[0008b] In another aspect, there is provided an aqueous composition for killing a microbe comprising the cationic polymer as defined herein.

[0008c] In another aspect, there is provided a non-therapeutic method of killing microbe, comprising contacting the microbe with the cationic polymer as defined herein.

[0009] Also disclosed is a method comprising,

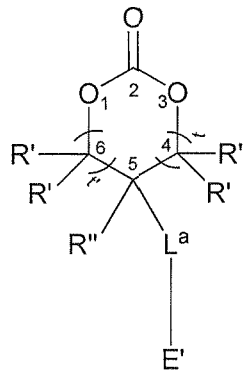
forming a polycarbonate by an organocatalyzed ring opening polymerization (ROP) of a cyclic carbonate monomer, wherein the ROP is initiated by a di-nucleophilic compound selected from the group consisting of steroids, vitamins, compounds comprising a covalently bound form of the foregoing steroids and vitamins, and combinations thereof;

optionally endcapping the polycarbonate; and

treating the polycarbonate with a quaternizing agent, thereby forming an antimicrobial cationic polymer;

and wherein

the cyclic carbonate monomer has the structure formula (15):



(15),

wherein

the ring atoms are shown numbered 1 to 6,

t is a positive integer having a value of 0 to 2,

t' is a positive integer having a value of 0 to 2,

t and t' cannot both be zero,

L^a is a divalent linking group comprising 3 or more carbons,

Y^c is an independent monovalent first end group selected from the group consisting of hydrogen, groups comprising a covalently bound form of a steroid, and groups comprising a covalently bound form of a vitamin,

Y^d is an independent monovalent second end group selected from the group consisting of hydrogen, groups comprising a covalently bound form of a steroid, and groups comprising a covalently bound form of a vitamin,

each polymer chain P^b consists essentially of cationic carbonate repeat units, wherein i) the cationic polymer comprises a total of 5 to about 45 cationic carbonate repeat units, ii) each of the cationic carbonate repeat units comprises a backbone portion of the polymer chain and a cationic side chain linked to the backbone portion, and iii) the cationic side chain comprises a positive-charged heteroatom Q' of a quaternary ammonium group and/or quaternary phosphonium group,

about 25% to 100% of all the cationic carbonate repeat units of the cationic polymer, designated first cationic carbonate repeat units, have a cationic side chain comprising 10 to about 25 carbons, and

0% to about 75% of the cationic carbonate repeat units of the cationic polymer, designated second cationic carbonate repeat units, have a cationic side chain comprising 6 to 9 carbons.

17. An aqueous composition for killing a microbe comprising the cationic polymer of claim 1.

18. The composition of claim 17, wherein the composition can be administered by injection.

19. The composition of claim 17, wherein the concentration of the cationic polymer is below the critical micelle concentration of the cationic polymer.

20. A non-therapeutic method of killing a microbe, comprising contacting the microbe with the cationic polymer of claim 1.

21. A method comprising,

forming a polycarbonate by an organocatalyzed ring opening polymerization (ROP) of a cyclic carbonate monomer, wherein the ROP is initiated by a di-