SUMMARY

[08] Aspects of the present specification disclose a pharmaceutical composition comprising a therapeutic compound and a pharmaceutically-acceptable adjuvant. A therapeutic compound may have an activity that normalizes lipid levels. Other aspects of the present specification disclose a pharmaceutical composition comprising a therapeutic compound disclosed herein, a pharmaceutically-acceptable solvent, and a pharmaceutically-acceptable adjuvant. In other aspects, the pharmaceutical compositions disclosed herein further comprise a pharmaceutically-acceptable stabilizing agent.

[08a] In one aspect, there is provided a pharmaceutical composition comprising:

a) a non-steroidal anti-inflammatory drug (NSAID) having a log P value of greater than 2.0;

b) less than 15% (v/v) of a pharmaceutically-acceptable solvent; wherein the solvent comprises a pharmaceutically-acceptable polyethylene glycol polymer; and

c) at least 50% (v/v) of a pharmaceutically-acceptable hydrophobic lipid-adjuvant, wherein the pharmaceutically-acceptable hydrophobic lipid-adjuvant is a fatty acid having at least 12 carbons, a glycerolipid, a sphingolipid, a sterol lipid, a prenol lipid, a saccharolipid, or a polyketide,

wherein the pharmaceutical composition does not comprise a pharmaceutically-acceptable emulsifying agent, and

wherein the pharmaceutical composition is formulated to be a solid at a temperature of 15°C or lower and have a melting point temperature of 30°C or higher.

[09] Other aspects of the present specification disclose a method of preparing a pharmaceutical composition, the method comprising the step of contacting a therapeutic compound with a pharmaceutically-acceptable adjuvant under conditions which allow the formation of the pharmaceutical composition. Other aspects of the present specification disclose a method of preparing a pharmaceutical composition, the method comprising the steps: a) contacting a pharmaceutically-acceptable solvent with a therapeutic compound under conditions which allow the therapeutic compound to dissolve in the pharmaceutically-acceptable solvent, thereby forming a solution, wherein the therapeutic compound has an activity that normalizes lipid levels, and b) contacting the solution formed in step (a) with a pharmaceutically-acceptable adjuvant under conditions which allow the formation of the pharmaceutical composition. In other aspects, the method of preparing disclosed herein further comprises c) removing the pharmaceutically-acceptable solvent from the pharmaceutical composition.

[010] Other aspects of the present specification disclose a pharmaceutical composition, the pharmaceutical composition made according to a method comprising the step of contacting a therapeutic compound with a pharmaceutically-acceptable adjuvant under conditions which allow the formation of the

pharmaceutical composition. Other aspects of the present specification disclose a pharmaceutical composition, the pharmaceutical composition made according to a method comprising the steps: a) contacting a pharmaceutically-acceptable solvent with a therapeutic compound under conditions which allow the therapeutic compound to dissolve in the pharmaceutically-acceptable solvent, thereby forming a solution, wherein the therapeutic compound has an activity that normalizes lipid levels, and b) contacting the solution formed in step (a) with a pharmaceutically-acceptable adjuvant under conditions which allow the formation of the pharmaceutical composition. In other aspects, the method of making a pharmaceutical composition disclosed herein further comprises c) removing the pharmaceutically-acceptable solvent from the pharmaceutical composition.

[011] Other aspects of the present specification disclose a method of treating an individual with a cardiovascular disease, the method comprising the step of administering to the individual in need thereof a pharmaceutical composition disclosed herein, wherein administration results in a reduction in a symptom associated with the cardiovascular disease, thereby treating the individual.

[012] Other aspects of the present specification disclose a use of a pharmaceutical composition disclosed herein in the manufacture of a medicament for the treatment of a cardiovascular disease.

CLAIMS:

1. A pharmaceutical composition comprising:

   a) a non-steroidal anti-inflammatory drug (NSAID) having a log P value of greater than 2.0;

   b) less than 15% (v/v) of a pharmaceutically-acceptable solvent; wherein the solvent comprises a pharmaceutically-acceptable polyethylene glycol polymer; and

   c) at least 50% (v/v) of a pharmaceutically-acceptable hydrophobic lipid-adjuvant, wherein the pharmaceutically-acceptable hydrophobic lipid-adjuvant is a fatty acid having at least 12 carbons, a glycerolipid, a sphingolipid, a sterol lipid, a prenol lipid, a saccharolipid, or a polyketide,

   wherein the pharmaceutical composition does not comprise a pharmaceutically-acceptable emulsifying agent, and

   wherein the pharmaceutical composition is formulated to be a solid at a temperature of 15°C or lower and have a melting point temperature of about 30°C or higher.

