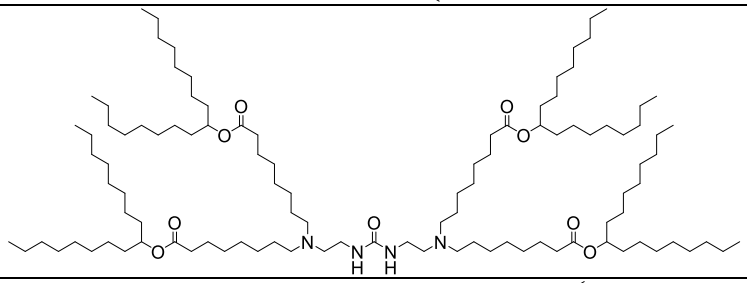
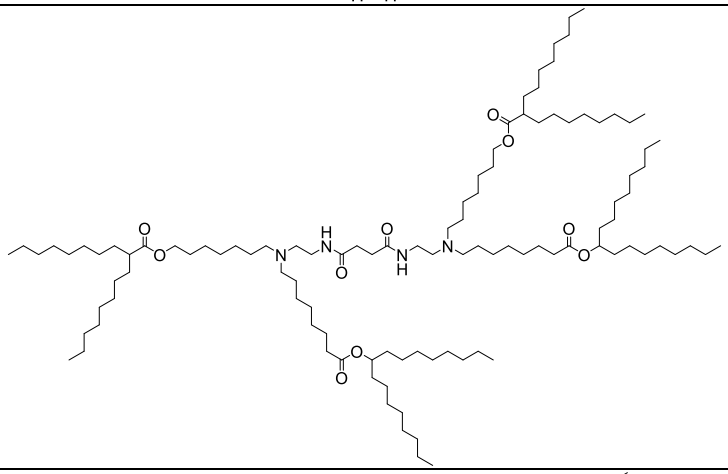
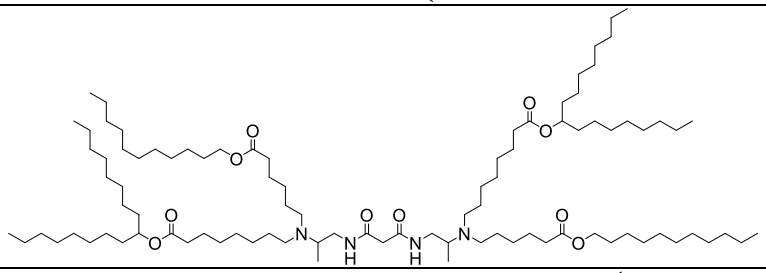
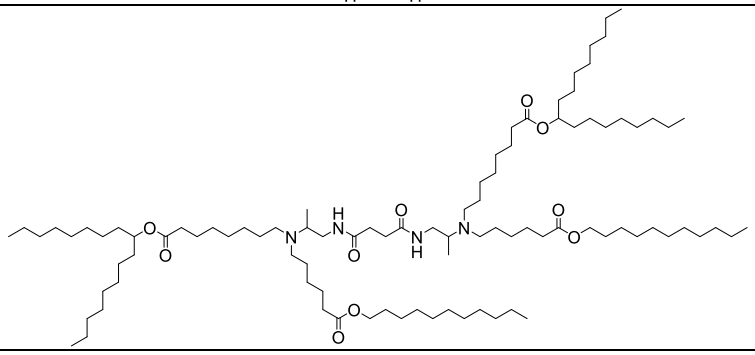
2247	
2246	
2221	
2220	
2219	
2218	

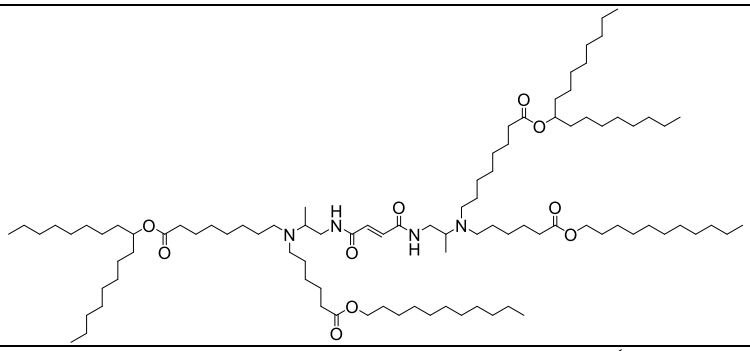
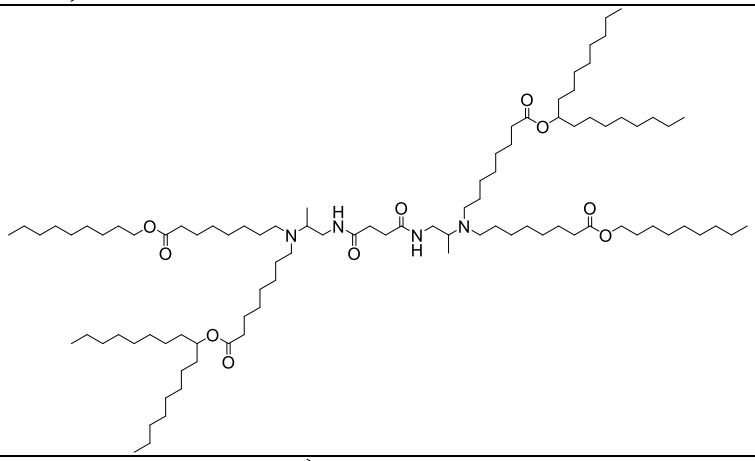
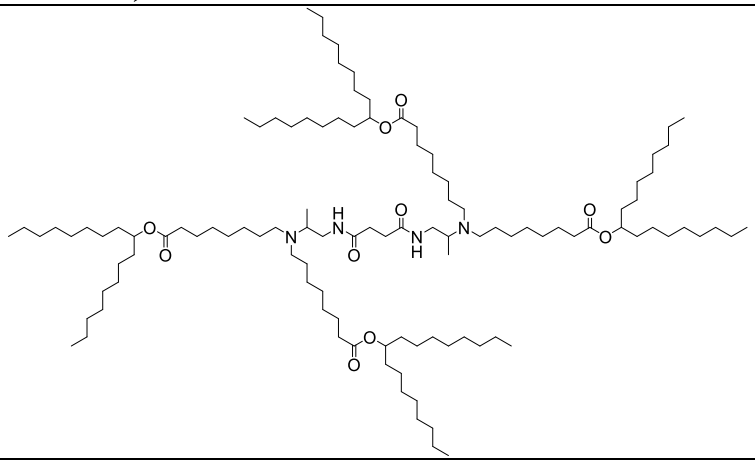
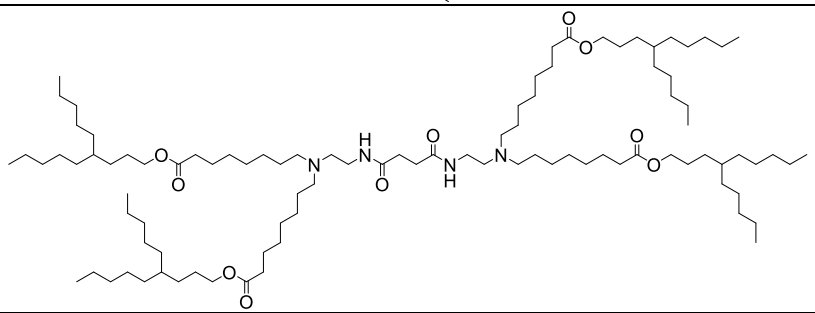
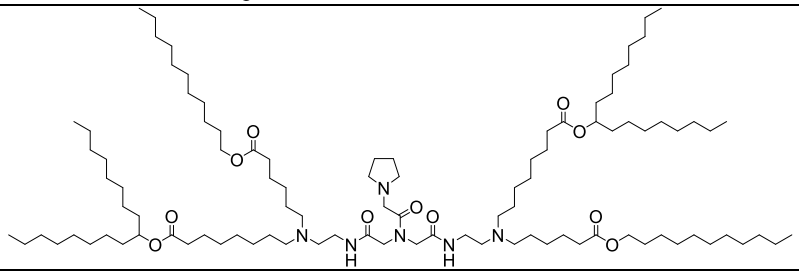
2217	
2213	
2212	
2211	
2210	

