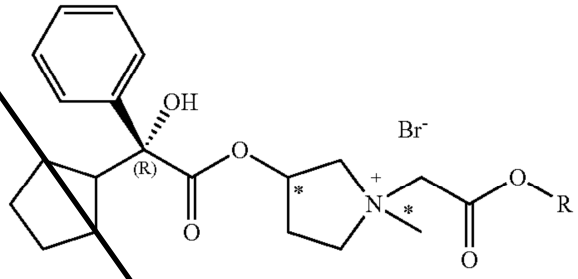
CLAIMS

1. Use of a compound having the formula:



wherein R is methyl or ethyl, said compound having the R stereoisomeric configuration at the 2 position and the R, S, or RS stereoisomeric configuration at the 1' and 3' position, or being a mixture thereof; in the preparation of a medicament composition comprising from about 1.0% to about 25% of said compound and a pharmaceutically acceptable vehicle, for topical administration to skin of an area of a mammalian subject suffering from hyperhidrosis, before bedtime, such that compared to untreated, baseline conditions, sweat production is reduced by at least about 25% for at least about six (6) hours.

2. Use according to claim 1, wherein sweat production is reduced by an amount substantially equivalent to an amount that sweat production is reduced as compared to untreated, baseline conditions, following administration of a composition comprising an equivalent concentration of glycopyrrolate.

3. Use according to claim 1 or 2, having one or more of the following features:

a) the subject is a human;

b) sweat production is reduced by about 25% to about 99%;

c) the composition is formulated as a solid or semi-solid, powder, gel, cream, lotion, foam, solution, suspension or emulsion;

d) sweat production is reduced from about 8 hours to about 24 hours;

e) R is methyl;

f) the composition is applied to skin of the subject at a superficial anatomic area selected from a hand palm area, a foot plantar area, a groin area, an axilla area or a facial area.

4. Use according to claim 1, 2 or 3, having one or more of the following features:

a) sweat production is reduced from about 30% to about 75%;

b) the composition is formulated as a solid or semi-solid, powder, gel, cream, lotion, foam, solution, suspension or emulsion comprising from about 2% to about 10% of said compound;

c) sweat production is reduced from about 8 hours to about 12 hours;

d) R is ethyl.

5. Use according to claim 1, 2, 3 or 4, having one or more of the following features:

a) sweat production is reduced from about 45% to about 60%;

b) the composition is formulated as a 5% solution of the compound in 70% ethanol.

6. Use according to claim 1, 2, 3, 4 or 5, wherein sweat production is reduced by about 50%.

7. Use according to claim 1, 2, 3, 4, 5 or 6, wherein the topical administration further comprises administration of a second dose of the composition in the morning after the subject awakens.

8. Use according to claim 1, 2, 3, 4, 5, 6 or 7, wherein the compound is selected from the group consisting of:

(i) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(methoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

(ii) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(ethoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

(iii) (2R) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(methoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

(iv) (2R) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(ethoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

(v) (2R,3'R) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(methoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

(vi) (2R,3'S) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(methoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

(vii) (2R,3'R) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(ethoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

(viii) (2R,3'S) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(ethoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

(ix) (2R,1'R,3'S) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(ethoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

(x) (2R,1'S,3'S) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(ethoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

(xi) (2R,1'R,3'R) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(ethoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

(xii) (2R,1'S,3'R) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(ethoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

(xiii) (2R,1'R,3'S) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(methoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

(xiv) (2R,1'S,3'S) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(methoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

(xv) (2R,1'R,3'R) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(methoxycarbonylmethyl)-1-methylpyrrolidinium bromide; and

(xvi) (2R,1'S,3'R) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(methoxycarbonylmethyl)-1-methylpyrrolidinium bromide.

9. Use according to claim 8, wherein the compound is selected from the group consisting of:

1) (2R) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(methoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

2) (2R) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(ethoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

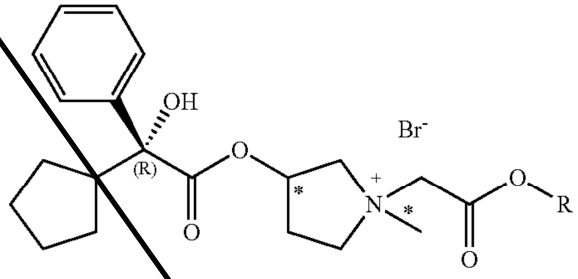
3) (2R,3'R) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(methoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

4) (2R,3'R) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(ethoxycarbonylmethyl)-1-methylpyrrolidinium bromide.