2. The pharmaceutical composition according to Claim 1, wherein the activity that normalizes lipid levels has an anti-hyperlipidemia activity, reduces the level of an inflammation inducing molecule, reduces the level of an inflammation inducing prostaglandin, stimulates a PPAR signaling pathway, induces apoptosis of Macrophage M1 cells, promotes differentiation of Macrophage M2 cells, or both, reduces the levels of Interferon-gamma (IFNγ), Tumor necrosis factor-alpha (TNF-α), Interleukin-12 (IL-12), or a combination thereof released from Th1 cells, increases the levels of IL-10 released from a Th2 cell, or both.

3. The pharmaceutical composition according to Claim 2, wherein the NSAID is a non-selective cyclo-oxygenase (COX) inhibitor, a selective cyclooxygenase 1 (COX 1) inhibitor, a selective cyclooxygenase 2 (COX 2) inhibitor or a combination thereof.

4. The pharmaceutical composition according to any one of Claims 1-3, wherein the NSAID comprises a salicylate derivative NSAID, a p-amino phenol derivative NSAID, a propionic acid derivative NSAID, an acetic acid derivative NSAID, an enolic acid derivative NSAID, a fenamic acid derivative NSAID, a non-selective cyclo-oxygenase inhibitor, a selective cyclooxygenase 1 inhibitor, a selective cyclooxygenase 2 inhibitor or a combination thereof.

5. The pharmaceutical composition according to any one of Claims 1-4, wherein the pharmaceutically-acceptable hydrophobic lipid-adjuvant includes at least 30% of a first glycerolipid consisting of a triglyceride or an acetylated triglyceride and at least 20% of a second glycerolipid consisting of a monoglyceride or an acetylated monoglyceride.

6. The pharmaceutical composition according to any one of Claims 1-8, wherein the pharmaceutically-acceptable solvent is from about 8% (v/v) to about 15% (v/v).

7. The pharmaceutical composition according to any one of Claims 1-6, wherein the pharmaceutically-acceptable solvent is from about 8% (v/v) to about 12% (v/v).

8. The pharmaceutical composition according to any one of Claims 1-7, wherein the glycerolipid comprises a monoglyceride, a diglyceride and/or a triglyceride.

9. The pharmaceutical composition according to Claim 8, wherein the glycerolipid comprises at least 30% of a pharmaceutically-acceptable triglyceride and at least 20% of a pharmaceutically-acceptable monoglyceride.

10. A method of preparing a pharmaceutical composition as defined in Claims 1-9, the method comprising the steps:

    a) contacting a pharmaceutically-acceptable solvent with a therapeutic compound under conditions which allow the therapeutic compound to dissolve in the pharmaceutically-acceptable solvent, thereby forming a solution, and

    b) contacting the solution formed in step (a) with a pharmaceutically-acceptable hydrophobic lipid-adjuvant under conditions which allow the formation of the pharmaceutical composition.

11. Use of a pharmaceutical composition as defined in Claims 1-9 in the manufacture of a medicament for the treatment of a cardiovascular disease.

12. Use of a pharmaceutical composition as defined in Claims 1-9 for the treatment of a cardiovascular disease.

13. The use according to Claim 11 or Claim 12, wherein the cardiovascular disease is associated with a hyperlipidemia, a coronary heart disease, an atherosclerosis, a peripheral vascular disease, a cardiomyopathy, a vasculitis, an inflammatory heart disease, an ischemic heart disease, a congestive heart failure, a hypertensive heart disease, a valvular heart disease, a hypertension, myocardial infarction, a diabetic cardiac conditions, an aneurysm; an embolism, a dissection, a pseudoaneurysm, a vascular malformation, a vascular nevus, a thrombosis, a varicose vein, or a stroke.

