Claims

1. A sterile, injectable pharmaceutical composition formulated for parenteral administration, wherein the composition comprises a nanoparticle composition, a botulinum toxin, and at least one excipient for administration by injection,

wherein the nanoparticle composition comprises a population of particles, wherein more than 50%~~the majority~~ of particles have diameters between 10 and 300 nanometers,

wherein the nanoparticle composition comprises at least one aqueous medium, at least one oil, and at least one surfactant,

wherein the ratio of oil to surfactant is between ~~about~~ 0.5:1 ± 10% to ~~about~~ 1:1± 10%;

wherein the oil is 1349 oil;

wherein the surfactant is polysorbate 80;

wherein the at least one excipient for administration by injection is sodium chloride, sodium phosphate, and gelatin;

wherein the pharmaceutical composition is formulated for treatment of a human having unwanted sweating, bromhidrosis, excess sebum-producing disorders, body odor, chromhidrosis, Raynaud's phenomenon, lupus erythematosus, hyperpigmentation disorders, melasma, hypopigmentation disorders, acne, seborrhea, seborrheic dermatitis, rosacea, hair loss, psoriasis, headache, or any combination thereof; and

wherein the composition is disposed within a device comprising a needle; and wherein the botulinum toxin remains stable and active and maintains potency in the pharmaceutical composition following prolonged storage for at least 12 months, when the prolonged storage is carried out at 2ºC to 8ºC.

2. The pharmaceutical composition of claim 1, wherein the sterile, injectable pharmaceutical composition is a liquid.

3. The pharmaceutical composition of claim 1, wherein the sterile, injectable pharmaceutical composition is disposed within a syringe.

4. The pharmaceutical composition according to any one of claims 1 to 3, wherein the pharmaceutical composition does not contain parabens.

5. The pharmaceutical composition of claim 1, wherein the botulinum toxin is selected from the group consisting of type A, type Ab, type Af, type B, type Bf, type ~~C_1~~C1, type ~~C_2~~C2, type D, type E, type F, or type G, and any combinations thereof.

6. The pharmaceutical composition of claim 5, wherein the botulinum toxin is type A botulinum toxin.

7. The pharmaceutical composition of claim 1, wherein the pharmaceutical composition is formulated as a liquid dosage form.

8. The pharmaceutical composition of claim 1, wherein stability of the composition is assessed by determination of time of death after intravenous injection into a tail vein of a mouse.

9. The pharmaceutical composition of claim 1, wherein the pharmaceutical composition is packaged in a syringe.

10. Use of the sterile, injectable pharmaceutical composition of any one of claims 1-9 in the preparation of a medicament for administration a subject by injection, wherein the medicament is formulated for treatment of a human having unwanted sweating, bromhidrosis, body odor, chromhidrosis, acne, wrinkles, headache, or any combination thereof.

~~11. The use of claim 10, wherein the medicament is formulated for treatment of a human having: (a) a condition or disorder associated with sebaceous glands; (b) a condition or disorder associated with sweat glands; (c) a condition or disorder associated with hair follicles; the outer layer of the skin; or any combination thereof.~~

~~12. The use of claim 10, wherein the medicament is formulated for treatment of a human having unwanted sweating, bromhidrosis, body odor, chromhidrosis, acne, wrinkles, headache, or any combination thereof.~~

~~13~~11. The use of claim 10, wherein the medicament is formulated to be administered via a route of delivery selected from the group consisting of intravenous, intramuscular, intra-arterial, intramedullary, intrathecal, subcutaneous, intraventricular, transdermal, interdermal, intradermal, intraperitoneal, intragastric, and combinations thereof.

~~14. The pharmaceutical composition of claim 1, wherein the medium chain triglyceride comprises a fatty acid residue containing 6-12 carbon atoms.~~

~~15~~12. The pharmaceutical composition of claim 1, wherein the device limits effective penetration length of the one or plurality of needles into the skin.

~~16~~13. The pharmaceutical composition of claim ~~15~~12, wherein the needles have a length sufficient to project through the stratum corneum of the skin.

~~17~~14. The pharmaceutical composition of claim 1, wherein the device limits effective penetration length of the needle into the skin.

~~18~~15. The pharmaceutical composition of claim ~~17~~14, wherein the effective penetration length is selected so that the one or plurality of needles does not rupture a blood vessel.

~~19~~16. The pharmaceutical composition of claim 1, wherein the device is or comprises a syringe.

~~20~~17. The pharmaceutical composition of claim 1, formulated as a solution, suspension, or emulsion in a nontoxic parenterally acceptable diluent or solvent.

~~21~~18. The pharmaceutical composition of claim 1, wherein the nanoparticle composition is dissolved or suspended in an oil vehicle.

~~22~~19. The pharmaceutical composition of claim 1, further comprising a biodegradable polymer.

~~23~~20. The pharmaceutical composition of claim 1, wherein the nanoparticle composition is entrapped in liposomes.