EXHIBIT 1

OffersFind a Store Worth It Rewards
Log In
Email Address Invalid email address
Password Invalid password

Forgot your password?
Enter
Or
Facebook log in
Register

L'ORÉAL PARIS

Offers Register Log In
Email Address Invalid email address
Password Invalid password

Forgot your password?
Enter
Or
Facebook log in

- Makeup
  - Makeup Home
  - Shop Makeup
  - Eye Makeup
    - Eye Shadow
    - Eyebrow Makeup
    - Eyeliner
    - Mascara
  - Lip Color
    - Lip Balm
    - Lip Gloss
    - Lip Liner
    - Lipstick
  - Face Makeup
    - Makeup Blenders
    - BB Cream
    - Blush
    - Concealer
    - Face Powder
    - Foundation Makeup
    - Makeup Primer
  - Nail Color
    - Gel Nail Polish
    - Nail Polish
  - All Brands
    - Colour Riche
    - Infallible
    - Infallible Paints
    - True Match
    - Visible Lift

- Voluminous
- Voluminous Butterfly

- Featured Makeup ProductInfallible® Lip Paints Learn More

- Skin Care
  - Skin Care Home
  - Shop Skin Care
  - Products
    - Eye Cream
    - Face Mask
    - Face Serum
    - Facial Cleanser
    - Facial Oil
    - Facial Moisturizer
    - Makeup Remover
    - Night Cream
    - Self-Tanner
    - Sunscreen for Face
  - Concerns
    - Anti-Aging
    - Dark Circles
    - Dark Spots
    - Dry Skin
    - Fine Lines & Wrinkles
    - Sagging Skin
  - All Brands
    - Age Perfect
    - Hydra Genius
    - Men Expert
    - Micellar Cleansing Water
    - Pure Clay Mask
    - Revitalift
    - Sublime Bronze
    - Wrinkle Expert
    - Ingredient Library
    - Skincare Routine Finder

- Featured Skin Care ProductHydra Genius Daily Liquid Care Learn More
- Hair Color
  - Hair Color Home
  - Shop Hair Color
  - Products
    - Permanent Hair Color
    - Semi-Permanent
    - Root Touch Up
    - Ombre Hair Color
    - Hair Highlights
    - Hair Color Bleaches
    - Hair Color Removers/Faders
  - All Hair Colors
    - Brown / Brunette
    - Blonde
    - Red
    - Black
    - Bold
    - Platinum Blonde
    - Gray Hair Coverage
  - All Brands
    - Colorista
    - Feria
    - Superior Preference
    - Excellence Créme
    - Excellence Age Perfect
    - Root Cover Up

- Featured Hair Color ProductColorista Semi-Permanent Learn More
- Hair Care
  - Hair Care Home
  - Shop Hair Care
  - Products
    - Cleansing Conditioner
    - Conditioner

        - Dry Shampoo
        - Hair Mask
        - Hair Oil
        - Hair Treatments
        - Shampoo
    - Concerns
        - Anti-Dandruff/Scalp Care
        - Blonde Hair Care
        - Color Treated Hair
        - Curly Hair
        - Damaged Hair
        - Dry Hair
        - Frizzy Hair
        - Hair Breakage & Split Ends
        - Oily Roots/Dry Ends
        - Sulfate-Free
        - Thin or Fine Hair
    - All Brands
        - Ever
        - Hair Expert
        - L'Oréal Kids

    - Featured Hair Care ProductExtraordinary Clay Learn More
- Hair Style
    - Hair Style Home
    - Shop Hair Style
    - Products
        - Dry Shampoo
        - Hair Cream
        - Hair Gel
        - Hair Mousse
        - Hair Pomade & Paste
        - Heat Protectant
        - Hair Serum
        - Hair Spray
    - Concerns
        - Blowouts
        - Curly Hair
        - Frizzy Hair
        - Hair Straightening
        - Hair Texturing
        - Heat Free
        - Shiny Hair
        - Thick Hair

- Thin or Fine Hair
- Wavy Hair
- All Brands
  - Advanced Hairstyle
  - Elnett
  - Studio Line
- Featured Hair Style ProductAdvanced Hairstyle AIR DRY IT  Learn More
- Beauty Magazine

My Beauty PicksBeauty BrandsWorth It RewardsTools & Consultations#LOrealParisWomen of WorthBack to top

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Adenosine

| [a-de-nə-sēn] |

Categories: Nucleoside

Adenosine Skin Benefits:
Anti-Aging

Adenosine is the nucleoside that is most commonly associated with the body's energy-transferring processes. It is present in adenosine triphosphate (ATP), an essential biological and chemical signaling molecule. Due to its high-biological profile, adenosine uses in skincare have grabbed the attention of cosmetic companies. As a result, studies have shown the use of adenosine for skin can be an effective method for providing anti-aging benefits. When applied topically, adenosine-containing products showed significant improvements in the visible signs of aging as well as improving skin smoothness. [1] For this reason, adenosine can most commonly be found in moisturizing skincare products such as creams or serums.

1. Abella, M. L. Evaluation of anti-wrinkle efficacy of adenosine-containing products using the FOITS technique. *International journal of cosmetic science* 28.6, 447-451 (2006)

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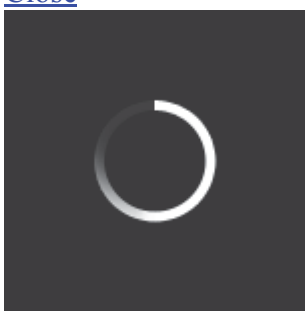

EXHIBIT 2

REDACTED

EXHIBIT 3

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

UNIVERSITY OF MASSACHUSETTS and CARMEL LABORATORIES, LLC, Plaintiffs, v. L'ORÉAL USA, INC., Defendant.	Case No. 17-cv-868-CFC-SRF

UNIVERSITY OF MASSACHUSETTS AND CARMEL LABORATORIES, LLC'S AMENDED FIRST SET OF INTERROGATORIES TO DEFENDANT L'OREAL USA, INC.

Pursuant to Rule 33 of the Federal Rules of Civil Procedure and the Rules and Orders of this Court, Plaintiffs University of Massachusetts ("UMass") and Carmel Laboratories, LLC ("Carmel Labs"), serves these interrogatories upon Defendant L'Oréal USA, Inc. ("L'Oréal"), which shall serve a copy of its answers and objections, if any, within thirty (30) days after service of these interrogatories.

DEFINITIONS

1. The term "UMass" refers to the University of Massachusetts, including any of its past and present affiliates, operating divisions, campuses, subsidiaries, directors, officers, agents, employees, representatives, and all persons acting on its behalf.

