as, for example type 2 diabetes, sleep apnea, heart disease, some types of cancer, osteoarthritis, and others.

[0005] Many methods for fat reduction generally involve exercise and diet control. However, methods of fat reduction by administration of fat-reducing compounds offer advantages such as simplicity, ease of implementation, and an ability to target fat deposits in both systemic (e.g. throughout the whole body of the individual) and localized (e.g. directly to submental fat and/or cellulite deposits) manners. Consequently, there is a need for cosmetic fat reduction and therapeutic fat reduction.

BRIEF SUMMARY

[0005a] In one aspect, there is provided a method for cosmetic body fat reduction in a subject in need thereof comprising administering to the subject in need thereof a pharmaceutical composition comprising a PGI2 receptor agonist.

[0005b] In one aspect, there is provided a cosmetic method for activating lipolysis in an adipocyte, comprising exposing the adipocyte to a PGI_2 receptor agonist.

[0005c] In one aspect, there is provided a use of a PGI_2 receptor agonist in the manufacture of a medicament for reducing body fat in a subject in need thereof.

[0005d] In one aspect, there is provided a use of a PGI_2 receptor agonist in the manufacture of a medicament for treating a subject in need thereof.

[0005e] In one aspect, there is provided a use of a PGI2 receptor agonist in the manufacture of a medicament for activating lipolysis in an adipocyte.

[0005f] In one aspect, there is provided a PGI2 receptor agonist for use in therapy.

[0006] In one aspect, a method for increasing lipolysis in adipocytes is provided comprising exposing the adipocyte to a prostacyclin receptor agonist or a pharmaceutically acceptable salt thereof. In some embodiments, the method increases glycerol production by the adipocytes by at least about 50%, 75%, 100%, 150%, 200%, 250%, 300%, 350% or 400% or by about 50% to 400%, 50% to 300%, 50% to 200% or 100% to 400% as compared to glycerol production by adipocytes not treated with the agonist.

[0007] In another aspect, a method for reducing fat in a subject in need thereof is provided, comprising administering to the subject a prostacyclin (PGI_2) receptor agonist or a pharmaceutically acceptable salt thereof.

[0008] In some embodiments, the PGI2 receptor agonist is selected from the group consisting of beraprost, iloprost, carbacyclin, cicaprost, treprostinil, FK-788, selexipag, or a pharmaceutically acceptable salt thereof. In some embodiments, the PGI2 receptor agonist is an analogue of beraprost, iloprost, carbacyclin, cicaprost, treprostinil, FK-788, or selexipag. In still other embodiments, the PGI2 receptor agonist is a prodrug of beraprost, iloprost, carbacyclin, cicaprost, treprostinil, FK-788, or selexipag.

[0009] In some embodiments, the reducing fat in the subject comprises reducing the size of adipocytes in the subject. In other embodiments, the adipocytes are located in subcutaneous adipose tissue of the subject. In still other embodiments, the adipocytes are not located in visceral adipose tissue.

WHAT IS CLAIMED IS:

1 . A method for cosmetic body fat reduction in a subject in need thereof comprising administering to the subject in need thereof a pharmaceutical composition comprising a PGI2 receptor agonist.

2. The method of claim 1, wherein the agonist is selected from the group consisting of selexipag, FK-788, beraprost, iloprost, carbacyclin, cicaprost and treprostinil, or a pharmaceutically acceptable salt thereof.

3. The method of claim 1 or 2, wherein the administering is via a subcutaneous or a transdermal injection.

4. The method of claim 1 or 2, wherein the administering is via a dermal patch, a transdermal patch, or a subdermal depot.

5. The method of claim 1 or 2, wherein the administering is topical.

6. The method of any one of claims 1 to 5, wherein the pharmaceutical composition is a sustained release formulation.

7. The method of any one of claims 1 to 5, wherein the pharmaceutical composition is an immediate release formulation.

8. The method of any one of claims 1 to 7, wherein the administering to the subject comprises administering the agonist to a region of the body selected from the group consisting of buttocks, under the chin, underarm, under one or both eyes, cheek, brow, calf, back, thigh, ankle, and abdomen.

