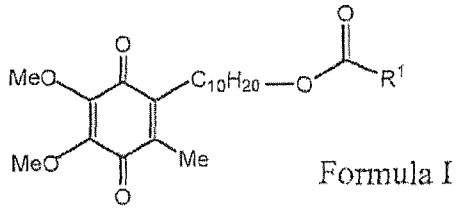
CLAIMS

1. A compound of general Formula I:



Formula I

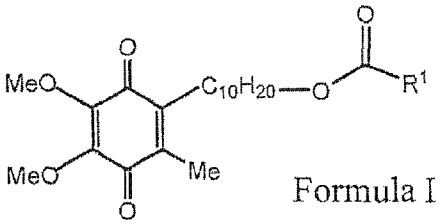
wherein $R^1C(O)O$- is a C_{2-22} straight or branched sugar acid, and wherein two or more hydroxy groups on the sugar acid are each independently substituted with a C_{1-22} carboxylic acid.

2. The compound of claim 1, wherein one or more carboxylic acid is a fatty acid.

3. The compound of claim 2, wherein one or more fatty acid is a conjugate fatty acid.

4. The compound of claim 1, wherein the compound of general Formula I is idebenone dipalmitoyl glycerate.

5. A method of preparing a compound of general Formula I:



Formula I

wherein $R^1C(O)O$- is a C_{2-22} straight or branched sugar acid, and wherein two or more hydroxy groups on the sugar acid are each independently substituted with a C_{1-22} carboxylic acid; wherein the method comprises the step of coupling a corresponding di-, tri-, or poly-carboxylic acid functionalized sugar acid to idebenone.

6. The method of claim 5, wherein one or more carboxylic acid is a fatty acid.

7. The method of claim 6, wherein one or more fatty acid is a conjugate fatty acid.

8. A method of preparing idebenone dipalmitoyl glycerate comprising steps of:

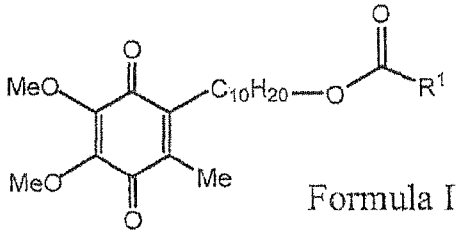
(a) subjecting benzyl acrylate to a dihydroxylation reaction to form benzyl 2,3-dihydroxypropanoate;

(b) reacting the benzyl 2,3-dihydroxypropanoate with palmitoyl chloride to form 3-(benzyloxy)-3-oxopropane- 1 ,2diyl dipalmitate;

(c) reacting the 3-(benzyloxy)-3-oxopropane-l,2diyl dipalmitate with ethyl acetate to form 2,3-bis(palmitoyloxy)propanoic acid; and

(d) reacting the 2,3-bis(palmitoyloxy)propanoic acid with idebenone to form idebenone dipalmitoyl glycerate.

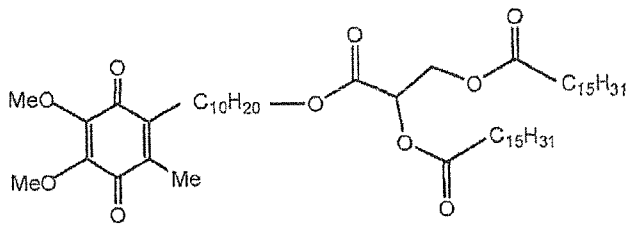
9. A composition comprising a compound of general Formula I:



Formula I

wherein R^1 C(O)O- is a C_{2-22} straight or branched sugar acid, and wherein two or more hydroxy groups on the sugar acid are each independently substituted with a C_{1-22} carboxylic acid; and at least one additive.

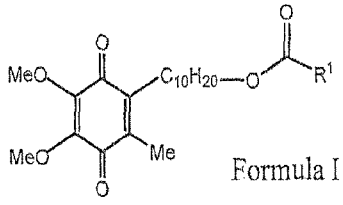
10. The composition of claim 9, wherein the compound of general Formula I is :



11. The composition of claim 9, wherein the composition is provided in a form selected from creams, lotions, solutions, sera, anhydrous preparations, emulsions, microemulsions, multiple emulsions, gels, solid sticks, ointments, and aerosols.

12. The composition of claim 9, wherein the at least one additive is selected from surfactants, cosmetic auxiliaries, pigments, UVA filters, UVB filters, propellants, thickening agents, emulsifiers, solvents, water, antioxidants, perfumes, dyestuffs, deodorants, antimicrobial materials, back-fatting agents, complexing and sequestering agents, pearlescent agents, plant extracts, vitamins, and combinations thereof.

13. A cosmetic method of treating a skin change, comprising topically administering a composition comprising a therapeutically effective amount of a compound of general Formula I:



Formula I

wherein $R^1C(O)O$- is a C_{2-22} straight or branched sugar acid, and wherein two or more hydroxy groups on the sugar acid are each independently substituted with a C_{1-22} carboxylic acid, to a subject in need thereof.

14. The cosmetic method of claim 13, wherein the compound of Formula I is idebenone dipalmitoyl glycerate.

15. The cosmetic method of claim 13, wherein the therapeutically effective amount is 0.0001 wt% to 30 wt%, based on the total weight of the composition.

16. The cosmetic method of claim 13, wherein the skin change is skin aging.

17. The cosmetic method of claim 13, wherein the skin change is hyperpigmentation.

18. The cosmetic method of claim 13, wherein the skin change is caused by UV damage.

19. The cosmetic method of claim 13, wherein the skin change comprises erythematous symptoms.

20. The cosmetic method of claim 13, wherin the skin change is cellulitis.