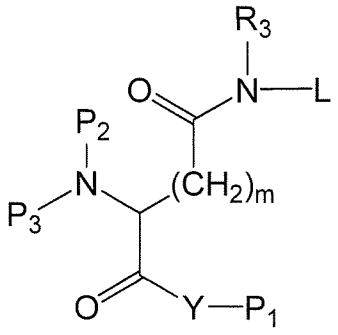
Claims

1. A compound of formula I



I

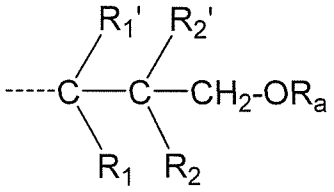
wherein

Y represents O, N, S or a covalent bond,

P_1 represents H, an Y-protecting group or an Y-activating group or a spacer group,

P_2 and P_3 represent independently of each other H, an amino-protecting group or a spacer group, or P_2 and P_3 form together with the N to which they are bound a ring structure,

L is a group of formula (a)



(a)

wherein the dashed line represents the linkage to N,

R_1, represents H or a group of formula $-(CH_2)_2-OR_{b1}$,

R_1' represents H or a group of formula $-(CH_2)_2-OR_{b2}$,

R_2 represents H or a group of formula $-CH_2-OR_c$,

$R_{2'}$ represents H or a group of formula $-OR_d$ or $-CH_2-OR_d$,

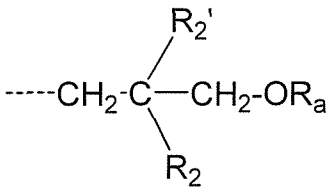
R_3 represents H or a group of formula $-(CH_2)_2-OR_e$ or $-(CH_2)_3-OR_e$,

R_a, R_{b1}, R_{b2}, R_c, R_d and R_e represent independently of each other a saturated or unsaturated, straight or branched hydrocarbon chain,and

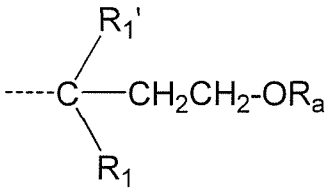
m is 1, 2 or 3,

with the proviso that at least one of R_1, $R_{1'}$, R_2, $R_{2'}$, R_3 is not H.

2. Compound according to claim 1, wherein R_3 is H, and L is a group of formula (b) or (c)



(b)



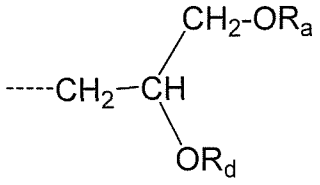
(c)

wherein the dashed line represents the linkage to N,

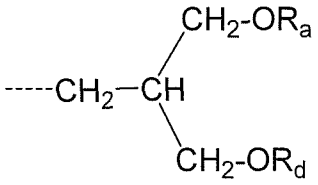
and P_1, P_2, P_3, Y, R_1, $R_{1'}$, R_2, $R_{2'}$ R_a, and m are defined as in claim 1,

with the proviso that in formula (b) at least one of R_2 and $R_{2'}$ is not H, and in formula (c) at least one of R_1 and $R_{1'}$ is not H.

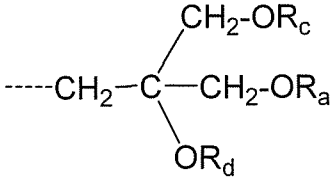
3. A compound according to claim 2, wherein L is a group of formula (b1), (b2), (b3) or (b4):



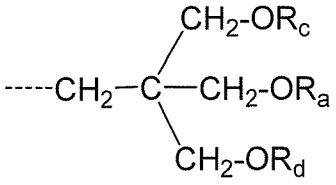
(b1)



(b2)



(b3)

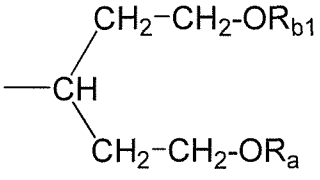


(b4)

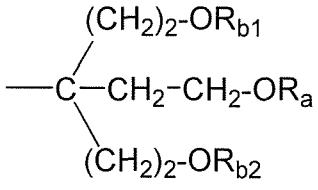
wherein the dashed line represents the linkage to N, and

wherein R_a, R_c and R_d are independently of each other a saturated or unsaturated, straight or branched hydrocarbon chain.

4. A compound according to claim 2, wherein L is a group of formula (c1) or (c2):



(c1)



(c2)

wherein the dashed line represents the linkage to N, and

wherein R_a, R_{b1}, R_{b2} are independently of each other a saturated or unsaturated, straight or branched hydrocarbon chain.