CLAIMS:

1. A pharmaceutical composition comprising:

   a) a non-steroidal anti-inflammatory drug (NSAID) having a log P value of greater than 2.0;

   b) less than 15% (v/v) of a pharmaceutically-acceptable solvent; wherein the solvent comprises a pharmaceutically-acceptable polyethylene glycol polymer; and

   c) at least 50% (v/v) of a pharmaceutically-acceptable hydrophobic lipid-adjuvant, wherein the pharmaceutically-acceptable hydrophobic lipid-adjuvant is a fatty acid having at least 12 carbons, a glycerolipid, a sphingolipid, a sterol lipid, a prenol lipid, a saccharolipid, or a polyketide,

   wherein the pharmaceutical composition does not comprise a pharmaceutically-acceptable emulsifying agent, and

   wherein the pharmaceutical composition is formulated to be a solid at a temperature of 15°C or lower and have a melting point temperature of 30°C or higher.

2. The pharmaceutical composition according to Claim 1, wherein the activity that normalizes lipid levels has an anti-hyperlipidemia activity, reduces the level of an inflammation inducing molecule, reduces the level of an inflammation inducing prostaglandin, stimulates a PPAR signaling pathway, induces apoptosis of Macrophage M1 cells, promotes differentiation of Macrophage M2 cells, or both, reduces the levels of Interferon-gamma (IFNγ), Tumor necrosis factor-alpha (TNF-α), Interleukin-12 (IL-12), or a combination thereof released from Th1 cells, increases the levels of IL-10 released from a Th2 cell, or both.

3. The pharmaceutical composition according to Claim 2, wherein the NSAID is a non-selective cyclo-oxygenase (COX) inhibitor, a selective cyclooxygenase 1 (COX 1) inhibitor, a selective cyclooxygenase 2 (COX 2) inhibitor or a combination thereof.

4. The pharmaceutical composition according to any one of Claims 1-3, wherein the NSAID comprises a salicylate derivative NSAID, a p-amino phenol derivative NSAID, a propionic acid derivative NSAID, an acetic acid derivative NSAID, an enolic acid derivative NSAID, a fenamic acid derivative NSAID, a non-selective cyclo-oxygenase inhibitor, a selective cyclooxygenase 1 inhibitor, a selective cyclooxygenase 2 inhibitor or a combination thereof.

5. The pharmaceutical composition according to any one of Claims 1-4, wherein the pharmaceutically-acceptable hydrophobic lipid-adjuvant includes at least 30% of a first

glycerolipid consisting of a triglyceride or an acetylated triglyceride and at least 20% of a second glycerolipid consisting of a monoglyceride or an acetylated monoglyceride.

6. The pharmaceutical composition according to any one of Claims 1-8, wherein the pharmaceutically-acceptable solvent is from 8% (v/v) to 15% (v/v).

7. The pharmaceutical composition according to any one of Claims 1-6, wherein the pharmaceutically-acceptable solvent is from 8% (v/v) to 12% (v/v).

8. The pharmaceutical composition according to any one of Claims 1-4, 6 or 7, wherein the glycerolipid comprises a monoglyceride, a diglyceride and/or a triglyceride.

9. The pharmaceutical composition according to Claim 8, wherein the glycerolipid comprises at least 30% of a pharmaceutically-acceptable triglyceride and at least 20% of a pharmaceutically-acceptable monoglyceride.

10. A method of preparing a pharmaceutical composition as defined in Claims 1-9, the method comprising the steps:

    a) contacting a pharmaceutically-acceptable solvent with a therapeutic compound under conditions which allow the therapeutic compound to dissolve in the pharmaceutically-acceptable solvent, thereby forming a solution, and

    b) contacting the solution formed in step (a) with a pharmaceutically-acceptable hydrophobic lipid-adjuvant under conditions which allow the formation of the pharmaceutical composition.

11. Use of a pharmaceutical composition as defined in Claims 1-9 in the manufacture of a medicament for the treatment of a cardiovascular disease.

12. The use according to Claim 11, wherein the cardiovascular disease is associated with a hyperlipidemia, a coronary heart disease, an atherosclerosis, a peripheral vascular disease, a cardiomyopathy, a vasculitis, an inflammatory heart disease, an ischemic heart disease, a congestive heart failure, a hypertensive heart disease, a valvular heart disease, a hypertension, myocardial infarction, a diabetic cardiac conditions, an aneurysm; an embolism, a dissection, a pseudoaneurysm, a vascular malformation, a vascular nevus, a thrombosis, a varicose vein, or a stroke.