10. Use according to claim 9, wherein the compound is (2R,3'R) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(methoxycarbonylmethyl)-1-methylpyrrolidinium bromide.

11. Use according to claim 9, wherein the compound is (2R,3'R) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(ethoxycarbonylmethyl)-1-methylpyrrolidinium bromide.

12. Use of a compound having the formula:



wherein R is methyl or ethyl, said compound having the R stereoisomeric configuration at the 2 position and the R, S, or RS steroisomeric configuration at the 1' and 3' position, or being a mixture thereof; in the preparation of a medicament composition comprising from about 1.0% to about 25% of said compound and a pharmaceutically acceptable vehicle, for topical administration to skin of an area of a mammalian subject suffering from hyperhidrosis such that compared to untreated, baseline conditions, sweat production is reduced by at least about 25% for at least about six (6) hours.

13. Use according to claim 12, wherein sweat production is reduced by an amount substantially equivalent to an amount that sweat production is reduced as compared to untreated, baseline conditions, following administration of a composition comprising an equivalent concentration of glycopyrrolate.

14. Use according to claim 12 or 13, having one or more of the following features:

a) the subject is a human;

b) sweat production is reduced by about 25% to about 99%;

c) the composition is formulated as a solid or semi-solid, powder, gel, cream, lotion, foam, solution, suspension or emulsion;

d) sweat production is reduced from about 8 hours to about 24 hours;

e) R is methyl;

f) the composition is applied to skin of the subject at a superficial anatomic area selected from a hand palm area, a foot plantar area, a groin area, an axilla area or a facial area.

15. Use according to claim 12, 13 or 14, having one or more of the following features:

a) sweat production is reduced from about 30% to about 75%;

b) the composition is formulated as a solid or semi-solid, powder, gel, cream, lotion, foam, solution, suspension or emulsion comprising from about 2% to about 10% of said compound;

c) sweat production is reduced from about 8 hours to about 12 hours;

d) R is ethyl.

16. Use according to claim 12, 13, 14 or 15, having one or more of the following features:

a) sweat production is reduced from about 45% to about 60%;

b) the composition is formulated as a 5% solution of the compound in 70% ethanol.

17. Use according to claim 12, 13, 14, 15 or 16, wherein sweat production is reduced by about 50%.

18. Use according to claim 12, 13, 14, 15, 16 or 17, wherein the compound is selected from the group consisting of:

(i) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(methoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

(ii) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(ethoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

(iii) (2R) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(methoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

(iv) (2R) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(ethoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

(v) (2R,3'R) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(methoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

(vi) (2R,3'S) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(methoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

(vii) (2R,3'R) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(ethoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

(viii) (2R,3'S) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(ethoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

(ix) (2R,1'R,3'S) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(ethoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

(x) (2R,1'S,3'S) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(ethoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

(xi) (2R,1'R,3'R) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(ethoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

(xii) (2R,1'S,3'R) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(ethoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

(xiii) (2R,1'R,3'S) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(methoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

(xiv) (2R,1'S,3'S) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(methoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

(xv) (2R,1'R,3'R) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(methoxycarbonylmethyl)-1-methylpyrrolidinium bromide; and

(xvi) (2R,1'S,3'R) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(methoxycarbonylmethyl)-1-methylpyrrolidinium bromide.

19. Use according to claim 18, wherein the compound is selected from the group consisting of:

1) (2R) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(methoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

2) (2R) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(ethoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

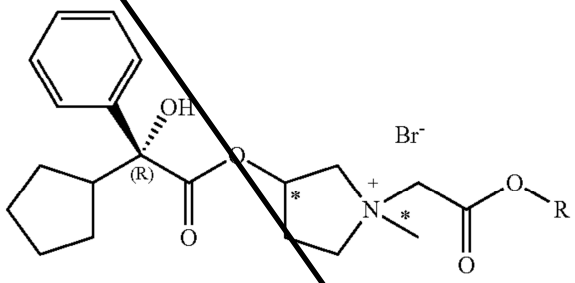
3) (2R,3'R) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(methoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

4) (2R,3'R) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(ethoxycarbonylmethyl)-1-methylpyrrolidinium bromide.