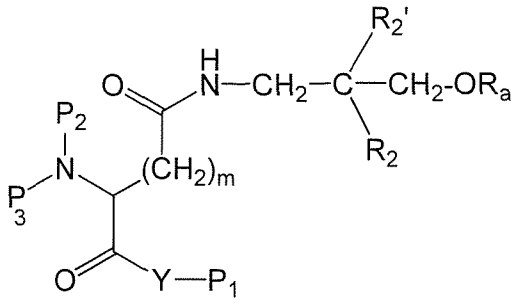
5. A compound according to claim 1 wherein

R_1, $R_{1'}$, R_2 and $R_{2'}$ are H,

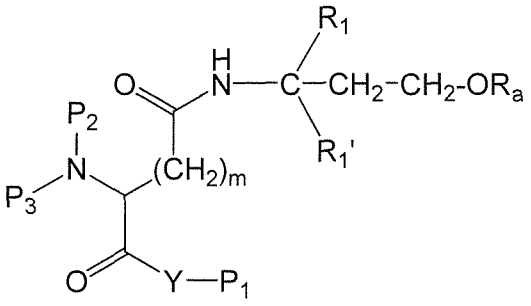
R_3 is a group of formula $-(CH_2)_2-OR_e$ or $-(CH_2)_3-OR_e$, and

P_1, P_2, P_3, Y, R_a, R_e and m are defined as in claim 1.

6. A compound according to claim 1 having formula II or III



II



III

wherein

Y represents O, N, S or a covalent linkage,

P_1 represents H, an Y-protecting group or an Y-activating group or a spacer group,

P_2 and P_3 represent independently of each other H, an amino-protecting group or a spacer group, or P_2 and P_3 form together with the N to which they are bound a ring structure,

R_1 represents H or a group of formula $-(CH_2)_2-OR_{b1}$,

$R_{1'}$ represents H or a group of formula $-(CH_2)_2-OR_{b2}$,

R_2 represents H or a group of formula $-CH_2-OR_c$,

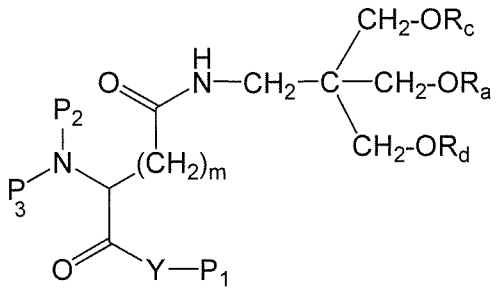
$R_{2'}$ represents H or a group of formula $-OR_d$ or $-CH_2-OR_d$,

R_a, R_{b1}, R_{b2}, R_c and R_d represent independently of each other a saturated or unsaturated, straight or branched hydrocarbon chain, and

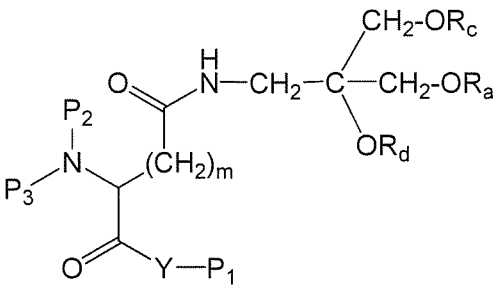
m is 1, 2 or 3,

with the proviso that in formula II at least one of R_2 and $R_{2'}$ is not H, and in formula III at least one of R_1 and $R_{1'}$ is not H.

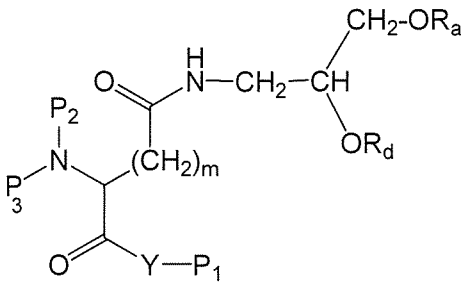
7. A compound according to claim 6 having formula IIa, IIb, IIc or IId,



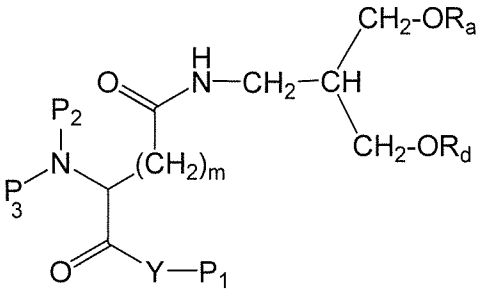
IIa



IIb



IIc



IId

wherein

Y represents O, N, S or a covalent linkage,

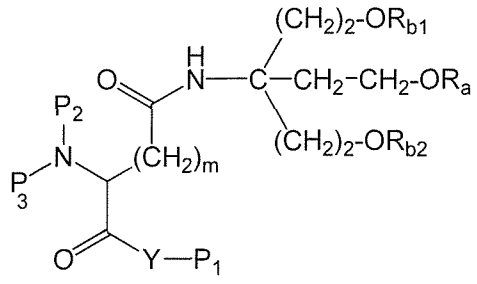
P_1 represents H, an Y-protecting group or an Y-activating group or a spacer group,