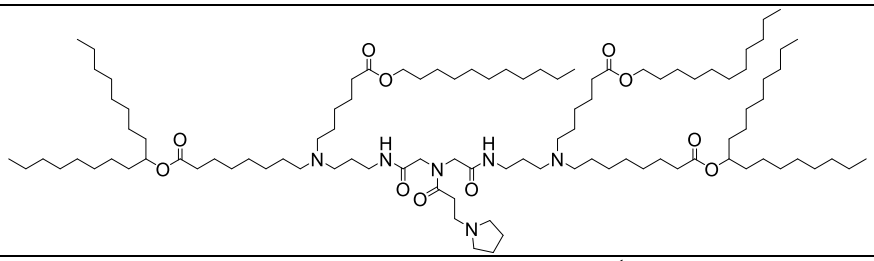
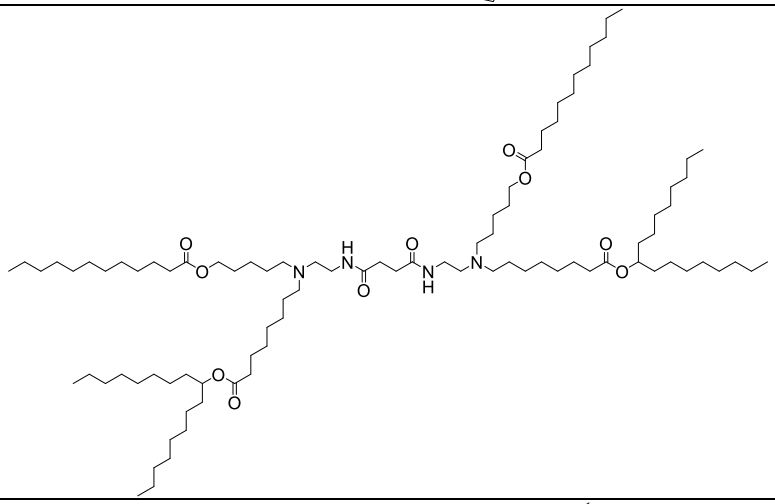
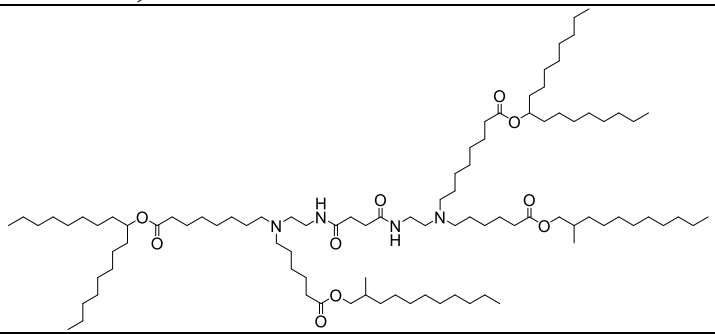
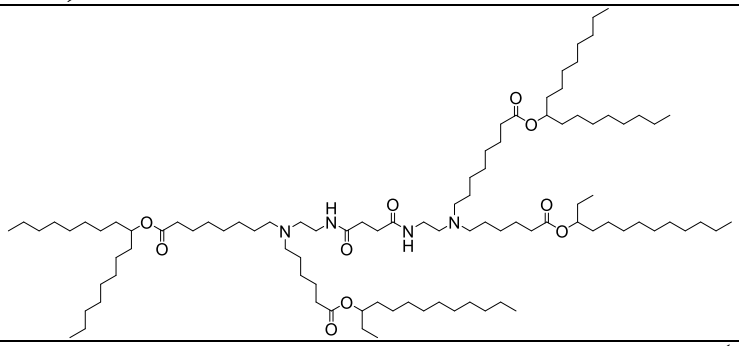
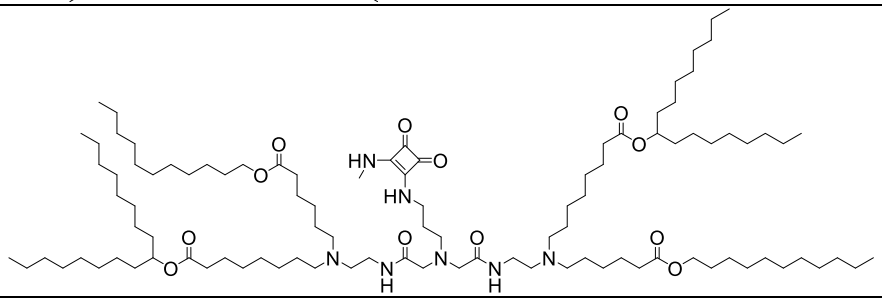
2209	
	
	
	

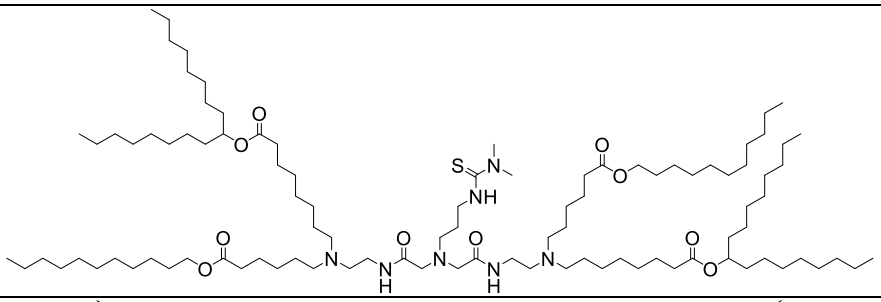
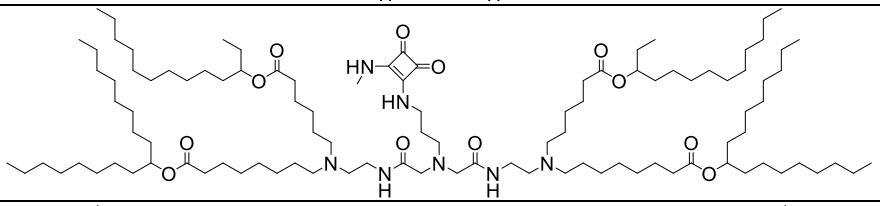
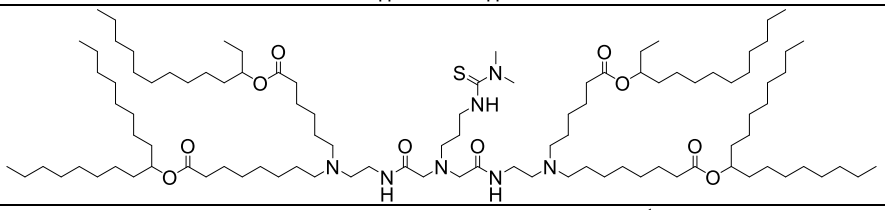
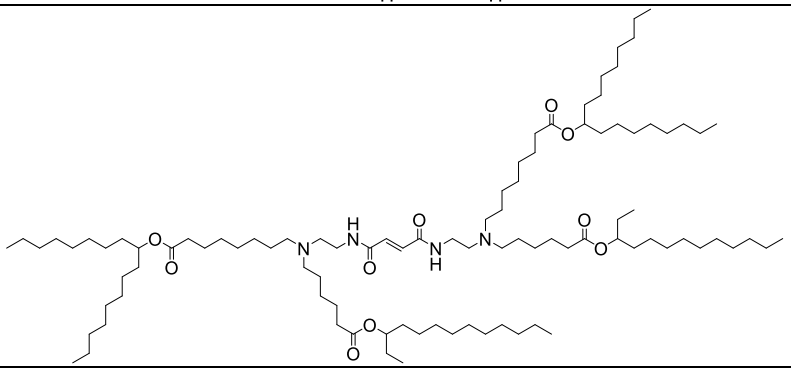
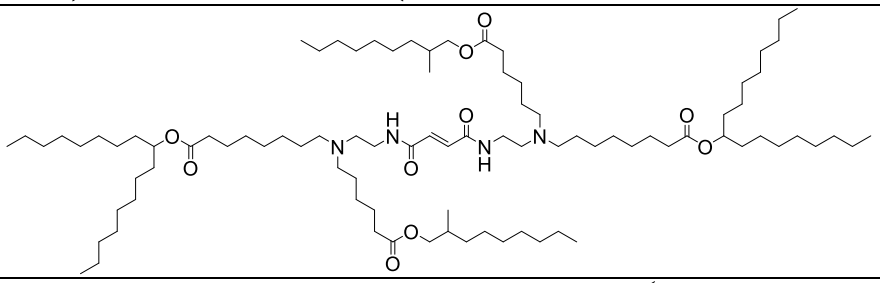
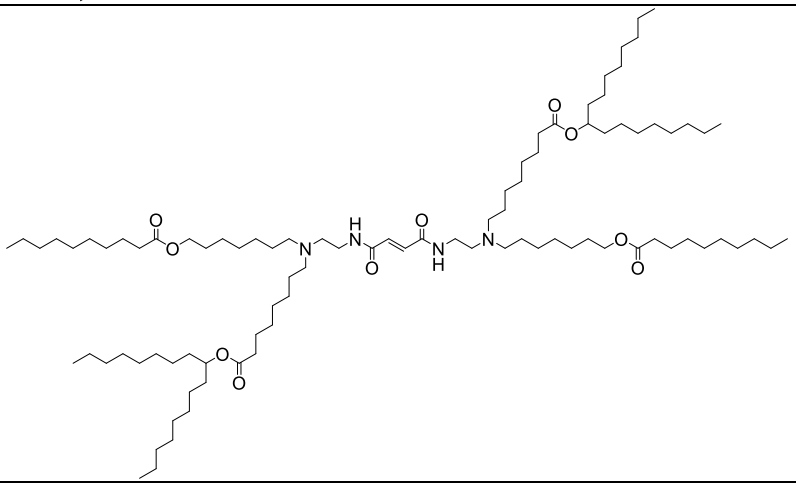
	