2. The term "Carmel Labs" refers to Carmel Laboratories, LLC, including any of its past and present affiliates, operating divisions, parent corporations, subsidiaries, directors, officers, agents, employees, representatives, and all persons acting on its behalf.

3. The terms "Defendant," "You," "Your," or "L'Oréal" shall refer to defendant L'Oréal

USA, Inc., and shall include L'Oréal S.A. as well as L'Oréal USA Inc.'s parent, subsidiaries, affiliates, divisions, successors or assignees, and their respective officers, directors, employees, consultants, representatives, and agents.

4. The term "Present Lawsuit" refers to the case styled *University of Massachusetts, et al. v. L'Oréal USA, Inc.*, Case No. 1:17-cv-00868-CFC-SRF, pending in the United States District Court for the District of Delaware.

5. The term "Document" or "Documents" is used in the broadest sense permitted by the Federal Rules of Civil Procedure and means the original (or any copy when originals are not available) and any drafts or non-identical copies thereof, whether different from the original because of interlineations, receipt stamp, notation of copy sent or received or otherwise, of any email, instant message, voicemail, book, pamphlet, periodical, letter, report, note, memorandum, record, minutes, calendar or diary entry, transcript, study, compilation, analysis, tabulation, map, diagram, drawing, plan, picture, summary, working paper, chart, paper, graph index, data sheet, data processing card, computer printout, summary of a computer printout, tape, contract, agreement, lease, ledger, journal, balance sheet, account, invoice, purchase order, receipt, billing record, financial data, financial statement, file, diary, film, trip tickets, telex, teletype or other messages, telegram, expense vouchers, instructions, bulletins or any other writing or recording of information, as well as all tape recordings, computer tapes, discs and other electronic or mechanical recordings, however produced, maintained or reproduced, including information stored in or generated by a computer whether or not ever printed out or displayed, within the possession, custody or control of plaintiff or any of its officers, directors, employees, attorneys, or other agents and/or representatives.

6. The term "Person" means natural person, corporation, firm, company, sole

proprietorship, partnership, joint venture, association, institute, or other business, legal or governmental entity or association, including any directors, officers, employees, agents or representatives thereof.

7. The term "Agreement" means a contract, agreement, arrangement, or understanding, formal or informal, oral or written, between two or more persons.

8. The term "Communication" refers to any transfer of information, oral or written, be it in the form of facts, ideas, inquiries, opinions or otherwise, by any means, at any time or place, under any circumstances, and is not limited to transfers between persons, but includes other transfers, such as records and memoranda to the file.

9. The phrase "Relating To" means discussing, describing, referring to, pertaining to, containing, analyzing, studying, reporting on, commenting on, evidencing, constituting, setting forth, considering, recommending, concerning, or pertaining to, in whole or in part.

10. The terms "Asserted Patents" and "Patents-in-Suit" shall mean United States Patents No. 6,423,327 and 6,645,513.

11. The term "'327 Patent" refers to U.S. Patent No. 6,423,327.

12. The term "'513 Patent" refers to U.S. Patent No. 6,645,513.

13. The term "Prior Art" means any evidence qualifying as prior art to the Patents-in-Suit under 35 U.S.C. § 102 and/or 35 U.S.C. § 103.

14. The terms "all" and "each" shall be construed as "and," "each," and "and/or."

15. The term "any" should be understood in either its most or least inclusive sense as will bring within the scope of the topic all responses that might otherwise be construed to be out of its scope.

16. The term "including" shall mean including but not limited to.

17. The terms "relate," "relating," or "related" mean in any way, directly or indirectly, in whole or part, relating to, concerning, referring to, discussing, mentioning, regarding, pertaining to, describing, reflecting, containing, analyzing, studying, reporting on, commenting on, evidencing, constituting, setting forth, considering, recommending, modifying, amending, confirming, endorsing, representing, supporting, qualifying, terminating, revoking, refuting, undermining, canceling, contradicting or negating.

18. The terms "and" and "or" shall be construed disjunctively or conjunctively as necessary to bring within the scope of these topics all information which might otherwise be construed to be outside their scope.

19. All requests apply equally to sales made in the United States as well as sales made in any other country.

20. References to the singular shall include the plural, and references to the plural shall include the singular as may be appropriate to construe the individual document requests in their broadest form.

21. The masculine form of a noun or pronoun shall be considered to include within its meaning the feminine form of the noun or pronoun, and vice versa as may be appropriate to make the individual document requests inclusive rather than exclusive.

22. "State in detail" means to give a complete and full description concerning the matter about which inquiry is made, including the full name, address and telephone number of persons involved, if appropriate, along with the dates, times, places, amounts, acts, logic, and other particulars that make the answers to the interrogatory fair and meaningful.

23. "Identify," when used with reference to:

a. an individual person, means to state his or her full name, present or last known

employer, job title, general job description, present or last known residence addresses and telephone number, and present or last known business addresses and telephone number;

b. a business entity, means to state the full name and address of the entity and the names and positions of the individual or individuals connected with such entity who have knowledge of the information requested.

c. a document, means to identify the document by bates number, or if it is not bates numbered, to state the type of document (letter, memorandum, email, etc.), its dates, author(s) or originator(s), addresse(s), all individuals who received copies of the document, the identity of persons known or presumed by you to have present possession, custody or control thereof, and a brief description of the subject matter and present location.

d. An offering, system or method means to specify a part number, trade name, catalog number, version number, and any other designation used to refer to the product, system or method.

INSTRUCTIONS

1. Each interrogatory shall be answered separately and fully in writing under oath, unless it is objected to, in which event the objecting party shall state the reasons for objection and shall answer to the extent the interrogatory is not objectionable. All grounds for an objection to an interrogatory shall be stated with specifically. The answers are to be signed under oath by the person making them.

2. If the procedure for answering interrogatories as authorized by Fed. R. Civ. P. 33(d) is used, for each interrogatory and subpart thereof, You must identify the production with specificity (*i.e.*, bates numbers of the specific document or group of documents).

3. If You withhold any documents subject to Fed. R. Civ. P. 33(d) under a claim of

privilege, You shall furnish a list specifying each such document and setting forth the following information: (i) the date of the document; (ii) the number of pages of the document; (iii) the name and last known address of each person who prepared or participated in the preparation of the document; (iv) the name and last known address of each addressee or other person to whom the document, or any part thereof, was sent or to whom the document or its contents, or any part thereof, was disclosed; (v) a summary of the general subject matter of the document (and such other information as is necessary to identify the document such as whether the document is a letter or memorandum); (vi) a statement of the basis upon which the asserted privilege is claimed; and (vii) the individual document request herein to which the document is responsive. If no documents are withheld under a claim of privilege, so state. Any document or part of a document withheld under a claim of privilege must be preserved.

