CLAIMS

What is claimed is:

1. A biodegradable drug delivery composition comprising:

(a) a biodegradable triblock copolymer having the formula:

A_v-B_w-A_x

wherein A is a polyglycolic acid or a poly(lactic-co-glycolide) and B is polyethylene glycol and v and x are the number of repeat units ranging from 24 to 682, and w is the number of repeat units ranging from 4 to 273 and v=x or v≠x;

(b) a biodegradable diblock copolymer having the formula:

C_y-A_z

wherein A is a polyglycolic acid or a poly(lactic-co-glycolide) and C is an end-capped polyethylene glycol and wherein y and z are the number of repeat units y ranging from 3 to 45 and z ranging from 7 to 327, wherein the ratio of the biodegradable triblock copolymer of (a) and the biodegradable CA diblock copolymer of (b) is 1: 3 to 1:8 or 1:1 to 1:19 or 3:2 to 1:19 in said biodegradable drug composition, which is insoluble in an aqueous solution; and

(c) at least one pharmaceutically active principle.

2. The biodegradable drug delivery composition according to Claim 1, wherein v and x are lactyl or lactoyl repeat units and w are ethylene glycol repeat units and further comprising a pharmaceutically acceptable vehicle.

3. The biodegradable drug delivery composition according to Claim 1, wherein said composition is an injectable liquid and forms an implant when injected into the body or are small solid particles or rod implants or spatial formulations.

4. The biodegradable drug delivery composition according to Claim 1, wherein the size of the polyethylene glycol chain ranges from 200 Da to 12 kDa or 194 Da to 12 kDa and the size of the end-capped polyethylene glycol chain ranges from 100 Da to 2 kDa or 164 to 2 kDA.

5. The biodegradable drug delivery composition according to Claim 1, wherein the at least one pharmaceutically active principle is present in an amount of 1 % to 20% (w%/w%) of the total composition and the polymers are present in an amount of 20% to 50% (w%/w%) of the total composition.

6. The biodegradable drug delivery composition according to Claim 1, wherein the triblock copolymer is present in an amount of 3.0% to 45% (w%/w%) of the total composition and the diblock copolymer is present in an amount of 8.0% to 50% (w%/w%) of the total composition.

7. The biodegradable drug delivery composition according to Claim 1, wherein the polylactic repeat unit to ethylene oxide molar ratio in the composition is between 0.5 to 3.5 or 0.5 to 22.3 in the triblock and 2 to 6 or 0.8 to 13 in the diblock.

8. The biodegradable drug delivery composition according to Claim 1, wherein said end-capped polyethylene glycol is methoxy-polyethylene glycol.

9. The biodegradable drug composition according to Claim 1, further comprising an organic solvent selected from the group of benzyl alcohol, benzyl benzoate, dimethyl

isosorbide (DMI), dimethyl sulfoxide (DMSO), ethyl acetate, ethyl benzoate, ethyl lactate, glycerol formal, methyl ethyl ketone, methyl isobutyl ketone, N-ethyl-2-pyrrolidone, N-methyl-2-pyrrolidinone(NMP), pyrrolidone-2, triacetin, tributyrin, tripropionin and mixtures thereof.

10. The biodegradable drug composition according to Claim 9, wherein the organic solvent is present in an amount of 40% to 74% (w%/w%) of the total composition.

11. The biodegradable drug composition according to any one of Claims 1 to 8, further comprising a pharmaceutically acceptable vehicle.

12. A method for preparing the biodegradable drug delivery composition of Claim 1, said method comprising:

(i) dissolving in an organic solvent (a) a biodegradable ABA type block copolymer having the formula:

$$A_v\text{-}B_w\text{-}A_x$$

wherein A is a polyglycolic acid or a poly(lactic-co-glycolide) and B is polyethylene glycol and v and x are the number of repeat units ranging from 24 to 682 and w is the number of repeat units ranging from 4 to 273 and $v=x$ or $v\neq x$; and

(b) a biodegradable diblock copolymer having the formula:

$$C_y\text{-}A_z$$

wherein A is a polyglycolic acid or a poly(lactic-co-glycolide) and C is an end-capped polyethylene glycol and wherein y and z are the number of repeat units y

ranging from 3 to 45 and z ranging from 7 to 327, in a ratio of 1: 3 to 1: 8 or 1:1 to 1:19 or 3.2 to 1:19 (a):(b) to form a polymer mixture, said biodegradable drug composition being insoluble in an aqueous solution; and

(ii) adding at least one pharmaceutically active principle to said polymer mixture.

13. The method according to Claim 12, further comprising the step of

(iii) evaporating said solvent.

14. The method according to Claim 12, wherein the organic solvent is selected from the group of: benzyl alcohol, benzyl benzoate, dimethyl isosorbide (DMI), dimethyl sulfoxide (DMSO), ethyl acetate, ethyl benzoate, ethyl lactate, glycerol formal, methyl ethyl ketone, methyl isobutyl ketone, N-ethyl-2-pyrrolidone, N-methyl-2-pyrrolidinone(NMP), pyrrolidone-2, tetraglycol, triacetin, tributyrin, tripropionin and mixtures thereof.

15. The method according to Claim 14, wherein the organic solvent is present in an amount of 40% to 74% (w%/w%) of the total composition.

16. Use of the biodegradable drug delivery composition according to Claim 1, for the manufacture of a medicament to treat diseases in animals or plants.