20. Use according to claim 19, wherein the compound is (2R,3'R) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(methoxycarbonylmethyl)-1-methylpyrrolidinium bromide.

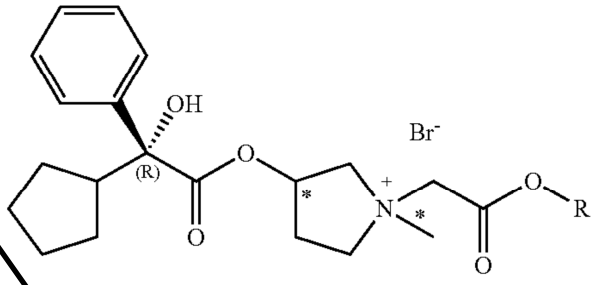
21. Use according to claim 19, wherein the compound is (2R,3'R) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(ethoxycarbonylmethyl)-1-methylpyrrolidinium bromide.

22. A medicament composition comprising from about 1.0% to about 25% of a compound and a pharmaceutically acceptable vehicle, for topical administration to skin of an area of a mammalian subject suffering from hyperhidrosis, before bedtime, such that compared to untreated, baseline conditions, sweat production is reduced by at least about 25% for at least about six (6) hours, wherein the compound having the formula:



wherein R is methyl or ethyl, said compound having the R stereoisomeric configuration at the 2 position and the R, S, or RS steroisomeric configuration at the 1' and 3' position, or being a mixture thereof.

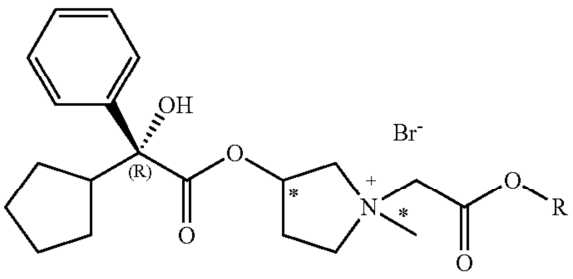
23. A medicament composition comprising from about 1.0% to about 25% of a compound and a pharmaceutically acceptable vehicle, for treatment of hyperhidrosis by topical administration to an affected skin area of a subject prior to bedtime, wherein the compound having the formula:



wherein R is methyl or ethyl, said compound having the R stereoisomeric configuration at the 2 position and the R, S, or RS steroisomeric configuration at the 1' and 3' position, or being a mixture thereof.

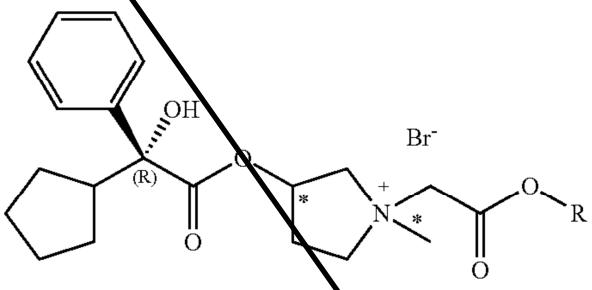
24. The medicament composition according to claim 22 or 23, wherein the composition is administered such that sweat production is reduced by an amount substantially equivalent to an amount that sweat production is reduced as compared to untreated, baseline conditions, following administration of a composition comprising an equivalent concentration of glycopyrrolate.

25. A medicament composition comprising from about 1.0% to about 25% of a compound and a pharmaceutically acceptable vehicle, for topical administration to skin of an area of a mammalian subject suffering from hyperhidrosis such that compared to untreated, baseline conditions, sweat production is reduced by at least about 25% for at least about six (6) hours, wherein the compound having the formula:



wherein R is methyl or ethyl, said compound having the R stereoisomeric configuration at the 2 position and the R, S, or RS steroisomeric configuration at the 1’ and 3’ position, or being a mixture thereof.