9. The method of any one of claims 1 to 8, wherein the subject has cellulite.

10. The method of claim 9, wherein the administering is to an area within or near the cellulite.

11. The method of any one of claims 1 to 10, wherein the subject is not or has not been diagnosed with pulmonary arterial hypertension.

12. The method of any one of claims 1 to 10, wherein the subject is a human.

13. A cosmetic method for activating lipolysis in an adipocyte, comprising exposing the adipocyte to a PGI_2 receptor agonist.

14. The method of claim 13, wherein the activating lipolysis results in a 50% to 300% increase in the production of glycerol by the adipocyte.

15. The method of claim 13 or 14, wherein the agonist is selected from the group consisting of selexipag, FK-788, beraprost, iloprost, carbacyclin, cicaprost and treprostinil, or a pharmaceutically acceptable salt thereof.

16 . The method of any one of claims 13 to 15, wherein the adipocyte is a human adipocyte.

17. Use of a PGI_2 receptor agonist in the manufacture of a medicament for reducing body fat in a subject in need thereof.

18. The use of claim 17, wherein the agonist is selected from the group consisting of selexipag, FK-788, beraprost, iloprost, carbacyclin, cicaprost and treprostinil, or a pharmaceutically acceptable salt thereof.

19. The use of claim 17 or 18, wherein the medicament, when used in the reduction of body fat in a subject in need thereof, is to be administered via a subcutaneous or a transdermal injection.

20 The use of claim 17 or 18, wherein the medicament, when used in the reduction of body fat in a subject in need thereof, is to be administered via a dermal patch, a transdermal patch, or a subdermal depot.

21. The use of claim 17 or 18, wherein the medicament, when used in the reduction of body fat, is to be administered topically.

22. The use of any one of claims 17 to 21, wherein the medicament is a pharmaceutical composition which is a sustained release formulation.

23. The use of any one of claims 17 to 21, wherein the medicament is a pharmaceutical composition which is an immediate release formulation.

24. The use of any one of claims 17 to 23, wherein the medicament, when used in the reduction of body fat in a subject in need thereof, is to be administered to a region of the subject's body selected from the group consisting of buttocks, under the chin, underarm, under one or both eyes, cheek, brow, calf, back, thigh, ankle, and abdomen.

25. The use of any one of claims 17 to 24, wherein the subject in need thereof has cellulite.

26. The use of claim 25, wherein the medicament, when used in the reduction of body fat in the subject in need thereof, is to be administered to an area within or near the cellulite.

27. The use of any one of claims 17 to 26, wherein the subject is not or has not been diagnosed with pulmonary arterial hypertension.

28. The use of any one of claims 17 to 27, wherein the subject is a human.

29. Use of a PGI_2 receptor agonist in the manufacture of a medicament for treating a subject in need thereof.

30. The use of claim 29, wherein the subject is diagnosed with or at risk of obesity, diabetes mellitus, fatty liver disease, or a cardiovascular disease.

31. The use of claim 29 or 30, wherein the agonist is selected from the group consisting of selexipag, FK-788, beraprost, iloprost, carbacyclin, cicaprost and treprostinil, or a pharmaceutically acceptable salt thereof.

32. The use of any one of claims 17 to 29, wherein the subject is not otherwise in need of medication to treat obesity, diabetes mellitus, fatty liver disease, or a cardiovascular disease.

33. The use any one of claims 29 to 32, wherein the subject is a human.

34. Use of a PGI2 receptor agonist in the manufacture of a medicament for activating lipolysis in an adipocyte.

35. The use of claim 34, wherein the activating lipolysis results in a 50% to 300% increase in the production of glycerol by the adipocyte.

36. The use of claim 34 or 35, wherein the agonist is selected from the group consisting of selexipag, FK-788, beraprost, iloprost, carbacyclin, cicaprost and treprostinil, or a pharmaceutically acceptable salt thereof.

37. The use of any one of claims 34 to 36, wherein the adipocyte is a human adipocyte.

38. A PGI2 receptor agonist for use in therapy.