2248	
2190	
2189	
2287	
2315	

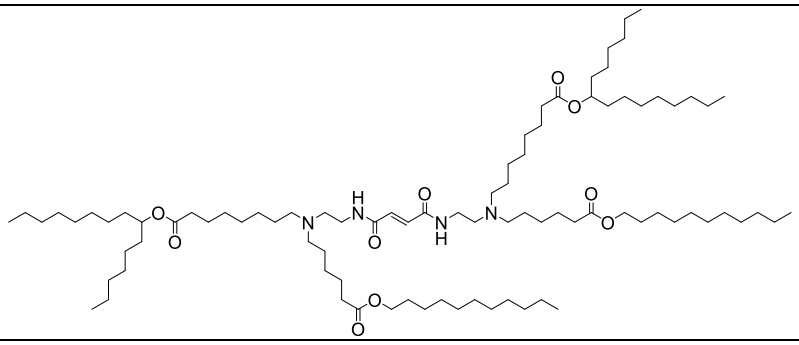
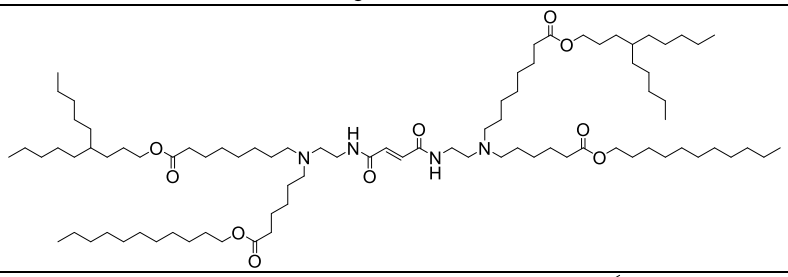
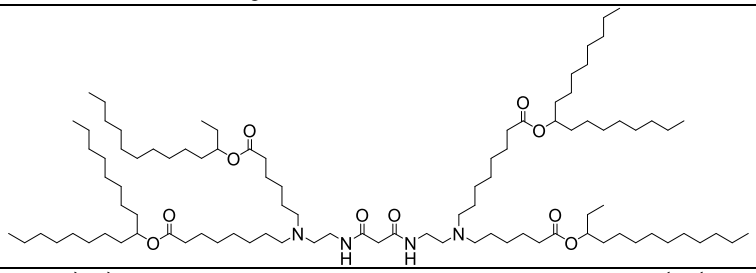
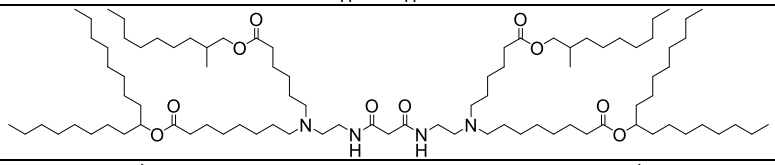
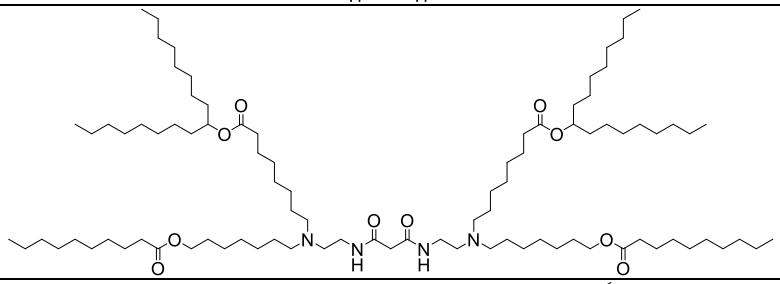
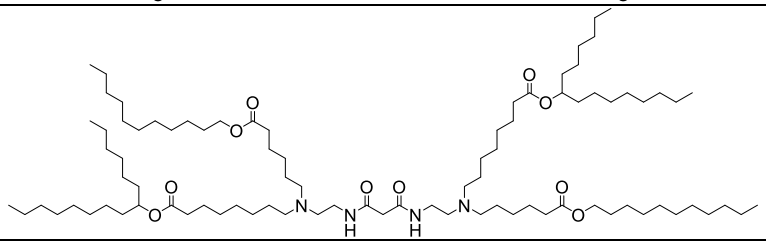
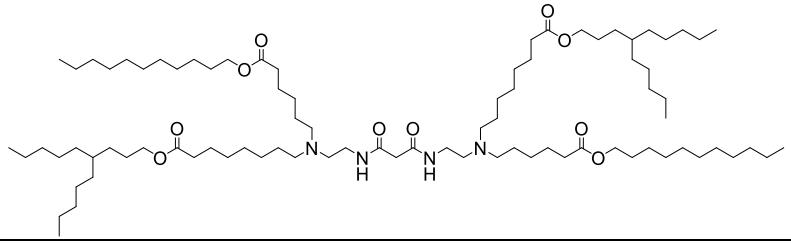
2316	
2317	
2318	
2319	
2320	