4. You must preserve and produce all information and documents in Your possession, custody or control that are relevant to the claims or defenses in this lawsuit or reasonably calculated to lead to the discovery of admissible evidence. Especially since You are in the best position to know the nature and extent of discoverable information and documents in your possession, custody or control, any limits on these discovery requests should not be used to justify the loss, overwriting, purging, destruction or non-production of anything discoverable. Before You permit any such loss, overwriting, purging, deletion, or destruction, you should confer with Plaintiff to seek to resolve the issue consistent with the Federal Rules of Civil Procedure, Local Rules, Local Patent Rules and orders to the Court.

5. If any documents referred to in Your response to these interrogatories were, but are no longer in your possession, custody or control, state what disposition was made of them and when. If any document referred to in response to these interrogatories has been lost or destroyed,

state in detail the circumstances of such loss or destruction and identify each document lost or destroyed (and all files that contained such documents).

6. These discovery requests are deemed to be continuing in nature and, to the extent required by the Federal Rules of Civil Procedure, You must supplement Your responses with information or documents that may become known or available after the date of Your initial response.

INTERROGATORIES

INTERROGATORY NO. 1: Explain how and when You first became aware of the Patents-in-Suit, and identify the person(s) at L'Oréal who first learned of the Patents-in-Suit.

INTERROGATORY NO. 2: Describe in detail all Your communications regarding the Patents-in-Suit, the inventors of the Patents-in-Suit, and/or Carmel Labs and its employees and/or affiliates.

INTERROGATORY NO. 3: Identify every product You have ever sold in the United States that contains adenosine as an ingredient, including but not limited to every name You have sold such product under.

INTERROGATORY NO. 4: For each product identified in response to Interrogatory No. 3, provide a full list of ingredients as well as the formulation.

INTERROGATORY NO. 5: Describe all Your testing, including the methodology and results, regarding or relating to adenosine's effect on human skin, including but not limited to penetration of adenosine to the epidermis or dermis.

INTERROGATORY NO. 6: Describe in detail when and the reason(s) why You determined to use adenosine as an ingredient in any product You have sold in the United States, including but not limited to any testing and/or research that was relevant to Your decision to include adenosine

in Your products.

INTERROGATORY NO. 7: Describe in detail Your efforts to market and/or sell products containing adenosine, including but not limited to any materials you have created that tout the benefit(s) of adenosine for human skin.

INTERROGATORY NO. 8: For each product identified in response to Interrogatory No. 3, provide, in the form of a chart, by customer and on a monthly basis, a complete description of: all revenues received from sales of the product; all units sold of the product; total revenues received from customers who have purchased the product; and in the form of a chart and on a monthly basis, a complete description of Your gross, contribution, and operating profits and gross, contribution, and operating profit margins from sales of the product since 2009.

INTERROGATORY NO. 9: State all facts that you contend support Your contention that Plaintiffs' claims are barred in whole or in part by the doctrine of prosecution history estoppel and/or disclaimer.

INTERROGATORY NO. 10: State all facts that you contend support Your contention that Plaintiffs' claims are barred in whole or in part by the doctrine of waiver, equitable estoppel and/or other equitable defenses.

DATED: July 19, 2019

Respectfully submitted,

FARNAN LLP

/s/ Brian E. Farnan

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COMMONWEALTH OF MASSACHUSETTS,

By its attorney,

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Attorney for University of Massachusetts

CERTIFICATE OF SERVICE

I, Brian E. Farnan, hereby certify that on July 19, 2019, a copy of University of Massachusetts and Carmel Laboratories, LLC's Amended First Set of Interrogatories to Defendant L'Oreal USA, Inc. was served on the following as indicated:

Via E-Mail
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Attorneys for Defendant L'Oreal USA, Inc.

/s/ Brian E. Farnan
Brian E. Farnan (Bar No. 4089)

EXHIBIT 4

REDACTED

EXHIBIT 5

REDACTED

EXHIBIT 6

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

UNIVERSITY OF MASSACHUSETTS and CARMEL LABORATORIES, LLC, Plaintiffs, v. L'ORÉAL USA, INC., Defendant.	Case No. 17-cv-868-CFC-SRF

UNIVERSITY OF MASSACHUSETTS AND CARMEL LABORATORIES, LLC'S THIRD SET OF REQUESTS FOR PRODUCTION OF DOCUMENTS TO DEFENDANT L'OREAL USA, INC.

Pursuant to Rules 26 and 34 of the Federal Rules of Civil Procedure, Plaintiffs University of Massachusetts ("UMass") and Carmel Laboratories, LLC ("Carmel Labs") hereby request that Defendant L'Oréal USA, Inc. ("L'Oréal") produce the following documents and things at the office of Susman Godfrey L.L.P., 1301 Avenue of the Americas, 32nd Floor, New York, NY 10019, or at such other mutually agreed upon place, within 30 days hereof and in the manner required by the Federal Rules of Civil Procedure.

DEFINITIONS

1. The term "UMass" refers to the University of Massachusetts, including any of its past and present affiliates, operating divisions, campuses, subsidiaries, directors, officers, agents, employees, representatives, and all persons acting on its behalf.
2. The term "Carmel Labs" refers to Carmel Laboratories, LLC, including any of its past and present affiliates, operating divisions, parent corporations, subsidiaries, directors, officers, agents, employees, representatives, and all persons acting on its behalf.

3. The terms "Defendant," "You," "Your," or "L'Oréal" shall refer to defendant L'Oréal USA, Inc., and shall include L'Oréal S.A. as well as L'Oréal USA Inc.'s parent, subsidiaries, affiliates, divisions, successors or assignees, and their respective officers, directors, employees, consultants, representatives, and agents.

4. The term "Present Lawsuit" refers to the case styled *University of Massachusetts, et al. v. L'Oréal USA, Inc.*, Case No. 1:17-cv-00868-CFC-SRF, pending in the United States District Court for the District of Delaware.

5. The term "Document" or "Documents" is used in the broadest sense permitted by the Federal Rules of Civil Procedure and means the original (or any copy when originals are not available) and any drafts or non-identical copies thereof, whether different from the original because of interlineations, receipt stamp, notation of copy sent or received or otherwise, of any email, instant message, voicemail, book, pamphlet, periodical, letter, report, note, memorandum, record, minutes, calendar or diary entry, transcript, study, compilation, analysis, tabulation, map, diagram, drawing, plan, picture, summary, working paper, chart, paper, graph index, data sheet, data processing card, computer printout, summary of a computer printout, tape, contract, agreement, lease, ledger, journal, balance sheet, account, invoice, purchase order, receipt, billing record, financial data, financial statement, file, diary, film, trip tickets, telex, teletype or other messages, telegram, expense vouchers, instructions, bulletins or any other writing or recording of information, as well as all tape recordings, computer tapes, discs and other electronic or mechanical recordings, however produced, maintained or reproduced, including information stored in or generated by a computer whether or not ever printed out or displayed, within the possession,

custody or control of Defendant or any of its officers, directors, employees, attorneys, or other agents and/or representatives.

