(RF) therapy, and laser therapy. Since EFP mainly occurs in the superficial fat and dermis, using liposuction to treat EFP will not be effective because in addition to the side effects, scar tissue and uneven skin will also be created. Radiofrequency (RF) therapies uniformly heat the entire area of the skin (through volume heating), which also act on the dermis and fat layer of the skin to achieve skin firmness and wrinkle removal. However, the risk of skin burn is high in RF therapies, and heat applied to the patients has to be carefully controlled throughout the procedure. In laser therapies, local anesthesia, formation of incisions, and catheter intrusion are required. Specifically, laser liposuction involves performing local anesthesia on the target body part and forming a small incision to extend a catheter under the skin, followed by using a laser probe to generate a low-energy laser beam to break down and remove subcutaneous. Other common treatments include acoustic wave therapy (AWT) and injectable treatments. However, most of the existing treatments are costly and often come with undesirable side effects, such as inflammation, redness, soreness, and bruising. Moreover, none of the procedures have been shown to be sustainable over time. Existing topical agents, injectable treatments, and energy-based approaches can only ameliorate the appearance of EFP, but are unable to eliminate or prevent recurrent of EFP.

[0008] Therefore, there is still a need in the art for a safer and more sustainable approach for treating and/or preventing EFP.

SUMMARY

[0009] In view of the deficiency of the prior art, the present disclosure provides pharmaceutical compositions and methods for treating and/or preventing EFP by using the same. The pharmaceutical compositions have the advantages of high stability, high bioavailability for fat tissues, minimal side effects, and sustained

release.

[0009a] In an aspect, there is provided a use of a pharmaceutical composition in the manufacture of a medicament for treating and/or preventing edematous fibrosclerotic panniculopathy (EFP) in a subject in need thereof, wherein the pharmaceutical composition comprises a plurality of amphiphilic nanoparticles comprising one or more active ingredients encapsulated therein,

wherein each of the amphiphilic nanoparticles is formed by of a non-ionic surfactant, a polymeric carrier, or a lipid carrier, the non-ionic surfactant having a hydrophilic-lipophilic balance (HLB) value greater than 9, and

wherein the pharmaceutical composition is to be administered via a parenteral route by an injection, a microneedle, or an implant, or via topical administration or transdermal administration.

[0010] A method for treating and/or preventing EFP in a subject in need thereof is provided. The method includes administering an effective amount of a pharmaceutical composition to the subject. The pharmaceutical composition includes a plurality of amphiphilic nanoparticles having one or more active ingredients encapsulated therein. Each of the amphiphilic nanoparticles is formed by a non-ionic surfactant, a polymeric carrier, or a lipid carrier. The hydrophilic-lipophilic balance (HLB) value of the non-ionic surfactant is greater than 9.

[0011] Preferably, the amphiphilic nanoparticles are a plurality of micelles or emulsions encapsulating the one or more active ingredients and formed by the non-ionic surfactant.

[0012] Preferably, the amphiphilic nanoparticles are a plurality of polymeric nanospheres or polymeric nanocapsules encapsulating the one or more active ingredients and formed by the polymeric carrier.

[0013] Preferably, the amphiphilic nanoparticles are a plurality of liposomes

encapsulating the one or more active ingredients and formed by the lipid carrier.

[0014] Preferably, each of the amphiphilic nanoparticles includes a hydrophobic core and a hydrophilic envelope. The one or more active ingredients is encapsulated in the hydrophobic core, and the hydrophobic core is encapsulated in the hydrophilic envelope. The hydrophobic core is formed by hydrophobic end groups of the non-ionic surfactant, the polymeric carrier, or the lipid carrier. The hydrophilic envelope is formed by hydrophilic head groups of the non-ionic surfactant, the polymeric carrier, or the lipid carrier.

[0015] Preferably, each of the amphiphilic nanoparticles includes a hydrophilic core and a hydrophobic envelope. The one or more active ingredients is encapsulated in the hydrophilic core, and the hydrophilic core is encapsulated in the hydrophobic

CLAIM

1. Use of a pharmaceutical composition in the manufacture of a medicament for treating and/or preventing edematous fibrosclerotic panniculopathy (EFP) in a subject in need thereof, wherein the pharmaceutical composition comprises a plurality of amphiphilic nanoparticles comprising one or more active ingredients encapsulated therein,

wherein each of the amphiphilic nanoparticles is formed by of a non-ionic surfactant, a polymeric carrier, or a lipid carrier, the non-ionic surfactant having a hydrophilic-lipophilic balance (HLB) value greater than 9, and

wherein the pharmaceutical composition is to be administered via a parenteral route by an injection, a microneedle, or an implant, or via topical administration or transdermal administration.