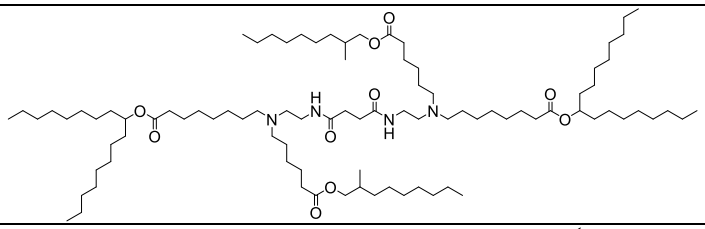
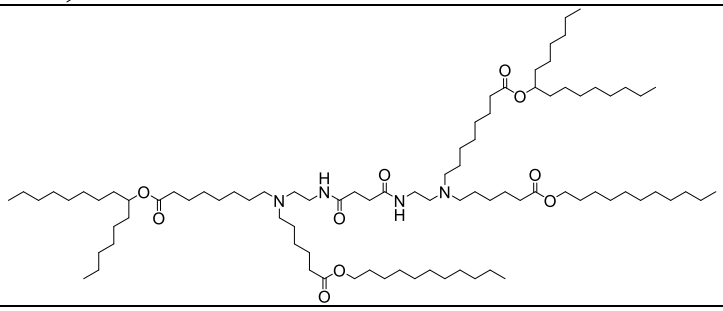
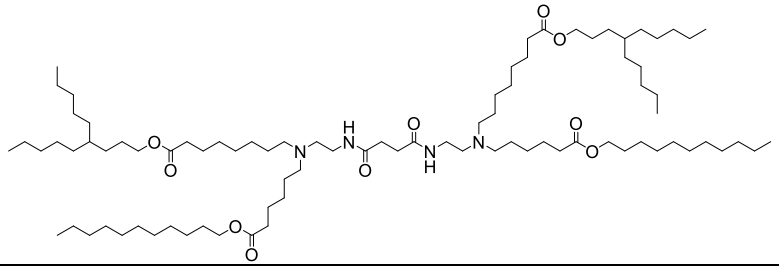
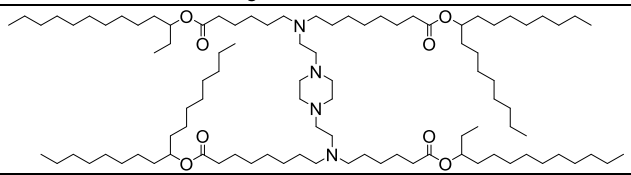
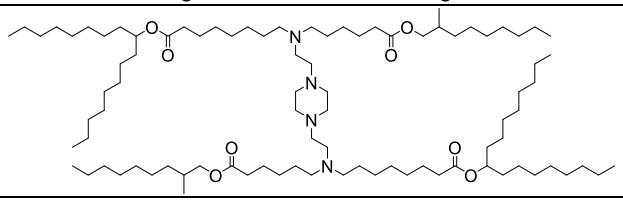
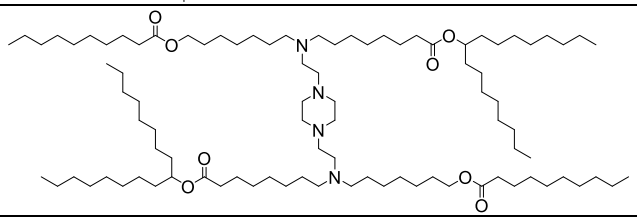
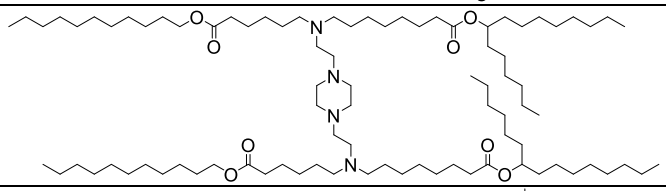
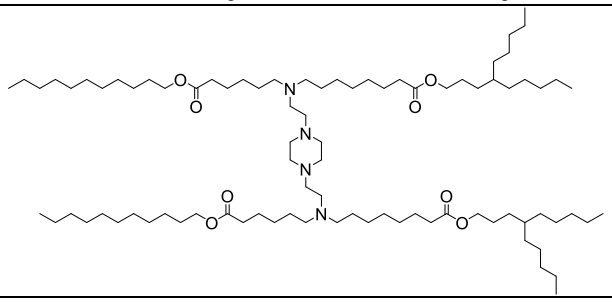
2321	
2322	
2323	
2324	
2325	

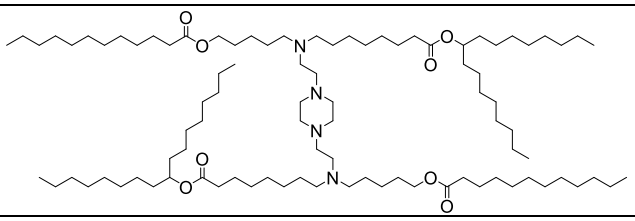
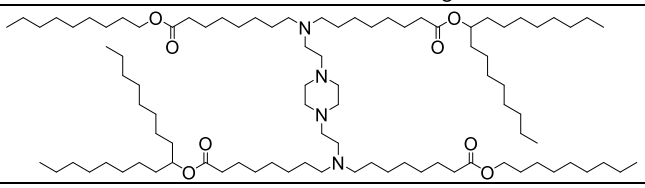
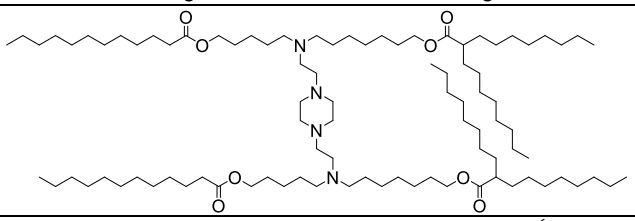
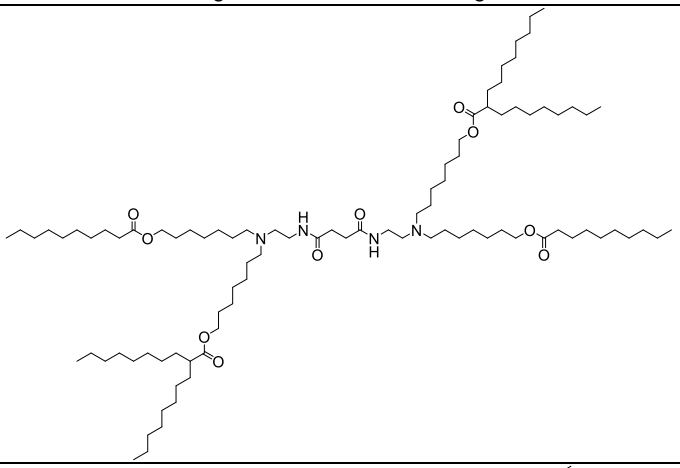
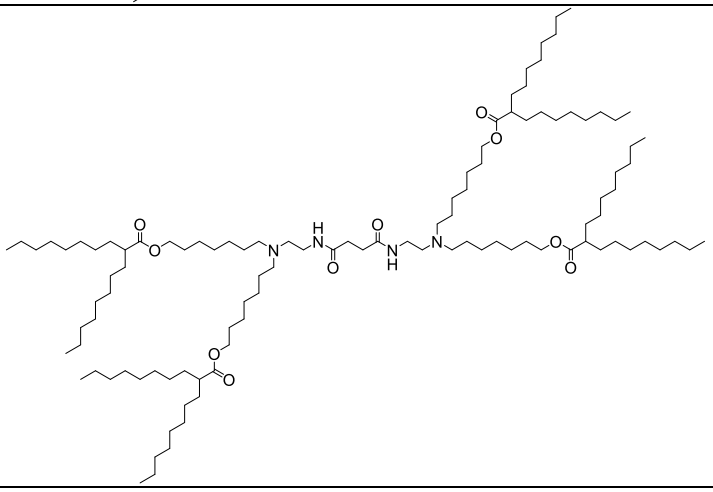
2326	
2327	
2328	
2332	
2334	

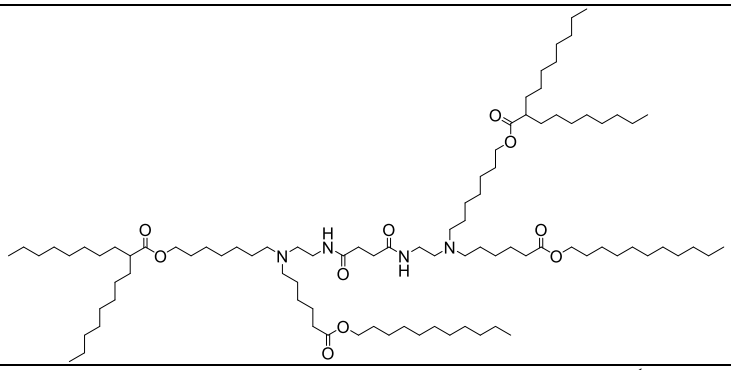
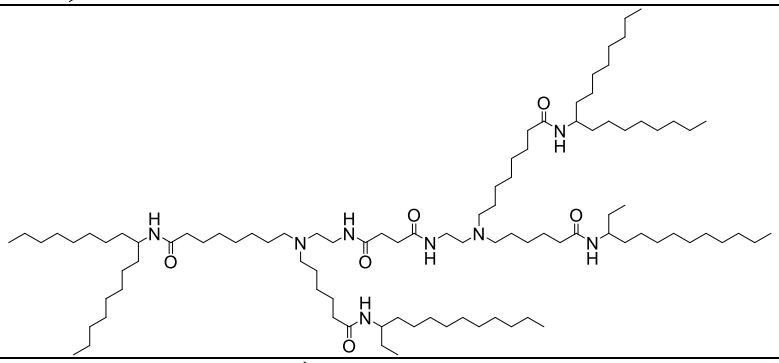
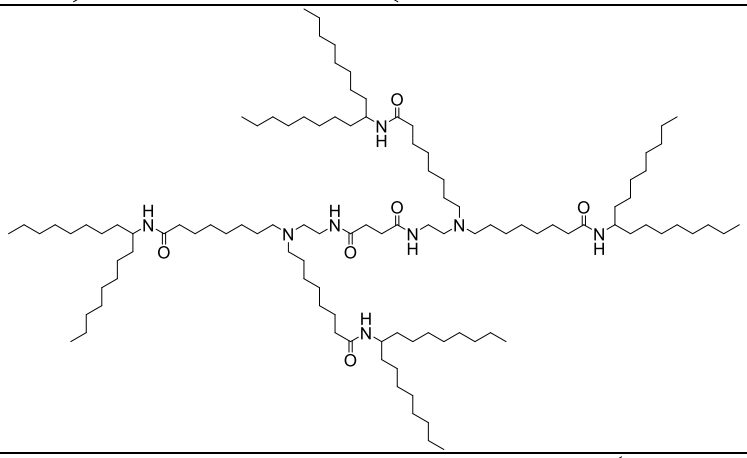
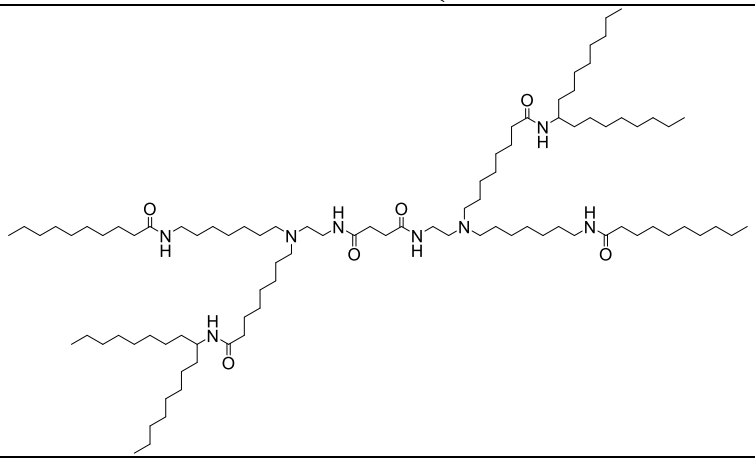
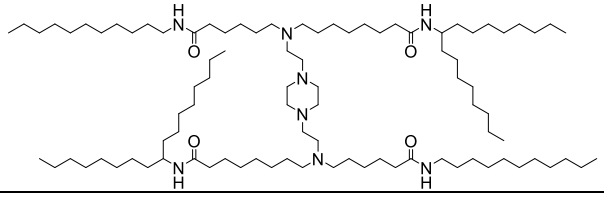
2353	
2354	
2355	
2356	
2357	