6. The term "Person" means natural person, corporation, firm, company, sole proprietorship, partnership, joint venture, association, institute, or other business, legal or governmental entity or association, including any directors, officers, employees, agents or representatives thereof.

7. The term "Agreement" means a contract, agreement, arrangement, or understanding, formal or informal, oral or written, between two or more persons.

8. The term "Communication" refers to any transfer of information, oral or written, be it in the form of facts, ideas, inquiries, opinions or otherwise, by any means, at any time or place, under any circumstances, and is not limited to transfers between persons, but includes other transfers, such as records and memoranda to the file.

9. The phrase "Relating To" means discussing, describing, referring to, pertaining to, containing, analyzing, studying, reporting on, commenting on, evidencing, constituting, setting forth, considering, recommending, concerning, or pertaining to, in whole or in part.

10. The terms "Asserted Patents" and "Patents-in-Suit" shall mean United States Patents No. 6,423,327 and 6,645,513.

11. The term "'327 Patent" refers to U.S. Patent No. 6,423,327.

12. The term "'513 Patent" refers to U.S. Patent No. 6,645,513.

13. The term "Prior Art" means any evidence qualifying as prior art to the Patents-in-Suit under 35 U.S.C. § 102 and/or 35 U.S.C. § 103.

14. The terms "all" and "each" shall be construed as "and," "each," and "and/or."

15. The term "any" should be understood in either its most or least inclusive sense as will bring within the scope of the topic all responses that might otherwise be construed to be out of its scope.

16. The term "including" shall mean including but not limited to.

17. The terms "relate," "relating," or "related" mean in any way, directly or indirectly, in whole or part, relating to, concerning, referring to, discussing, mentioning, regarding, pertaining to, describing, reflecting, containing, analyzing, studying, reporting on, commenting on, evidencing, constituting, setting forth, considering, recommending, modifying, amending, confirming, endorsing, representing, supporting, qualifying, terminating, revoking, refuting, undermining, canceling, contradicting or negating.

18. The terms "and" and "or" shall be construed disjunctively or conjunctively as necessary to bring within the scope of these topics all information which might otherwise be construed to be outside their scope.

19. References to the singular shall include the plural, and references to the plural shall include the singular as may be appropriate to construe the individual document requests in their broadest form.

20. The masculine form of a noun or pronoun shall be considered to include within its meaning the feminine form of the noun or pronoun, and vice versa as may be appropriate to make the individual document requests inclusive rather than exclusive.

21. The term "Accused Products" refers to the products listed in Exhibit A to Plaintiffs' Disclosure of Asserted Claims and Initial Infringement Contentions, served on October 10, 2019, subject to any subsequent supplement or amendment.

INSTRUCTIONS

1. Responsive documents shall be produced as they have been kept in the usual course of business and shall not be shuffled or otherwise rearranged. Alternatively, you may produce responsive documents organized and labeled to correspond to the enumerated requests of this demand. If any portion of any document is responsive to any request, then the entire document must be produced. Documents that are found stapled, clipped, or otherwise fastened together shall be produced in such form. If there is no document responsive to any particular category, you shall so state in writing.
2. If any portion of a document is responsive to an individual document request, then the entire document shall be produced. If the document contains privileged material, produce the entire document with the privileged material redacted, noting the redactions on the face of the document.
3. If information stored in, or accessible through, computer or other data retrieval systems is produced, it must be accompanied with instructions and all other materials necessary to use or interpret such data.
4. All documents which cannot be legibly copied should be produced in their original form.
5. Each individual document request set forth herein shall be construed independently and not with reference to any other request for purposes of limitation unless a particular request so specifies.
6. Where specific documents are listed as part of a general category of documents, then such listed documents as well as all other documents falling within such general category shall be produced. If any responsive document is withheld under a claim of

privilege, You shall furnish a list specifying each such document and setting forth the following information: (i) the date of the document; (ii) the number of pages of the document; (iii) the name and last known address of each person who prepared or participated in the preparation of the document; (iv) the name and last known address of each addressee or other person to whom the document, or any part thereof, was sent or to whom the document or its contents, or any part thereof, was disclosed; (v) a summary of the general subject matter of the document (and such other information as is necessary to identify the document such as whether the document is a letter or memorandum); (vi) a statement of the basis upon which the asserted privilege is claimed; and (vii) the individual document request herein to which the document is responsive. If no documents are withheld under a claim of privilege, so state. Any document or part of a document withheld under a claim of privilege must be preserved.

7. If any document responsive to this request once existed but has been destroyed or discarded, or is otherwise not capable of being produced, You shall furnish a list specifying each such document and setting forth the following information: (i) the date of the document; (ii) a description of the subject matter of the document; (iii) the name and last known address of each person who prepared or participated in the preparation of the document; (iv) the name and last known address of each addressee or other person to whom the document, or any part thereof, was sent or to whom the document or its contents, or any part thereof, was disclosed; (v) the name and last known address of any person not covered by items (iii) and (iv) who had possession, custody or control of the document or a copy thereof; (vi) the date on which the

document was destroyed or discarded and a statement of the reasons why the document was destroyed or discarded or why such document is not capable of being produced; and (vii) the individual document request herein to which the document is responsive.

8. Unless otherwise specified, the documents requested herein are documents prepared, written, sent, dated, received, or in effect at any time on or after October 26, 1998.

9. This request for documents shall be deemed continuing in nature so as to require prompt supplemental responses in accordance with Rule 26(e) of the Federal Rules of Civil Procedure in the event You become aware of, or acquire within Your possession, custody, or control, additional responsive documents at any time hereafter.

REQUEST FOR PRODUCTION

REQUEST FOR PRODUCTION NO. 38: Documents sufficient to show all sales, cost, and revenue information, by number of units sold and by dollars of revenue, for the Accused Products, broken down by quarter, including all documents sufficient to explain any acronyms or terminology employed by Your accounting system.

REQUEST FOR PRODUCTION NO. 39: Documents sufficient to show Your gross, contribution, and operating profits and gross, contribution, and operating profit margins from sales of the Accused Products.

