CLAIMS

1. Use of a pharmaceutical composition in the preparation of a medicament for use in a method of treating joint pain and reducing side effects induced by an intra-articular (IA) steroid, wherein the pharmaceutical composition comprises:

(a) a lipid mixture comprising a first phospholipid, a second phospholipid and a cholesterol, wherein the cholesterol is about 10 mol% to about 33 mol% of the lipid mixture; and

(b) an effective amount of the IA steroid or a pharmaceutically acceptable salt thereof,

wherein the first phospholipid is selected from 1,2-dioleoyl-sn-glycero-3-phosphatidylcholine (DOPC), 1-palmitoyl-2-oleoyl-sn-glycero-3-phosphatidylcholine (POPC), soy phosphatidylcholine (SPC), or egg phosphatidylcholine (EPC), the second phospholipid is polyethyleneglycol distearoylphosphatidylethanolamine (PEG-DSPE) or 1,2-dioleoyl-sn-glycero-3-phosphoglycerol (DOPG);

wherein the IA steroid is a steroid selected from the Group C according to Coopman Classification and the IA steroid of the pharmaceutical composition is at a concentration ranging from 15 mM to 40 mM; and

wherein the method comprises administering an effective amount of the pharmaceutical composition to a subject in need of treatment for joint pain caused by arthritis by at least one articular injection.

2. Use of a pharmaceutical composition comprising:

(a) a lipid mixture comprising a first phospholipid, a second phospholipid and a cholesterol, wherein the cholesterol is about 10 mol% to about 33 mol% of the lipid mixture; and

(b) an effective amount of the IA steroid or a pharmaceutically acceptable salt thereof,

wherein the first phospholipid is selected from 1,2-dioleoyl-sn-glycero-3-phosphatidylcholine (DOPC), 1-palmitoyl-2-oleoyl-sn-glycero-3-phosphatidylcholine (POPC), soy phosphatidylcholine (SPC), or egg phosphatidylcholine (EPC), the second phospholipid is polyethyleneglycol distearoylphosphatidylethanolamine (PEG-DSPE) or 1,2-dioleoyl-sn-glycero-3-phosphoglycerol (DOPG);

wherein the IA steroid is a steroid selected from the Group C according to Coopman Classification and the IA steroid of the pharmaceutical composition is at a concentration ranging from 15 mM to 40 mM,

in the preparation of a medicament for treating joint pain and reducing side effects induced by an intra-articular (IA) steroid, and

wherein the medicament is to be administered to a subject in need of treatment for joint pain caused by arthritis by at least one articular injection.

3. The use of claim 1 or 2, wherein the side effect is selected from the group consisting of chondrocyte damage, chondrocyte apoptosis, proteoglycan loss, cysts in articular cartilage, articular cartilage degradation, joint destruction or combinations thereof.

4. The use of claim 1 or 2, wherein the first phospholipid is DOPC, and the second phospholipid is DOPG.

5. The use of claim 1 or 2, wherein the IA steroid is a water soluble steroid.

6. The use of claim 1 or 2, wherein the IA steroid of the pharmaceutical composition is at a concentration ranging from about 15 mM to about 30 mM, or from about 20 mM to about 25 mM.

7. The use of claim 1 or 2, wherein the IA steroid is a corticosteroid.

8. The use of claim 1 or 2, wherein the IA steroid is dexamethasone sodium phosphate, dexamethasone, betamethasone, betamethasone sodium phosphate, betamethasone acetate, betamethasone dipropionate, betamethasone valerate, fluocortolone, or a combination thereof.

9. The use of claim 1 or 2, wherein the effective amount of IA steroid is about 0.1 to about 300 mg.

10. The use of claim 1 or 2, wherein the effective amount of IA steroid is about 0.1 mg to about 20 mg.

11. The use of claim 1 or 2, wherein the effective amount of IA steroid is about 4 mg to about 18 mg.

12. The use of claim 1 or 2, wherein the arthritis is selected from the group consisting of rheumatoid arthritis, osteoarthritis, infectious arthritis, psoriatic arthritis, gouty arthritis, and lupus-related arthritis.

13. The use of claim 1 or 2, wherein the pharmaceutical composition when depending on claim 1 or the medicament when depending on claim 2 is to be administered by at least two articular injections.

14. The use of claim 13, wherein the at least two articular injections are to be administered at a dosing interval selected from the group consisting of two weeks, three weeks, four weeks, five weeks, six weeks, seven weeks, eight weeks, nine weeks, ten weeks, eleven weeks, twelve weeks, thirteen weeks, fourteen weeks, fifteen weeks, sixteen weeks, seventeen weeks, eighteen weeks, nineteen weeks, twenty weeks, twenty-one weeks, twenty-two weeks and twenty-three weeks.

15. The use of claim 13, wherein the at least two articular injections are to be administered at a dosing interval of about 10 to 14 weeks and the IA steroid per each articular injection is at a dose of 8 mg to 18 mg dexamethasone sodium phosphate.