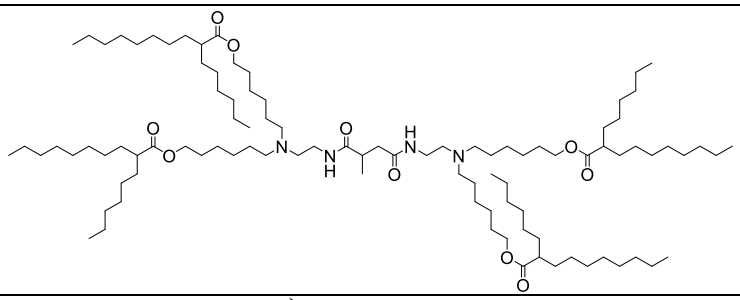
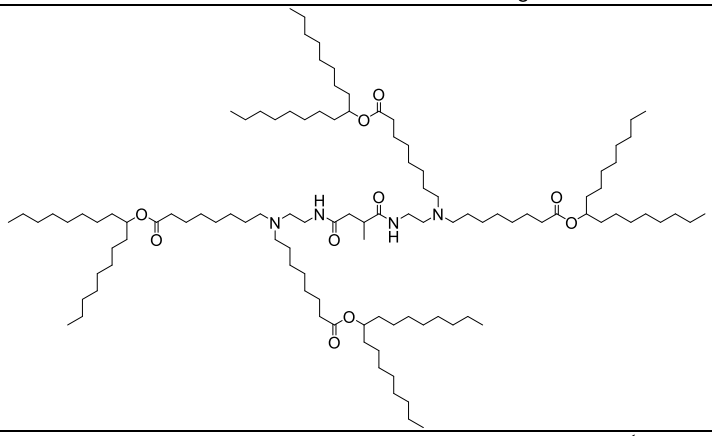
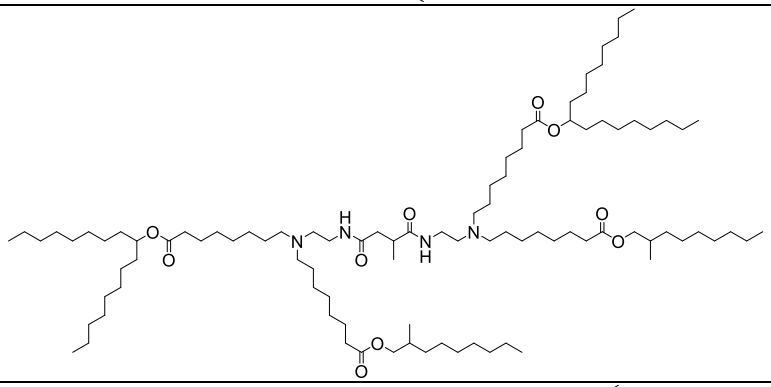
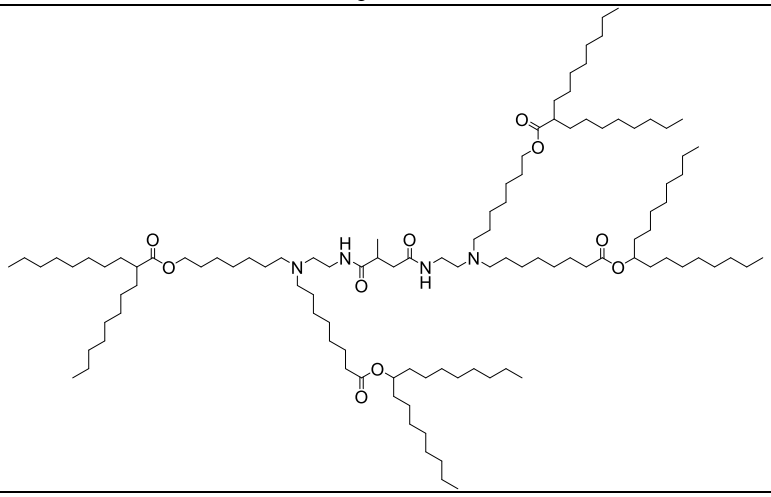
2358	
2361	
2362	
2378	
2379	
2380	

