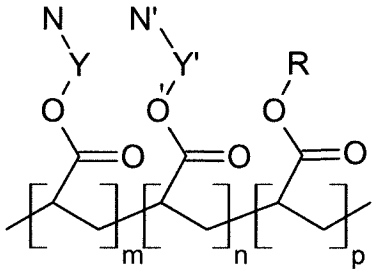
CLAIMS

1. A membrane active poly(acrylate) random copolymer having the structure represented by:



wherein:

N is $-NH_2$ or $-N-CO-O-C-(CH_3)_3$,

Y is $-(CH_2)_a-$ or $-(CH_2-CH_2-O)_b-(CH_2)_c-$ wherein *a* , *b*, and *c* are independently 1, 2, 3, 4, 5, or 6,

N' is $-NR^5H$, $-NR^5R^6$, $-NR^5R^6R^7$, nitrogen heterocycle, aldimine, hydrazide, hydrazone, or imidazole, wherein R^5, R^6, and R^7 are independently selected from $-CH_3$ and $-CH_2-CH_3$,

Y' is an uncharged linker group containing 1-12 carbon atoms, one or more of which may be substituted for heteroatoms,

R is a hydrophobic group having 2-6 carbon atoms or an alkoxy ethyl group,

m and p are independently integers greater than zero (0),

n is an integer greater than or equal to zero (0),

the ratio (m+n)/(p) is 0.67-5.7, and

the polydispersity of the poly(acrylate) random copolymer is less than 1.5.

2. The poly(acrylate) random copolymer of claim 1 wherein Y is $-(CH_2)_a-$ wherein *a* is 2, 3, or 4.

3. The poly(acrylate) random copolymer of claim 1 wherein Y is $-CH_2-CH_2-O-(CH_2)_2-$.

4. The poly(acrylate) random copolymer of any of claims 1, 2, or 3 wherein R is selected from the group consisting of:

$-(CH_2)_k-CH_3$ wherein *k* is 1, 2, or 3, and

$-CH(CH_3)-CH_2-CH_3$.

5. The poly(acrylate) random copolymer of any of claims 1-3 wherein R is $-(CH_2)_l-O-CH_2-CH_3$ wherein and *l* is 2, 3, or 4.

6. The poly(acrylate) random copolymer of claim 5 wherein R is $-CH_2-CH_2-O-CH_2-CH_3$.

7. The poly(acrylate) random copolymer of any of claims 1-6 wherein n is zero.

8. The poly(acrylate) random copolymer of any of claims 1-7 wherein (m+n)/(p) is 1-1.86.

9. The poly(acrylate) random copolymer of any of claims 1-7 wherein (m+n)/(p) is 1.86-3.

10. The poly(acrylate) random copolymer of claim 1 wherein:

    Y is $-(CH_2-CH_2-O)-CH_2-CH_2-$,

    R is $-CH_2-CH_2-CH_3$,

    n is zero,

    and m/p is 2.2-3.

11. The poly(acrylate) random copolymer of claim 1 wherein:

    Y is $-(CH_2-CH_2-O)-CH_2-CH_2-$,

    R is $-CH_2-CH_2-CH_3$,

    n is zero,

    and m/p is 1-1.86.

12. The poly(acrylate) random copolymer of claim 1 wherein:

    Y is $-(CH_2-CH_2-O)-CH_2-CH_2-$,

    R is $-CH_2-CH_2-CH_2-CH_3$,

    n is zero,

    and m/p is 1-1.86.

13. The poly(acrylate) random copolymer of any of claims 1-12 wherein the polymer is covalently conjugated to an RNA interference polynucleotide.

14. The poly(acrylate) random copolymer of any of claims 1-13 wherein greater than 50% of N are reversibly modified by reaction with disubstituted maleic anhydride masking agents.

15. The poly(acrylate) random copolymer of any of claims 1-13 wherein greater than 50% of N are reversibly modified by reaction with dipeptide-amidobenzyl-carbonate masking agents.

16. The poly(acrylate) random copolymer of any of claims 1-13 wherein greater than 50% of N are reversibly modified by reaction with a combination of disubstituted maleic anhydride masking agents and dipeptide-amidobenzyl-carbonate masking agents.
17. A composition for inhibiting gene expression in vivo comprising the poly(acrylate) random copolymer of any of claims 14-16~~1-13~~ and an RNA interference polynucleotide in a pharmaceutically acceptable carrier.
18. The composition of claim 17 wherein the RNA interference polynucleotide is covalently linked to the poly(acrylate) random copolymer.
19. The composition of claim 17 wherein the RNA interference polynucleotide is conjugated to a hydrophobic group containing at least 20 carbon atoms.
20. Use of the copolymer of any of claims 14-16~~13~~ in the preparation of a composition for inhibiting gene expression in vivo.
21. The composition according to any one of claims 18-19, for use in treating a liver condition.
22. The composition for the use according to claim 21, wherein the liver condition comprises chronic hepatits, cirrhosis, liver cancers (including hepatocellular carcinoma, HCC), viral infections (including hepatitis), metabolic disorders, (including hyperlipidemia and diabetes), fibrosis, and acute liver injury
23. Use of the colymer of any of claims 14-16 in the preparation of a medicament for treatment of a liver condition.
24. Use according to claim 23, wherein the liver condition comprises chronic hepatitis, cirrhosis liver cancers (including hepatocellular carcinoma, HCC), viral infections (including hepatitis), metabolic disorders, (including hyperlipidemia and diabetes), fibrosis, and acute liver injury.