REQUEST FOR PRODUCTION NO. 40: All documents that refer or relate to market surveys, market analyses, market forecasts, and/or sales forecasts, including but not limited to documents that relate to Your competitors in these markets, for the Accused Products. This Request includes reports by external analysts or consultancies.

REQUEST FOR PRODUCTION NO. 41: All documents relating to market share, whether Yours or of a competitor, of total products sold and total revenue in the markets for the Accused Products.

REQUEST FOR PRODUCTION NO. 42: All documents that refer or relate to Your strategic plans, business plans, business strategies, licensing plans, licensing proposals, licensing forecasts, prospectuses, market surveys, marketing strategies, market analyses, and/or marketing forecasts of customer demand for the Accused Products.

REQUEST FOR PRODUCTION NO. 43: All licenses You hold relating to U.S. Patent Nos. 9,018,177; 9,023,826; 9,072,919; and 9,107,853; and all documents You received from L'Oréal S.A. related to those patents, including but not limited to file histories and documents related to any post-grant review or proceeding.

REQUEST FOR PRODUCTION NO. 44: All documents that refer or relate to customer or clinical surveys or studies involving the Accused Products.

REQUEST FOR PRODUCTION NO. 45: All documents, including consumer surveys and consumer questions submitted to You, discussing or showing how customers use or apply the Accused Products.

REQUEST FOR PRODUCTION NO. 46: All documents, including product packaging, websites, and videos, showing or instructing customers how to use the Accused Products.

REQUEST FOR PRODUCTION NO. 47: All documents relating to any price lists for any Accused Product.

REQUEST FOR PRODUCTION NO. 48: All documents that constitute, evidence, or relate to Your accounting practices pertaining to the Accused Products, including but not limited to Your methods of accounting for revenues, costs and profits, methods of depreciation, allocation of

expenses, inventory measurements, profit allocation, and losses and assignments of debt.

REQUEST FOR PRODUCTION NO. 49: All expert reports and expert deposition transcripts produced in the matter *Liqwd, Inc. v. L'Oreal USA, Inc.*, No. 17-14 (JFB) (D. Del.).

REQUEST FOR PRODUCTION NO. 50: All documents that refer or relate to testing of any Accused Product.

REQUEST FOR PRODUCTION NO. 51: All documents that refer or relate to promotional or marketing materials for any Accused Product.

REQUEST FOR PRODUCTION NO. 52: All documents that tend to prove or disprove whether any Accused Product, or any ingredient of any Accused Product, causes dermal cell proliferation.

REQUEST FOR PRODUCTION NO. 53: All documents relating to Your decision to include adenosine in certain skincare products [redacted] as described in Your supplemental objections and response to Interrogatory No. 6.

REQUEST FOR PRODUCTION NO. 54: All documents that tend to prove or disprove that each Accused Product contains at least one skin conditioning agent.

REQUEST FOR PRODUCTION NO. 55: Documents sufficient to show all skin conditioning agents of which You are aware.

REQUEST FOR PRODUCTION NO. 56: All documents that tend to prove or disprove that each Accused Product contains at least one transdermal agent and/or penetration enhancer.

REQUEST FOR PRODUCTION NO. 57: Documents sufficient to show all transdermal agents and/or penetration enhancers of which You are aware.

REQUEST FOR PRODUCTION NO. 58: All documents that tend to prove or disprove that each Accused Product is intended for use by human mammals.

REQUEST FOR PRODUCTION NO. 59: All documents that tend to prove or disprove that each Accused Product reduces one or more of wrinkling, roughness, dryness, or laxity when topically applied to the skin.

REQUEST FOR PRODUCTION NO. 60: All documents that tend to prove or disprove that each Accused Product causes adenosine to reach the dermal layer in a concentration of approximately 10^{-3} to 10^{-7}.

REQUEST FOR PRODUCTION NO. 61: All documents that tend to prove or disprove that each Accused Product is intended to be applied to unbroken skin.

REQUEST FOR PRODUCTION NO. 62: All documents that tend to prove or disprove that You direct customers to apply the Accused Products topically to their skin.

REQUEST FOR PRODUCTION NO. 63: Documents sufficient to identify any ingredient, formula, or product codes in any documents produced in this litigation, including but not limited to the "RM" codes used in Your Research & Innovation documents.

REQUEST FOR PRODUCTION NO. 64: Documents sufficient to identify when the following brands were formed, acquired, or sold by You: Biotherm; Decleor; Garnier; Giorgio Armani; IT Cosmetics; Kiehl's; La Roche Posay; Lancome; L'Oreal Paris; Maybelline; NYX; Shu Uemura; SkinCeuticals; The Body Shop; Vichy; Yves Saint Laurent.

REQUEST FOR PRODUCTION NO. 65: All documents produced, in any litigation or investigation, to any government entity or agency that refer or relate to the Accused Products.

REQUEST FOR PRODUCTION NO. 66: All documents referring or relating to drivers of demand for the Accused Products, including but not limited to studies or surveys of consumer

preferences and consumer purchase decisions.

REQUEST FOR PRODUCTION NO. 67: Documents sufficient to identify any convoyed sales, related products, or products that are sold with or alongside the Accused Products, including sales, cost, and revenue information for those products.

REQUEST FOR PRODUCTION NO. 68: All documents referring or relating to any customary industry royalty rates or portions of selling price or profit that are typically used for patent licenses in the market for the Accused Products.

REQUEST FOR PRODUCTION NO. 69: All documents referring or relating to Your patent clearing policies or procedures that apply to topically applied skincare compositions.

DATED: December 18, 2019

Respectfully submitted,

FARNAN LLP

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Attorney for University of Massachusetts

CERTIFICATE OF SERVICE

I, Brian E. Farnan, hereby certify that on December 18, 2019, a copy of University of Massachusetts and Carmel Laboratories, LLC's Third Set of Requests for Production of Documents to Defendant L'Oreal USA, Inc. was served on the following as indicated:

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/s/ Brian E. Farnan
Brian E. Farnan (Bar No. 4089)

EXHIBIT 7

REDACTED

EXHIBIT 8

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

UNIVERSITY OF MASSACHUSETTS and CARMEL LABORATORIES, LLC, Plaintiffs, v. L'ORÉAL USA, INC., Defendant.	Case No. 17-cv-868-CFC-SRF

UNIVERSITY OF MASSACHUSETTS AND CARMEL LABORATORIES, LLC'S FIRST SET OF REQUESTS FOR PRODUCTION OF DOCUMENTS TO DEFENDANT L'OREAL USA, INC.