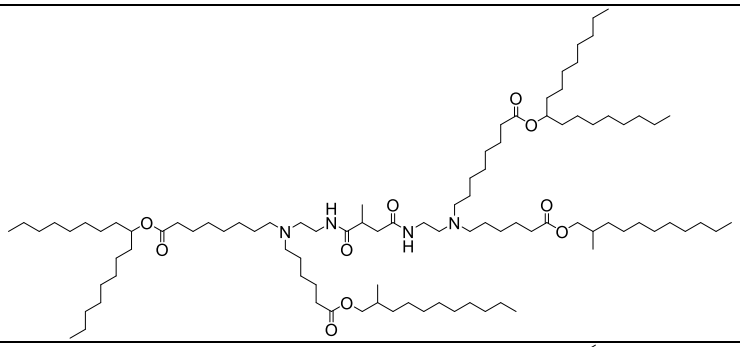
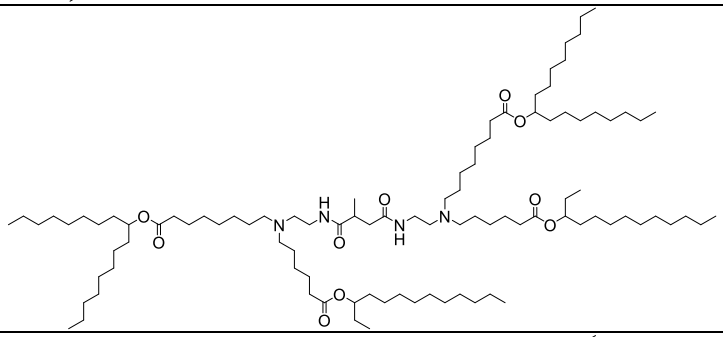
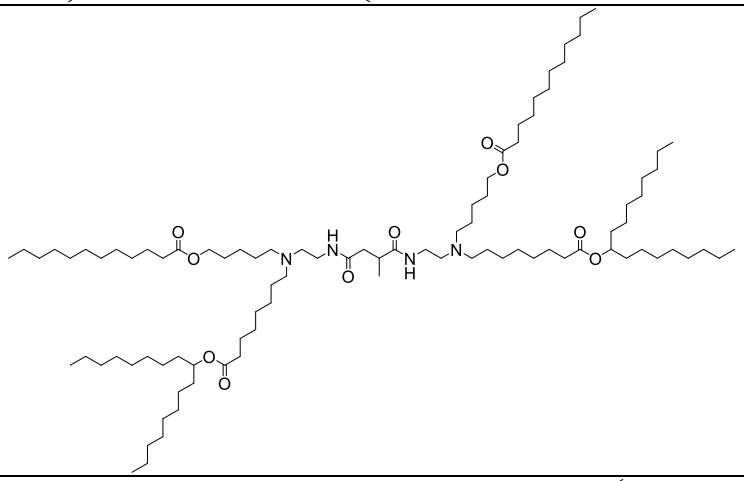
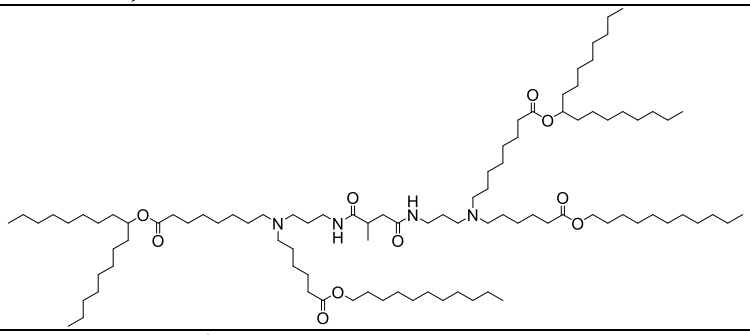
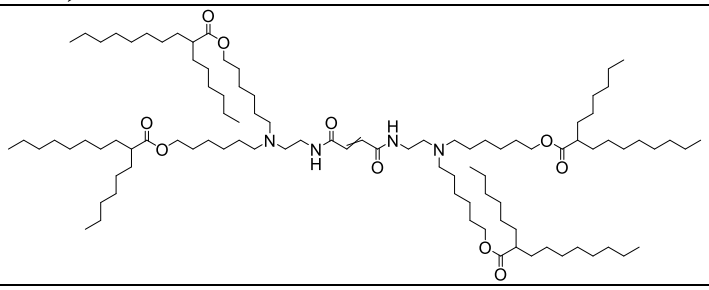
2381	
2382	
2384	
2385	
2386	
2387	
2388	

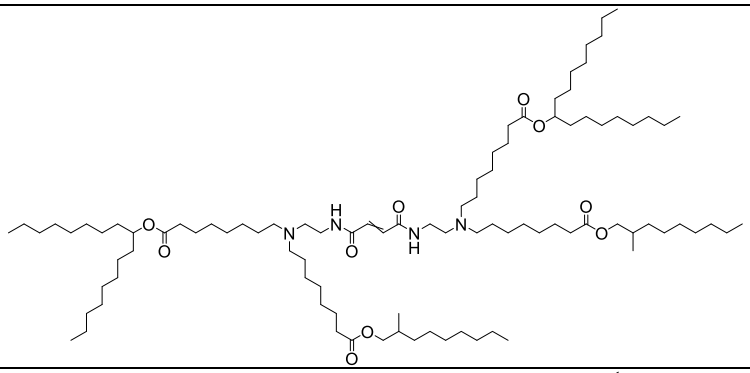
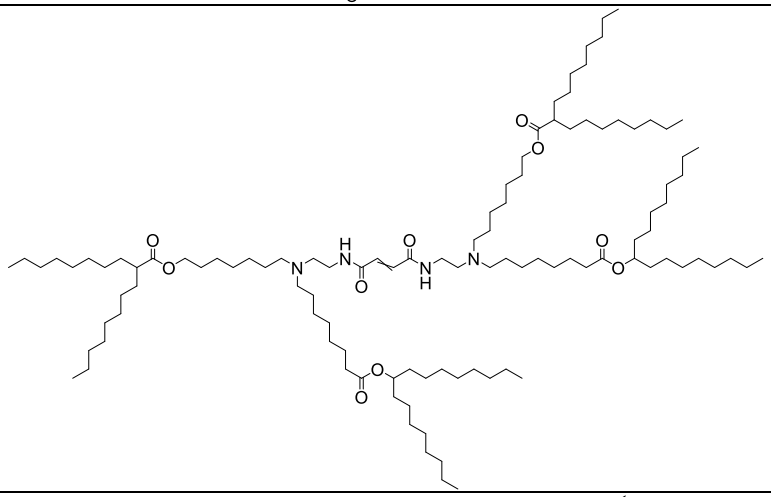
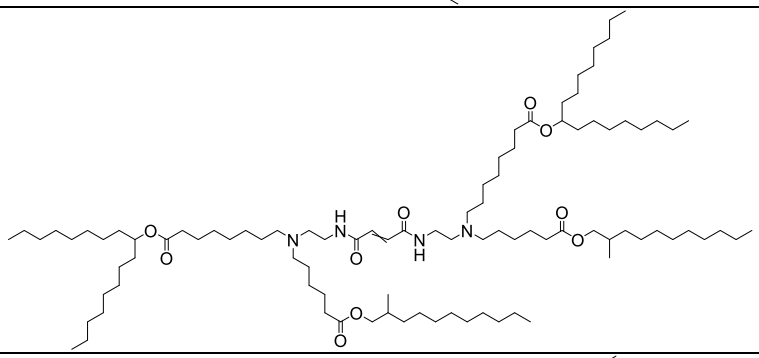
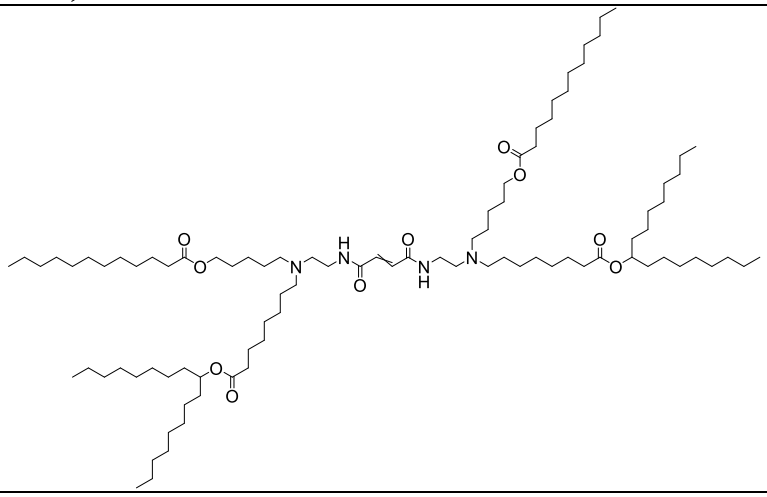
2389	
2390	
2391	
2393	
2394	
2395	
2396	
2397	