26. A medicament composition comprising from about 1.0% to about 25% of a compound and a pharmaceutically acceptable vehicle, for treatment of hyperhidrosis by topical administration to an affected skin area of a subject, wherein the compound having the formula:

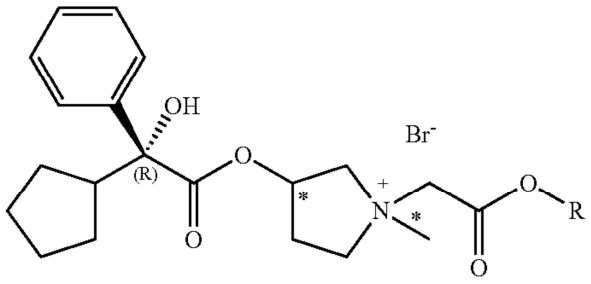


wherein R is methyl or ethyl, said compound having the R stereoisomeric configuration at the 2 position and the R, S, or RS steroisomeric configuration at the 1’ and 3’ position, or being a mixture thereof.

27. The medicament composition according to claim 25 or 26, wherein the composition is administered such that sweat production is reduced by an amount substantially equivalent to an amount that sweat production is reduced as compared to untreated, baseline conditions, following administration of a composition comprising an equivalent concentration of glycopyrrolate.

CLAIMS

1. Use of a compound having the formula:



wherein R is methyl or ethyl, said compound having the R stereoisomeric configuration at the 2 position and the R, S, or RS steroisomeric configuration at the 1' and 3' position, or being a mixture thereof; in the preparation of a medicament composition comprising from about 1.0% w/w or w/v to about 25% w/w or w/v of said compound and a pharmaceutically acceptable vehicle, for topical administration to skin of an area of a mammalian subject suffering from hyperhidrosis, within about 1 to 2 hours prior to the subject's normal rest or sleep period, such that compared to untreated, baseline conditions, sweat production is reduced by at least about 25% for at least about six (6) hours, and wherein sweat production is reduced by an amount substantially equivalent to an amount that sweat production is reduced as compared to untreated, baseline conditions, following administration of a composition comprising about the same concentration of glycopyrrolate, and wherein the composition is effective in reducing sweat production by at least about 25% over an about 24 hour period when administered in a one to four times daily dosing regimen.

2. Use according to claim 1, wherein the composition is administered in a once- or twice-daily dosing regimen.

3. Use according to claim 1, wherein the composition is administered in a once-daily dosing regimen.

4. Use according to claim 1, wherein the composition has an improved safety profile compared to topical glycopyrrolate.

5. Use according to any one of claims 1 to 4, having one or more of the following features:

a) the subject is a human;

b) sweat production is reduced by about 25% to about 99%;

c) the composition is formulated as a solid or semi-solid, powder, gel, cream, lotion, foam, solution, suspension or emulsion;

d) sweat production is reduced from about 8 hours to about 24 hours;

e) R is methyl;

f) the composition is applied to skin of the subject at a superficial anatomic area selected from a hand palm area, a foot plantar area, a groin area, an axilla area or a facial area.

6. Use according to according to any one of claims 1 to 5, having one or more of the following features:

a) sweat production is reduced from about 30% to about 75%;

b) the composition is formulated as a solid or semi-solid, powder, gel, cream, lotion, foam, solution, suspension or emulsion comprising from about 2% w/w or w/v to about 10% w/w or w/v of said compound;

c) sweat production is reduced from about 8 hours to about 12 hours;

d) R is ethyl.

7. Use according to any on of claims 1 to 6, having one or more of the following features:

a) sweat production is reduced from about 45% to about 60%;

b) the composition is formulated as a 5% w/v solution of the compound in 70% ethanol.

8. Use according to any one of claims 1 to 7, wherein sweat production is reduced by about 50%.

9. Use according to any one of claims 1 to 8, wherein the topical administration further comprises administration of a second dose of the composition following the subject's normal sleep or rest period, the second dose being administered within 6-10 hours from an initial time of administration within 1-2 hours prior to the subject's normal sleep or rest period.

