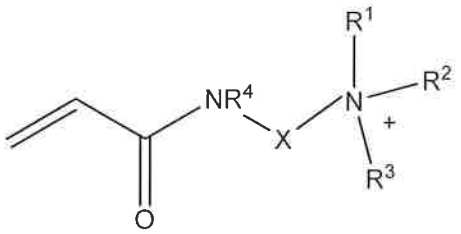
CLAIMS

1. A polymer comprising a macromer, which macromer comprises 1,2 or 1,3 diol groups and pendent, cross linkable groups, the pendant cross linkable groups being cross linked by a cationically charged vinylic co-monomer of the formula I



I

Wherein

X is a linear or branched C_{1-6} alkylene, C_{2-6} alkenylene or C_{2-6} alkynylene group;

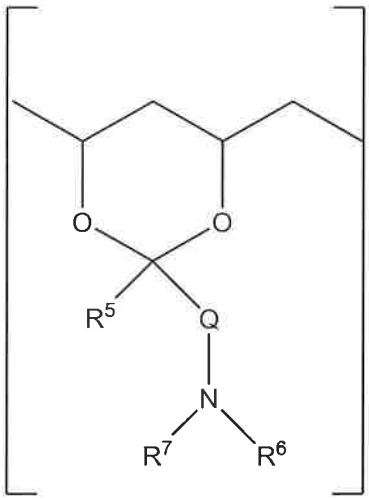
R^1, R^2 and R^3 are the same or different and selected from C_{1-4} alkyl groups;

R^4 is H or C_{1-4} alkyl characterised in that the polymer comprises between 5 and 75 weight% cationic co-monomer.

2. A polymer according to claim 1 wherein the macromer comprises 1,3 diol groups.

3. A polymer according to claim 1 or 2 wherein the macromer comprises polyvinyl alcohol.

4. A polymer according to any of claims 1 to 3 wherein the macromer comprises pendant cross linkable groups of the formula:



II

wherein

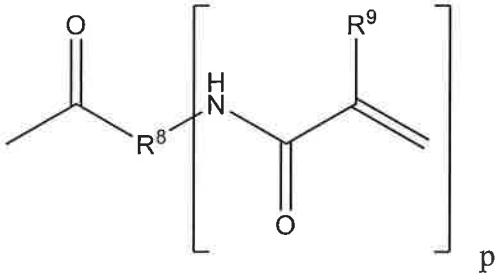
Q is a linear or branched C_1-C_8 alkylene group;

R^5 is H, a C_{1-6} alkyl, or a C_{3-6} cycloalkyl;

R^6 is an olefinically unsaturated electron attracting copolymerizable radical having up to 25 carbon atoms; and

R^7 is H or a C_{1-6} alkyl.

5. A polymer according to claim 4 wherein R^6 is a group of the formula III



III

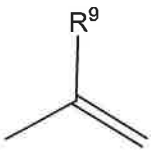
Wherein

p is 0 or 1; and

R^9 is H or C_{1-4} alkyl;

and wherein,

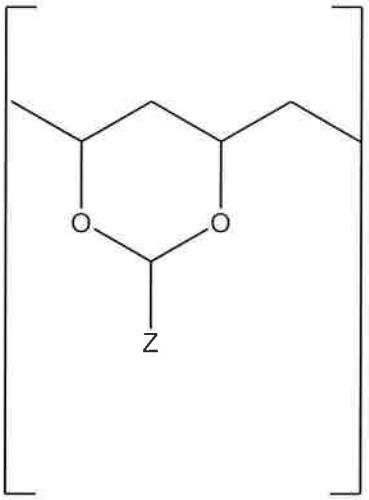
when p is 0, then R^8 is



and when p is 1, R^8 is a C_{1-4} alkylene group.

6. A polymer according to any preceding claim, further comprising one or more iodines covalently bound to the polymer.

7. A polymer according to claim 6 comprising groups of the formula IV



IV

Wherein Z is a group comprising one or more covalently bound iodines

8. A polymer according to any preceding claim, which is in the form of a hydrogel.

9. A polymer according to any preceding claim comprising one or more pharmaceutical actives.

10. A polymer according to claim 9 wherein the pharmaceutical active is bound within the polymer by ionic interactions.

11. A microsphere comprising a polymer according to any of claims 1 to 8.

12. A microsphere according to claim 11 further comprising a pharmaceutical active and/or an imaging agent.

13. A microsphere according to claim 12 wherein the pharmaceutical active and/or imaging agent is reversibly bound within the polymer by ionic interactions.

14. A composition comprising one or more microspheres according to claims 11 to 13.

15. A composition according to claim 14 comprising no ruptured microspheres.

16. A composition according to claim 14 or 15 comprising a pharmaceutically acceptable diluent.

17. A microsphere according to any of claims 11 to 13 for use in therapy, wherein said microsphere is to be delivered to a blood vessel of a patient in need thereof, to thereby embolised the blood vessel.

18. A microsphere according to claims 11 to 13 for use in a method of embolotherapy.

19. A microsphere according to any of claims 11 to 13 for use in a method comprising the direct injection of the microsphere into a blood vessel of a patient.

20. A sealed vessel comprising one or more sterile microspheres according to claims 11 to 12 lyophilised and under a pressure of less than 0.9bar.