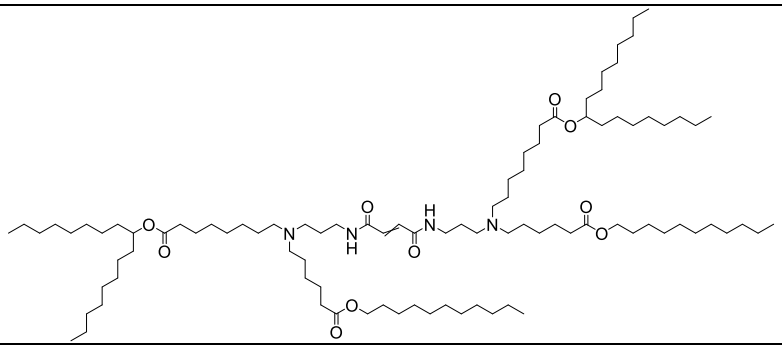
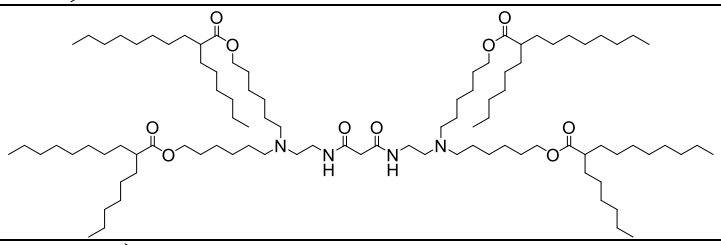
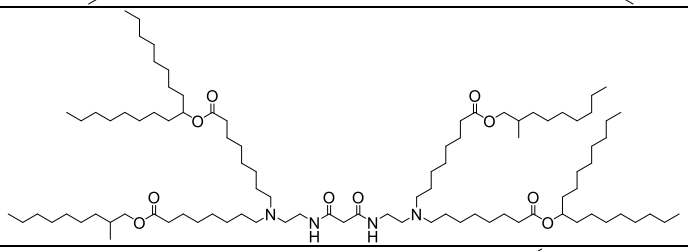
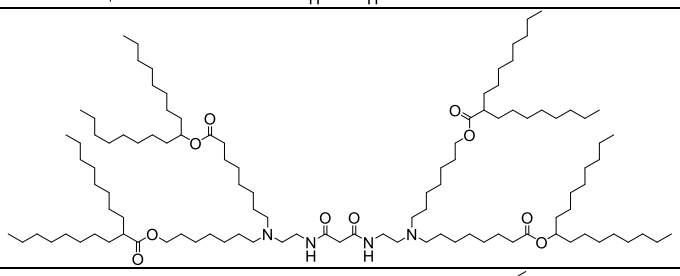
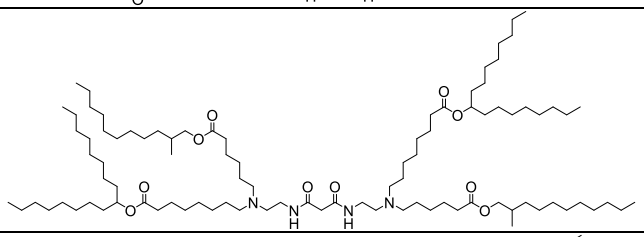
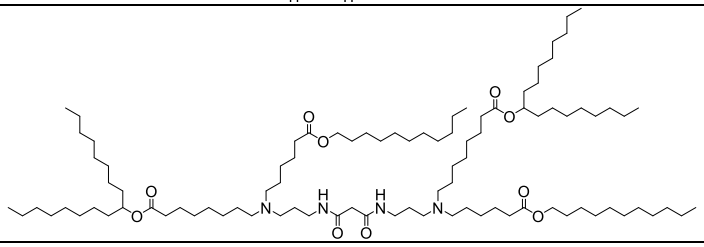
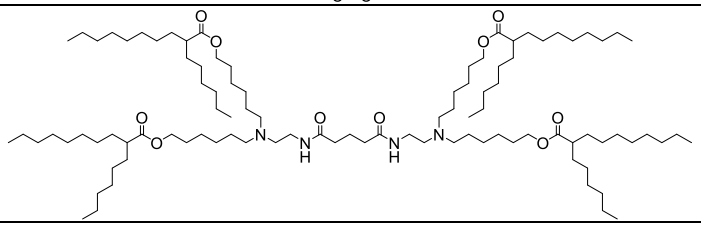
2399	
2400	
2401	
2403	
2404	

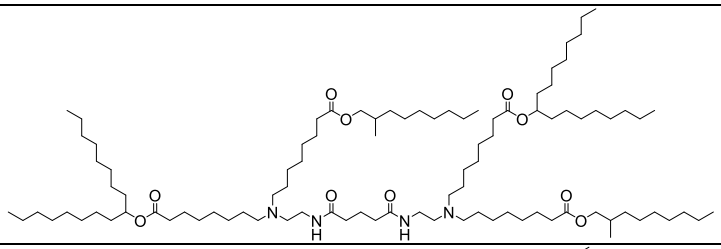
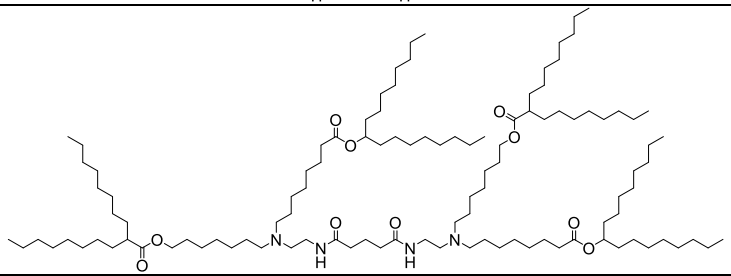
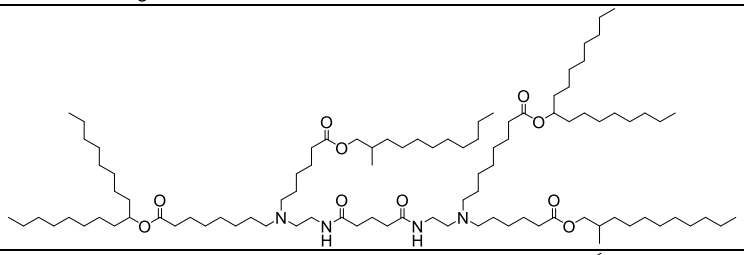
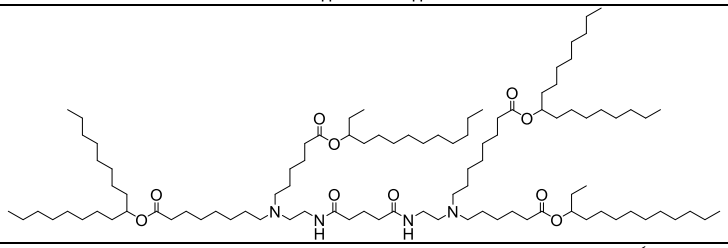
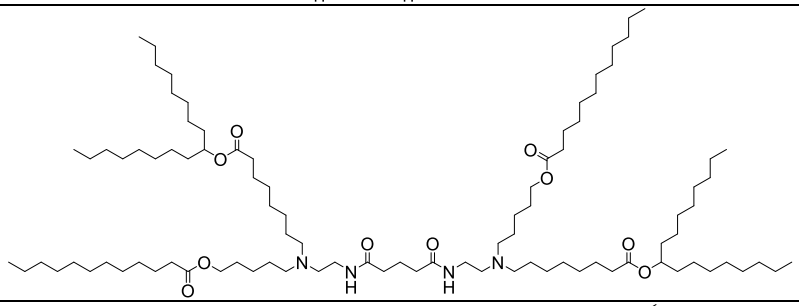
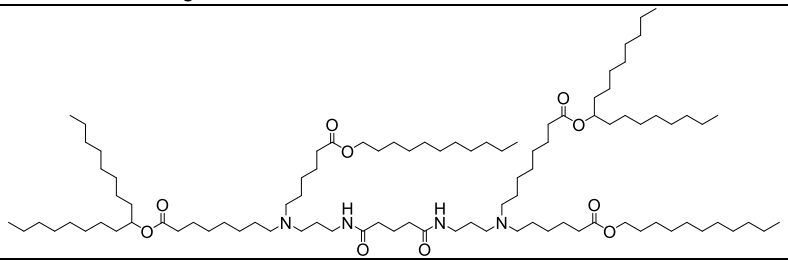
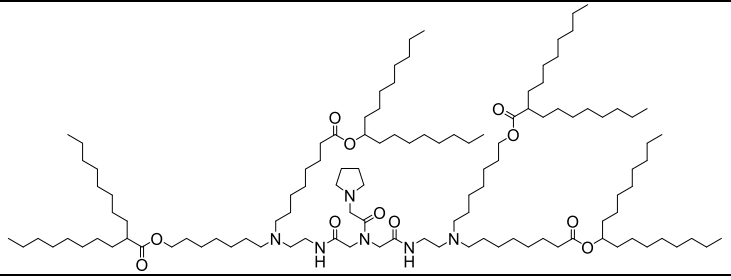
2405	
2421	
2426	
2427	
2428	