P_2 and P_3 represent independently of each other H, an amino-protecting group or a spacer group, or P_2 and P_3 form together with the N to which they are bound a ring structure,

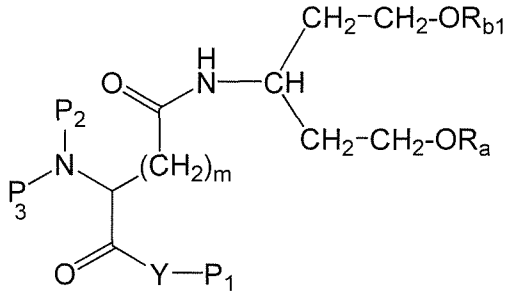
R_a, R_c and R_d represent independently of each other a saturated or unsaturated, straight or branched hydrocarbon chain, and

m is 1, 2 or 3.

8. A compound according to claim 6 having formula IIIa or IIIb,



IIIa



IIIb

wherein

Y represents O, N, S or a covalent linkage,

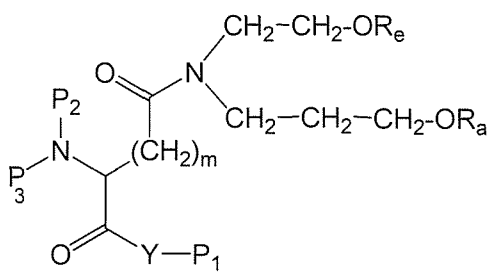
P_1 represents H, a Y-protecting group or a Y-activating group or a spacer group,

P_2 and P_3 represent independently of each other H, an amino-protecting group or a spacer group, or P_2 and P_3 form together with the N to which they are bound a ring structure,

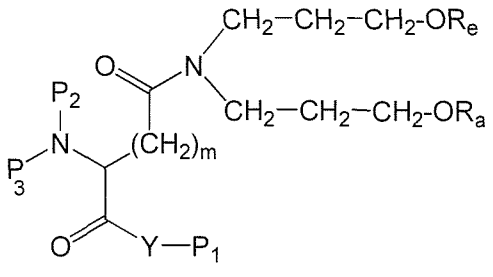
R_a, R_{b1} and R_{b2} represent independently of each other a saturated or unsaturated, straight or branched hydrocarbon chain, and

m is 1, 2 or 3.

9. A compound according to claim 1 having formula IVa or IVb,



IVa



IVb

wherein

Y represents O, N, S or a covalent linkage,

P_1 represents H, an Y-protecting group or an Y-activating group or a spacer group,

P_2 and P_3 represent independently of each other H, an amino-protecting group or a spacer group, or P_2 and P_3 form together with the N to which they are bound a ring structure,

R_a and R_e represent independently of each other a saturated or unsaturated, straight or branched hydrocarbon chain, and

m is 1, 2 or 3.

10. Compound according to claim 1, wherein R_a, R_{b1}, R_{b2}, R_c, R_d and R_e are independently of each other straight or branched C(10-22)alkyl, C(10-22)alkenyl or C(10-22)alkynyl.

11. Compound according to claim 10, wherein C(10-22)alkenyl and C(10-22)alkynyl have 1, 2, 3 or 4 unsaturated bonds.

12. Compound according to claim 1, wherein at least one of P_1, P_2 and P_3 is a spacer group.

13. Compound according to claim 12, wherein the spacer group is chosen from an alkylene chain optionally further comprising one or more groups selected from ketone, ester, ether, amino, amide, amidine, carbamate, thiocarbamate, glycerol, urea, thiourea, double bonds or aromatic rings.

14. A compound according to claim 13 wherein the spacer group is polyethylene glycol or end-capped polyethylene glycol.

15. A drug delivery system or as an antigen display system comprising a compound according to claim 1.

16. Vesicular composition comprising at least one compound of formula I according to claim 1, optionally in admixture with one or more other vesicle-forming compounds.

17. Vesicular composition according to claim 16, wherein the vesicular composition comprises a liposome, a micelle or a nanoparticle.

18. Compound according to claim 10, wherein C(10-22)alkenyl and C(10-22)alkynyl have 1 or 2 unsaturated bonds.