10. Use according to any one of claims 1 to 9, wherein the compound is selected from the group consisting of:

(i) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(methoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

(ii) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(ethoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

(iii) (2R) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(methoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

(iv) (2R) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(ethoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

(v) (2R,3'R) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(methoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

(vi) (2R,3'S) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(methoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

(vii) (2R,3'R) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(ethoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

(viii) (2R,3'S) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(ethoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

(ix) (2R,1'R,3'S) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(ethoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

(x) (2R,1'S,3'S) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(ethoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

(xi) (2R,1'R,3'R) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(ethoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

(xii) (2R,1'S,3'R) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(ethoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

(xiii) (2R,1'R,3'S) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(methoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

(xiv) (2R,1'S,3'S) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(methoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

(xv) (2R,1'R,3'R) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(methoxycarbonylmethyl)-1-methylpyrrolidinium bromide; and

(xvi) (2R,1'S,3'R) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(methoxycarbonylmethyl)-1-methylpyrrolidinium bromide.

11. Use according to claim 10, wherein the compound is selected from the group consisting of:

1) (2R) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(methoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

2) (2R) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(ethoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

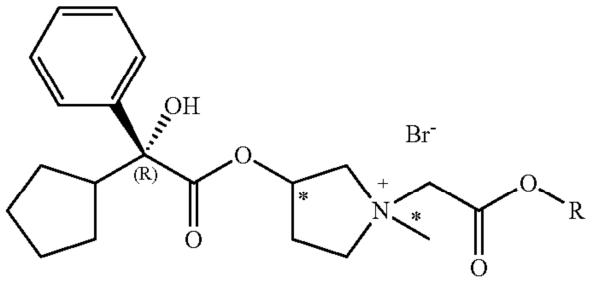
3) (2R,3'R) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(methoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

4) (2R,3'R) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(ethoxycarbonylmethyl)-1-methylpyrrolidinium bromide.

12. Use according to claim 11, wherein the compound is (2R,3'R) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(methoxycarbonylmethyl)-1-methylpyrrolidinium bromide.

13. Use according to claim 11, wherein the compound is (2R,3'R) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(ethoxycarbonylmethyl)-1-methylpyrrolidinium bromide.

14. Use of a compound having the formula:



wherein R is methyl or ethyl, said compound having the R stereoisomeric configuration at the 2 position and the R, S, or RS steroisomeric configuration at the 1' and 3' position, or being a mixture thereof; in the preparation of a medicament composition comprising from about 1.0% w/w or w/v to about 25% w/w or w/v of said compound and a pharmaceutically acceptable vehicle, for topical administration to skin of an area of a mammalian subject suffering from hyperhidrosis such that compared to untreated, baseline conditions, sweat production is reduced by at least about 25% for at least about six (6) hours, and wherein sweat production is reduced by an amount substantially equivalent to an amount that sweat production is reduced as compared to untreated, baseline conditions, following administration of a composition comprising about the same concentration of glycopyrrolate, and wherein the composition is effective in reducing sweat production by at least about

25% over an about 24 hour period when administered in a one to four times daily dosing regimen.

15. Use according to claim 14, wherein the composition is administered in a once- or twice-daily dosing regimen.

16. Use according to claim 14, wherein the composition is administered in a once-daily dosing regimen.

17. Use according to claim 14, wherein the composition has an improved safety profile compared to topical glycopyrrolate.

18. Use according to any one of claims 14 to 17, having one or more of the following features:

a) the subject is a human;

b) sweat production is reduced by about 25% to about 99%;

c) the composition is formulated as a solid or semi-solid, powder, gel, cream, lotion, foam, solution, suspension or emulsion;

d) sweat production is reduced from about 8 hours to about 24 hours;

e) R is methyl;

f) the composition is applied to skin of the subject at a superficial anatomic area selected from a hand palm area, a foot plantar area, a groin area, an axilla area or a facial area.

19. Use according to any one of claims 14 to 18, having one or more of the following features:

a) sweat production is reduced from about 30% to about 75%;

b) the composition is formulated as a solid or semi-solid, powder, gel, cream, lotion, foam, solution, suspension or emulsion comprising from about 2% w/w or w/v to about 10% w/w or w/v of said compound;

c) sweat production is reduced from about 8 hours to about 12 hours;

d) R is ethyl.