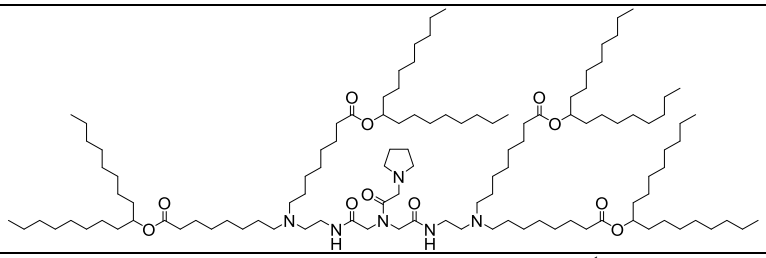
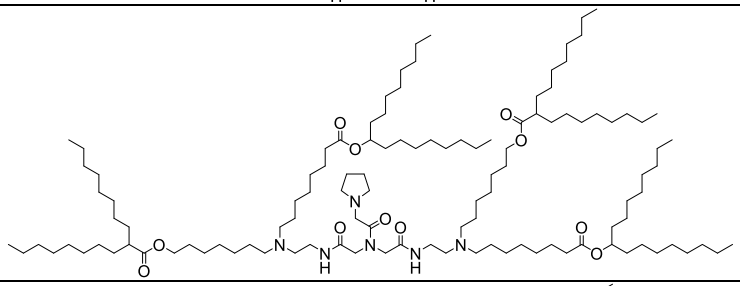
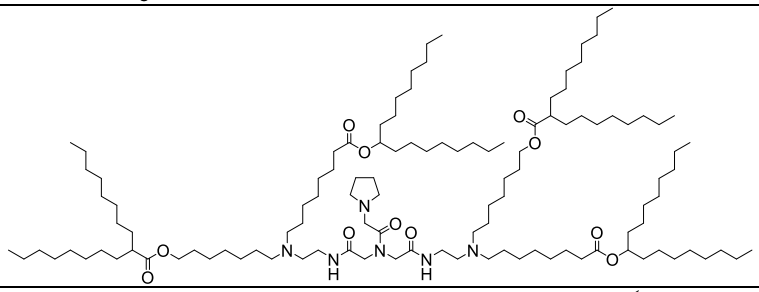
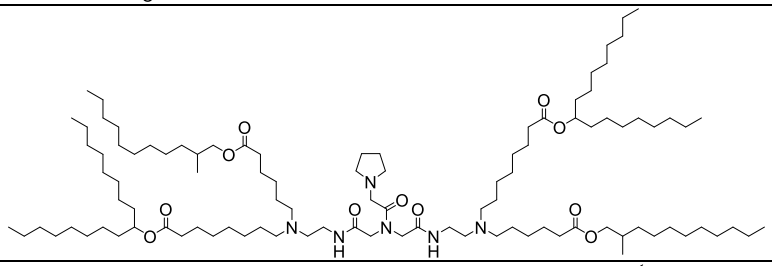
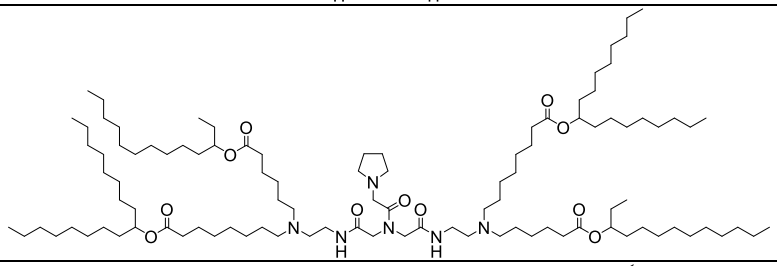
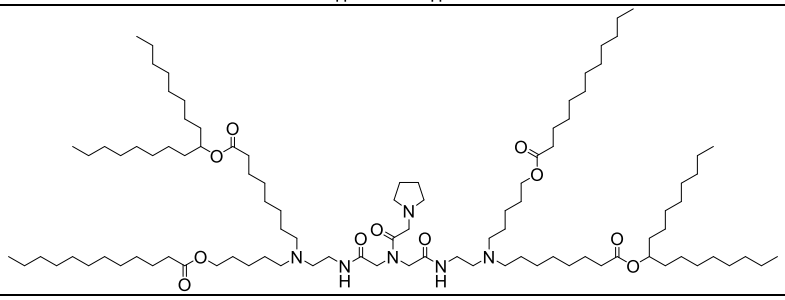
	
	
	
	

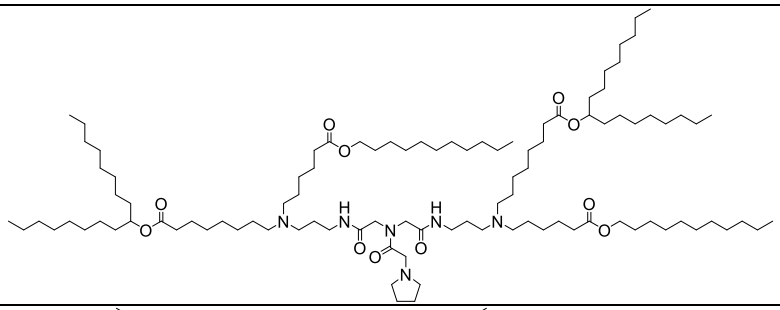
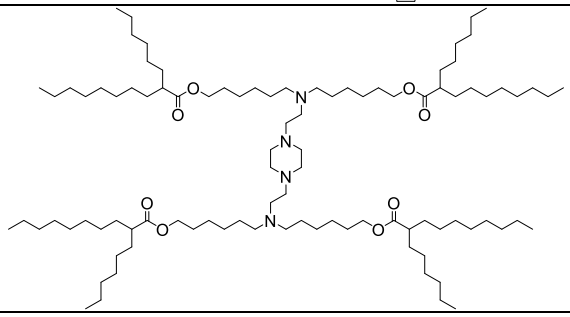
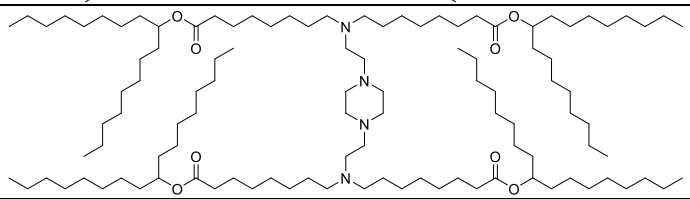
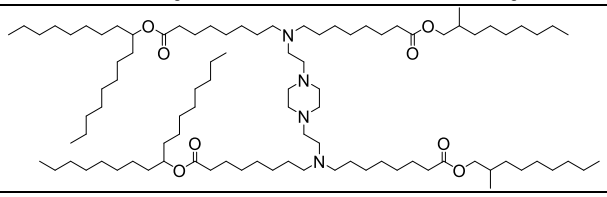
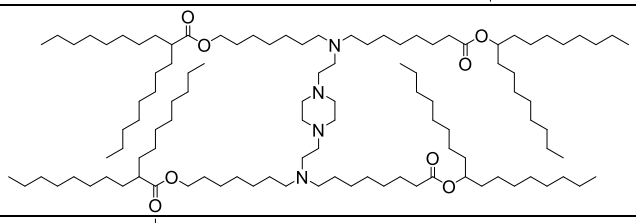
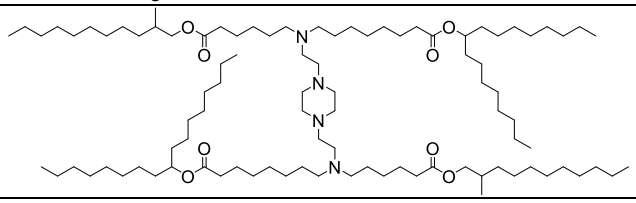
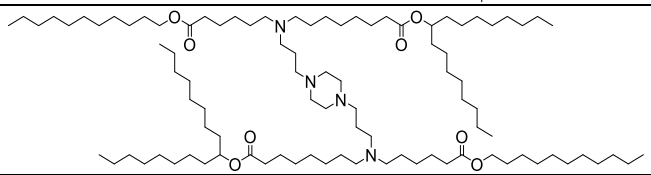
	
	
	
	
	

14. A combination of the compound of any one of the preceding claims and a lipid component.

15. The combination of claim 14, wherein the combination comprises about a 1:1 ratio of the compound and the lipid component.

16. The combination of claim 14 or 15, wherein the combination is a LNP composition.

17. The combination of any one of claims 14-16, wherein the lipid component comprises a helper lipid and a PEG lipid, and optionally a neutral lipid.

18. The combination of any one of claims14-17, further comprising a nucleic acid component.

19. The combination of claim 18, wherein the nucleic acid component is an RNA or DNA component.

20. The combination of claim 18, having an N/P ratio of about 3-10.

21. The combination of claim 19, wherein the nucleic acid component is a RNA component, and wherein the RNA component comprises a mRNA.

22. Use of a composition comprising one or more compounds according to any one of claims 1-13 in the manufacture of a medicament for delivering a therapeutic cargo to a target organ of a subject in need thereof.

23. The use of claim 22, wherein the target organ is the pancreas or the lung, and wherein:

less than 50%, 30%, or 10% of the therapeutic cargo is to be delivered to the liver of the subject; and/or

more than 50%, 70%, or 90% of the therapeutic cargo is to be delivered to the pancreas and/or lung of the subject.