Pursuant to Rules 26 and 34 of the Federal Rules of Civil Procedure, Plaintiffs University of Massachusetts ("UMass") and Carmel Laboratories, LLC ("Carmel Labs") hereby request that Defendant L'Oréal USA, Inc. ("L'Oréal") produce the following documents and things at the office of Susman Godfrey L.L.P., 1301 Avenue of the Americas, 32nd Floor, New York, NY 10019, or at such other mutually agreed upon place, within 30 days hereof and in the manner required by the Federal Rules of Civil Procedure.

DEFINITIONS

1. The term "UMass" refers to the University of Massachusetts, including any of its past and present affiliates, operating divisions, campuses, subsidiaries, directors, officers, agents, employees, representatives, and all persons acting on its behalf.
2. The term "Carmel Labs" refers to Carmel Laboratories, LLC, including any of its past and present affiliates, operating divisions, parent corporations, subsidiaries, directors, officers, agents, employees, representatives, and all persons acting on its behalf.

3. The terms "Defendant," "You," "Your," or "L'Oréal" shall refer to defendant L'Oréal USA, Inc., and shall include L'Oréal S.A. as well as L'Oréal USA Inc.'s parent, subsidiaries, affiliates, divisions, successors or assignees, and their respective officers, directors, employees, consultants, representatives, and agents.

4. The term "Present Lawsuit" refers to the case styled *University of Massachusetts, et al. v. L'Oréal USA, Inc.*, Case No. 1:17-cv-00868-CFC-SRF, pending in the United States District Court for the District of Delaware.

5. The term "Document" or "Documents" is used in the broadest sense permitted by the Federal Rules of Civil Procedure and means the original (or any copy when originals are not available) and any drafts or non-identical copies thereof, whether different from the original because of interlineations, receipt stamp, notation of copy sent or received or otherwise, of any email, instant message, voicemail, book, pamphlet, periodical, letter, report, note, memorandum, record, minutes, calendar or diary entry, transcript, study, compilation, analysis, tabulation, map, diagram, drawing, plan, picture, summary, working paper, chart, paper, graph index, data sheet, data processing card, computer printout, summary of a computer printout, tape, contract, agreement, lease, ledger, journal, balance sheet, account, invoice, purchase order, receipt, billing record, financial data, financial statement, file, diary, film, trip tickets, telex, teletype or other messages, telegram, expense vouchers, instructions, bulletins or any other writing or recording of information, as well as all tape recordings, computer tapes, discs and other electronic or mechanical recordings, however produced, maintained or reproduced, including information stored in or generated by a computer whether or not ever printed out or displayed, within the possession,

custody or control of Defendant or any of its officers, directors, employees, attorneys, or other agents and/or representatives.

6. The term "Person" means natural person, corporation, firm, company, sole proprietorship, partnership, joint venture, association, institute, or other business, legal or governmental entity or association, including any directors, officers, employees, agents or representatives thereof.

7. The term "Agreement" means a contract, agreement, arrangement, or understanding, formal or informal, oral or written, between two or more persons.

8. The term "Communication" refers to any transfer of information, oral or written, be it in the form of facts, ideas, inquiries, opinions or otherwise, by any means, at any time or place, under any circumstances, and is not limited to transfers between persons, but includes other transfers, such as records and memoranda to the file.

9. The phrase "Relating To" means discussing, describing, referring to, pertaining to, containing, analyzing, studying, reporting on, commenting on, evidencing, constituting, setting forth, considering, recommending, concerning, or pertaining to, in whole or in part.

10. The terms "Asserted Patents" and "Patents-in-Suit" shall mean United States Patents No. 6,423,327 and 6,645,513.

11. The term "'327 Patent" refers to U.S. Patent No. 6,423,327.

12. The term "'513 Patent" refers to U.S. Patent No. 6,645,513.

13. The term "Prior Art" means any evidence qualifying as prior art to the Patents-in-Suit under 35 U.S.C. § 102 and/or 35 U.S.C. § 103.

14. The terms "all" and "each" shall be construed as "and," "each," and "and/or."

15. The term "any" should be understood in either its most or least inclusive sense as will bring within the scope of the topic all responses that might otherwise be construed to be out of its scope.

16. The term "including" shall mean including but not limited to.

17. The terms "relate," "relating," or "related" mean in any way, directly or indirectly, in whole or part, relating to, concerning, referring to, discussing, mentioning, regarding, pertaining to, describing, reflecting, containing, analyzing, studying, reporting on, commenting on, evidencing, constituting, setting forth, considering, recommending, modifying, amending, confirming, endorsing, representing, supporting, qualifying, terminating, revoking, refuting, undermining, canceling, contradicting or negating.

18. The terms "and" and "or" shall be construed disjunctively or conjunctively as necessary to bring within the scope of these topics all information which might otherwise be construed to be outside their scope.

19. References to the singular shall include the plural, and references to the plural shall include the singular as may be appropriate to construe the individual document requests in their broadest form.

20. The masculine form of a noun or pronoun shall be considered to include within its meaning the feminine form of the noun or pronoun, and vice versa as may be appropriate to make the individual document requests inclusive rather than exclusive.

INSTRUCTIONS

1. Responsive documents shall be produced as they have been kept in the usual course of business and shall not be shuffled or otherwise rearranged. Alternatively, you may produce responsive documents organized and labeled to correspond to the enumerated

requests of this demand. If any portion of any document is responsive to any request, then the entire document must be produced. Documents that are found stapled, clipped, or otherwise fastened together shall be produced in such form. If there is no document responsive to any particular category, you shall so state in writing.

2. If any portion of a document is responsive to an individual document request, then the entire document shall be produced. If the document contains privileged material, produce the entire document with the privileged material redacted, noting the redactions on the face of the document.

3. If information stored in, or accessible through, computer or other data retrieval systems is produced, it must be accompanied with instructions and all other materials necessary to use or interpret such data.

4. All documents which cannot be legibly copied should be produced in their original form.

5. Each individual document request set forth herein shall be construed independently and not with reference to any other request for purposes of limitation unless a particular request so specifies.

6. Where specific documents are listed as part of a general category of documents, then such listed documents as well as all other documents falling within such general category shall be produced. If any responsive document is withheld under a claim of privilege, You shall furnish a list specifying each such document and setting forth the following information: (i) the date of the document; (ii) the number of pages of the document; (iii) the name and last known address of each person who prepared or participated in the preparation of the document; (iv) the name and last known address

of each addressee or other person to whom the document, or any part thereof, was sent or to whom the document or its contents, or any part thereof, was disclosed; (v) a summary of the general subject matter of the document (and such other information as is necessary to identify the document such as whether the document is a letter or memorandum); (vi) a statement of the basis upon which the asserted privilege is claimed; and (vii) the individual document request herein to which the document is responsive. If no documents are withheld under a claim of privilege, so state. Any document or part of a document withheld under a claim of privilege must be preserved.