20. Use according to any one of claims 14 to 19, having one or more of the following features:

a) sweat production is reduced from about 45% to about 60%;

b) the composition is formulated as a 5% w/v solution of the compound in 70% ethanol.

21. Use according to any one of claims 14 to 20, wherein sweat production is reduced by about 50%.

22. Use according to any one of claims 14 to 21, wherein the compound is selected from the group consisting of:

(i) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(methoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

(ii) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(ethoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

(iii) (2R) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(methoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

(iv) (2R) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(ethoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

(v) (2R,3'R) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(methoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

(vi) (2R,3'S) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(methoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

(vii) (2R,3'R) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(ethoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

(viii) (2R,3'S) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(ethoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

(ix) (2R,1'R,3'S) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(ethoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

(x) (2R,1'S,3'S) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(ethoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

(xi) (2R,1'R,3'R) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(ethoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

(xii) (2R,1'S,3'R) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(ethoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

(xiii) (2R,1'R,3'S) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(methoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

(xiv) (2R,1'S,3'S) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(methoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

(xv) (2R,1'R,3'R) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(methoxycarbonylmethyl)-1-methylpyrrolidinium bromide; and

(xvi) (2R,1'S,3'R) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(methoxycarbonylmethyl)-1-methylpyrrolidinium bromide.

23. Use according to claim 22, wherein the compound is selected from the group consisting of:

1) (2R) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(methoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

2) (2R) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(ethoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

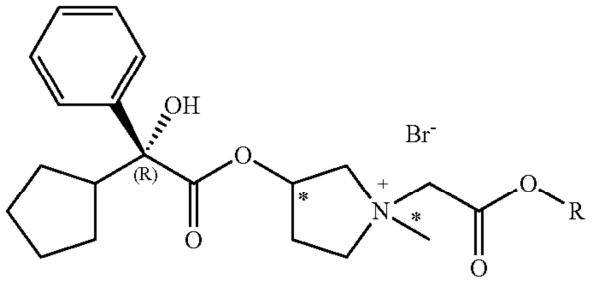
3) (2R,3'R) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(methoxycarbonylmethyl)-1-methylpyrrolidinium bromide;

4) (2R,3'R) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(ethoxycarbonylmethyl)-1-methylpyrrolidinium bromide.

24. Use according to claim 23, wherein the compound is (2R,3'R) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(methoxycarbonylmethyl)-1-methylpyrrolidinium bromide.

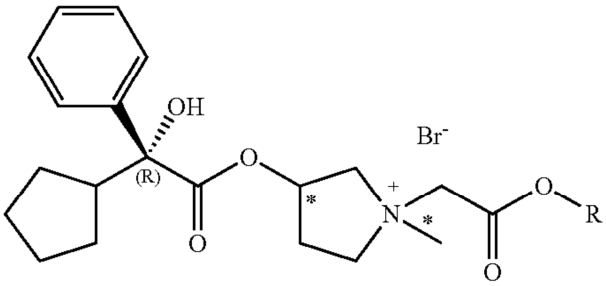
25. Use according to claim 23, wherein the compound is (2R,3'R) 3-(2-cyclopentyl-2-phenyl-2-hydroxyacetoxy)-1-(ethoxycarbonylmethyl)-1-methylpyrrolidinium bromide.

26. A medicament composition comprising from about 1.0% w/w or w/v to about 25% w/w or w/v of a compound and a pharmaceutically acceptable vehicle, for use as a topical composition administered to skin of an area of a mammalian subject suffering from hyperhidrosis, within about 1 to 2 hours prior to the subject's normal rest or sleep period, such that compared to untreated, baseline conditions, sweat production is reduced by at least about 25% for at least about six (6) hours, wherein the compound having the formula:



wherein R is methyl or ethyl, said compound having the R stereoisomeric configuration at the 2 position and the R, S, or RS steroisomeric configuration at the 1' and 3' position, or being a mixture thereof, and wherein sweat production is reduced by an amount substantially equivalent to an amount that sweat production is reduced as compared to untreated, baseline conditions, following administration of a composition comprising about the same concentration of glycopyrrolate, and wherein the composition is effective in reducing sweat production by at least about 25% over an about 24 hour period when administered in a one to four times daily dosing regimen.