2. The use of claim 1, wherein the pharmaceutical composition is to be administered to thighs, buttocks, lower limbs, pelvic region, or abdomen of the subject.

3. The use of claim 1, wherein the pharmaceutical composition is to be injected to a treatment area of the subject, and wherein the effective unit dose of the pharmaceutical composition is 0.01-50 mg/cm^2 of the treatment area.

4. The use of claim 1, wherein the pharmaceutical composition is to be administered to a treatment area of the subject by the microneedle or the implant, and wherein the effective unit dose of the pharmaceutical composition is 0.01-20 mg/cm^2 of the treatment area.

5. The use of claim 1, wherein the pharmaceutical composition is to be administered to a treatment area of the human by topical application, and wherein the effective amount of the pharmaceutical composition is 0.5-20 mg/cm^2 of the treatment area.

6. The use of claim 1, wherein the pharmaceutical composition is to be administered

to a treatment area of the subject by transdermal administration, and wherein the effective amount of the pharmaceutical composition is 0.5-50 mg/cm^2 of the treatment area.

7. The use of claim 1, wherein the amphiphilic nanoparticles are a plurality of micelles formed by the non-ionic surfactant, and wherein the active ingredients are one or more lipophilic components and/or hydrophilic components.

8. The use of claim 1, wherein the non-ionic surfactant comprises at least one member selected from the group consisting of polysorbate 80, polyoxyl 15 hydroxystearate, polyoxyethylene derivatives, and polyoxyethylene castor oil derivatives.

9. The use of claim 1, wherein the active ingredients comprise one or more lipophilic components, which comprise at least one member selected from the group consisting of curcumin, quercetin, oxyresveratrol, resveratrol, and derivatives, or metabolites, or isomers thereof.

10. The use of claim 1, wherein the weight ratio of the active ingredients to the non-ionic surfactant, the polymeric carrier, or the lipid carrier in the pharmaceutical composition ranges from 1:2 to 1:500.

11. The use of claim 1, wherein the concentration of the active ingredients in the pharmaceutical composition ranges from 0.2 mg/g to 500 mg/g.

12. The use of claim 1, wherein the active ingredients comprise one or more hydrophilic components, which comprise at least one member selected from the group consisting of green tea extract, epigallocatechin gallate, epicatechin, epicatechingallate, epigallocatechin, gallocatechingallate, gallocatechin, catechingallate, catechin, epigallocatechin gallate (EGCG), caffeine, carnitine, L-carnitine, synephrine, and chlorogenic acid.

13. The use of claim 1, wherein the diameter of each of the amphiphilic nanoparticles

is less than 200 nm, and wherein the polydispersity index (PDI) of the amphiphilic nanoparticles is less than 0.4.

14. The use of claim 1, wherein the active ingredients comprise one or more lipophilic components and/or one or more hydrophilic components,

wherein the lipophilic components comprise at least one member selected from the group consisting of curcumin, quercetin, oxyresveratrol, and resveratrol, or derivatives, metabolites, or isomers thereof; and

wherein the hydrophilic components comprise at least one member selected from the group consisting of green tea extract, epigallocatechin gallate, epicatechin, epicatechingallate, epigallocatechin, gallocatechingallate, gallocatechin, catechingallate, catechin, epigallocatechin gallate (EGCG), caffeine, carnitine, L-carnitine, synephrine, and chlorogenic acid.

15. The use of claim 14, wherein the concentration of the lipophilic components in the pharmaceutical composition ranges from 0.2 mg/g to 500 mg/g, and/or wherein the concentration of the hydrophilic components in the pharmaceutical composition ranges from 0.1 mg/g to 500 mg/g.

16. The use of claim 14, wherein the pharmaceutical composition comprises the lipophilic components and the hydrophilic components, and wherein the weight ratio of the lipophilic components to the hydrophilic components in the pharmaceutical composition ranges from 30:1 to 1:10.

17. The use of claim 1, wherein the pharmaceutical composition further comprises at least one of member selected from the group consisting of a solvent, a cosolvent, a cosurfactant, a suspending agent, and an oil phase excipient.