7. If any document responsive to this request once existed but has been destroyed or discarded, or is otherwise not capable of being produced, You shall furnish a list specifying each such document and setting forth the following information: (i) the date of the document; (ii) a description of the subject matter of the document; (iii) the name and last known address of each person who prepared or participated in the preparation of the document; (iv) the name and last known address of each addressee or other person to whom the document, or any part thereof, was sent or to whom the document or its contents, or any part thereof, was disclosed; (v) the name and last known address of any person not covered by items (iii) and (iv) who had possession, custody or control of the document or a copy thereof; (vi) the date on which the document was destroyed or discarded and a statement of the reasons why the document was destroyed or discarded or why such document is not capable of being produced; and (vii) the individual document request herein to which the document is responsive.

8. Unless otherwise specified, the documents requested herein are documents prepared, written, sent, dated, received, or in effect at any time on or after October 26, 1998.

9. This request for documents shall be deemed continuing in nature so as to require prompt supplemental responses in accordance with Rule 26(e) of the Federal Rules of Civil Procedure in the event You become aware of, or acquire within Your possession, custody, or control, additional responsive documents at any time hereafter.

REQUESTS FOR PRODUCTION

REQUEST FOR PRODUCTION NO. 1: All documents mentioning or concerning the Patents-in-Suit or their applications, including parent, divisional, continuation, or continuation-in-part applications, whether or not they mature into patents.

REQUEST FOR PRODUCTION NO. 2: All documents concerning Your knowledge or awareness of the Patents-in-Suit, including documents indicating when You (including any employee, contractor, representative, or agent) became aware of the Patents-in-Suit.

REQUEST FOR PRODUCTION NO. 3: All documents and things on which You rely or intend to rely to assert or establish that Your infringement of the Patents-in-Suit is not willful.

REQUEST FOR PRODUCTION NO. 4: All documents concerning Your policies or practices concerning patent clearances, right-to-use opinions, or other mechanisms to avoid Your infringement of patents.

REQUEST FOR PRODUCTION NO. 5: All documents relating to the methodology used by You to determine value or royalty rates for patents or other proprietary technology, for licensing, tax, accounting or any other purpose.

REQUEST FOR PRODUCTION NO. 6: All documents and things created or gathered prior to

the filing of Plaintiffs' Complaint concerning the results of any prior art search directed to, or relating to, or containing the Patents-in-Suit.

REQUEST FOR PRODUCTION NO. 7: All documents relating to searches or investigations relating to the scope, validity, infringement, or enforceability of the Patents-in-Suit.

REQUEST FOR PRODUCTION NO. 8: All documents concerning any analysis, opinion, or inquiry regarding potential infringement of any claims of the Patents-in-Suit, including but not limited to any documents concerning or relating to pre-litigation investigations performed by or on behalf of You or Your partners, licensors, customers, resellers, or affiliates, relating to the potential infringement by any products made, used, offered for sale, or sold by You or Your partners, licensors, customers, resellers, or affiliates.

REQUEST FOR PRODUCTION NO. 9: All correspondence with counsel and other documents expressing opinions on or concerning validity, invalidity, infringement, non-infringement, enforceability, non-enforceability, or licensing (whether express or implied) of the Patents-in-Suit; any affirmative defense listed in Your Answer to Plaintiffs' Complaint; or any other affirmative defense under Fed. R. Civ. P. Rules 8 or 9. Identify any documents responsive to this Request withheld on grounds of privilege or on any other basis according to Instruction 6.

REQUEST FOR PRODUCTION NO. 10: Any and all documents concerning any analyses or efforts by You to design any products around the Patents-in-Suit.

REQUEST FOR PRODUCTION NO. 11: All documents relating to any communications with Your sales force, agents, dealers, wholesalers, retailers, representatives, distributors, the press, any news wire, or any other third party concerning the Patents-in-Suit, Carmel Labs, UMass, or this lawsuit.

REQUEST FOR PRODUCTION NO. 12: All documents received by You from any third

party that were requested from such third party as part of this litigation, that relate to this litigation, and/or that are responsive to any outstanding request for production served on You as part of this litigation, including (but not limited to) any documents received pursuant to a subpoena.

REQUEST FOR PRODUCTION NO. 13: All documents reflecting communications between You and/or Your counsel and any third party relating to this lawsuit, the Patents-in-Suit, and/or Plaintiffs.

REQUEST FOR PRODUCTION NO. 14: All documents relating or referring to the indemnification or offer to indemnify, or request for indemnification by, any of Your customers, prospective customers, or third-parties with respect to the Patents-in-Suit.

REQUEST FOR PRODUCTION NO. 15: All documents furnished to or shown to any third-party fact witness contacted, interviewed, or consulted by You or Your agents or attorneys in connection with the Patents-in-Suit.

REQUEST FOR PRODUCTION NO. 16: All documents that refer or relate to any document that You believe is relevant to the construction or interpretation of any claim of any of the Patents-in-Suit.

REQUEST FOR PRODUCTION NO. 17: All documents that support or relate to any affirmative defense or counterclaim You have asserted.

REQUEST FOR PRODUCTION NO. 18: All documents concerning Your contentions on reasonable royalties pursuant to 35 U.S.C. § 284 for any infringement of the Patents-in-Suit.

REQUEST FOR PRODUCTION NO. 19: All documents that refer or relate to any prior art reference that You believe anticipates or renders obvious of the Patents-in-Suit.

REQUEST FOR PRODUCTION NO. 20: All documents that set forth Your document

destruction and retention policies.

REQUEST FOR PRODUCTION NO. 21: For the years 2009 to the present, all of Your annual reports, required financial filings and other financial statements, including but not limited to statements of operations, profit and loss statements, income statements, balance sheets, statements of changes in retained earnings, and internal management reports and notes thereto, whether the notes are for internal or external report purposes.

REQUEST FOR PRODUCTION NO. 22: All documents that refer or relate to U.S. Patent Application No. 10/701,495, 11/152,707, 12/649,367.

REQUEST FOR PRODUCTION NO. 23: All documents that refer or relate to U.S. Patents No. 9,018,177; 9,023,826; 9,072,919; and 9,107,853.

REQUEST FOR PRODUCTION NO. 24: All documents relating to any communications between You and Carmel Labs, UMass, or the inventors of the Patents-in-Suit.

REQUEST FOR PRODUCTION NO. 25: All documents relating to any testing You have performed regarding penetration of adenosine into the skin.