27. A medicament composition comprising from about 1.0% w/w or w/v to about 25% w/w or w/v of a compound and a pharmaceutically acceptable vehicle, for use in the treatment of hyperhidrosis by topical administration of the medicament composition to an affected skin area of a subject within about 1 to 2 hours prior to the subject's normal rest or sleep period, wherein the compound having the formula:

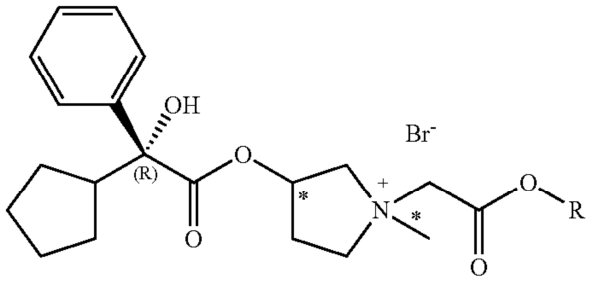


wherein R is methyl or ethyl, said compound having the R stereoisomeric configuration at the 2 position and the R, S, or RS steroisomeric configuration at the 1' and 3' position, or being a mixture thereof, and wherein sweat production is reduced by an amount substantially equivalent to an amount that sweat production is reduced as compared to untreated, baseline conditions, following administration of a composition comprising about the same concentration of glycopyrrolate, and wherein the composition is effective in reducing sweat production by at least about

25% over an about 24 hour period when administered in a one to four times daily dosing regimen.

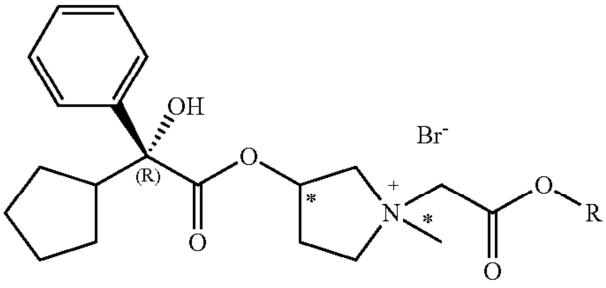
28. The medicament composition according to claim 26 or 27, comprising from about 2% w/w or w/v to about 10% w/w or w/v of said compound.

29. A medicament composition comprising from about 1.0% w/w or w/v to about 25% w/w or w/v of a compound and a pharmaceutically acceptable vehicle, for use as a topical composition administered to skin of an area of a mammalian subject suffering from hyperhidrosis such that compared to untreated, baseline conditions, sweat production is reduced by at least about 25% for at least about six (6) hours, wherein the compound having the formula:



wherein R is methyl or ethyl, said compound having the R stereoisomeric configuration at the 2 position and the R, S, or RS steroisomeric configuration at the 1' and 3' position, or being a mixture thereof, and wherein sweat production is reduced by an amount substantially equivalent to an amount that sweat production is reduced as compared to untreated, baseline conditions, following administration of a composition comprising about the same concentration of glycopyrrolate, and wherein the composition is effective in reducing sweat production by at least about 25% over an about 24 hour period when administered in a one to four times daily dosing regimen.

30. A medicament composition comprising from about 1.0% w/w or w/v to about 25% w/w or w/v of a compound and a pharmaceutically acceptable vehicle, for use in the treatment of hyperhidrosis by topical administration of the composition to an affected skin area of a subject, wherein the compound having the formula:



wherein R is methyl or ethyl, said compound having the R stereoisomeric configuration at the 2 position and the R, S, or RS steroisomeric configuration at the 1' and 3' position, or being a mixture thereof, and wherein sweat production is reduced by an amount substantially equivalent to an amount that sweat production is reduced as compared to untreated, baseline conditions, following administration of a composition comprising about the same concentration of glycopyrrolate, and wherein the composition is effective in reducing sweat production by at least about 25% over an about 24 hour period when administered in a one to four times daily dosing regimen.

31. The medicament composition according to claim 29 or 30, comprising from about 2% to about 10% of said compound.