REQUEST FOR PRODUCTION NO. 26: All Your issued patents or patent applications that relate or refer to adenosine.

REQUEST FOR PRODUCTION NO. 27: All documents in Your possession or control relating or referring to adenosine, including but not limited to documents related to Your decision to include adenosine as an ingredient in Your products.

REQUEST FOR PRODUCTION NO. 28: All documents relating to any testing You have performed relating to or regarding adenosine, including but not limited to any communications referring or relating to the results of such testing.

REQUEST FOR PRODUCTION NO. 29: All documents relating to Plaintiffs' Interrogatories.

REQUEST FOR PRODUCTION NO. 30: For each product identified in response to Interrogatory No. 3, provide a sample of that product as well as the product packaging, any instruction that are provided to consumers with that product, and any marketing materials related to that product.

REQUEST FOR PRODUCTION NO. 31: All documents referring or relating to your efforts to market and/or sell products containing adenosine.

REQUEST FOR PRODUCTION NO. 32: All documents referring or relating to any benefit from using adenosine on human skin.

REQUEST FOR PRODUCTION NO. 33: All documents relating or referring to an article entitled "Formulation, characterization, and efficacy of an adenosine-containing dissolvable film for a localized anti-wrinkle effect," by J.Y. Legendre, I. Schnitzler, Q-Y. Li, C. Hausen, M. Huart, G. S. Luengo, M. L. Abella, and M. Roreger.

REQUEST FOR PRODUCTION NO. 34: All documents relating or referring to an article entitled "Evaluation of anti-wrinkle efficacy of adenosine-containing products using the FOITS technique," by M.L. Abella.

DATED: July 15, 2019

FARNAN LLP

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Attorney for University of Massachusetts

CERTIFICATE OF SERVICE

I, Brian E. Farnan, hereby certify that on July 15, 2019, a copy of University of Massachusetts and Carmel Laboratories, LLC's First Set of Requests for Production of Documents to Defendant L'Oreal USA, Inc. was served on the following as indicated:

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Brian E. Farnan (Bar No. 4089)

EXHIBIT 9

REDACTED

EXHIBIT 10

US 20040146474A1

(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2004/0146474 A1**

Galey (43) **Pub. Date: Jul. 29, 2004**

(54) **METHOD FOR SOFTENING LINES AND RELAXING THE SKIN WITH ADENOSINE AND ADENOSINE ANALOGUES**

(75) Inventor: **Jean-Baptiste Galey**, Aulnay-Sous-Bois (FR)

Correspondence Address:
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(73) Assignee: **L'OREAL**, Paris (FR)

(21) Appl. No.: **10/701,495**

(22) Filed: **Nov. 6, 2003**

Related U.S. Application Data

(60) Provisional application No. 60/432,634, filed on Dec. 12, 2002.

(30) **Foreign Application Priority Data**

Nov. 26, 2002 (FR) 0214828

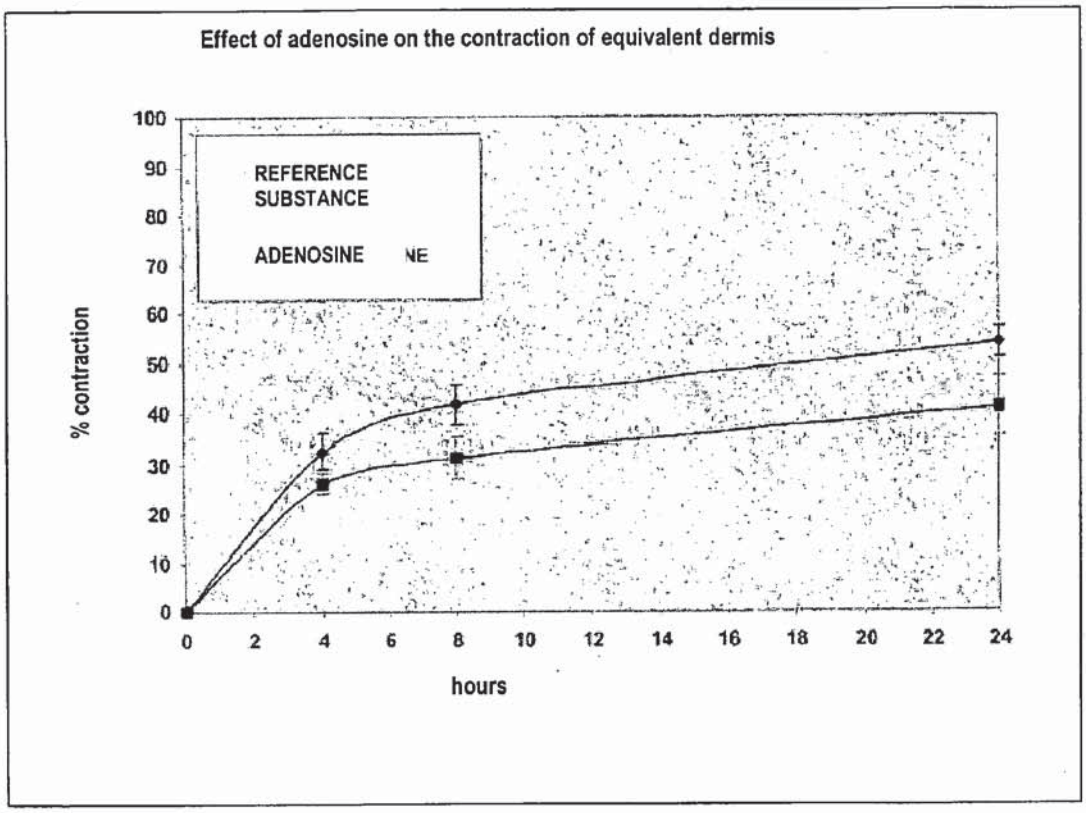
Publication Classification

(51) **Int. Cl.**[7] **A61K 7/06**; A61K 7/11; A61K 31/7076

(52) **U.S. Cl.** **424/70.13**; 514/47

(57) **ABSTRACT**

The present invention concerns a method for softening lines and/or relaxing the skin with adenosine and/or an analogue of adenosine.


Effect of adenosine on the contraction of equivalent dermis
REFERENCE SUBSTANCE
ADENOSINE
% contraction
hours
0
10
20
30
40
50
60
70
80
90
100
0
2
4
6
8
10
12
14
16
18
20
22
24

METHOD FOR SOFTENING LINES AND RELAXING THE SKIN WITH ADENOSINE AND ADENOSINE ANALOGUES

REFERENCE TO PRIOR APPLICATIONS

[0001] This application claims priority to U.S. provisional application 60/432,634 filed Dec. 12, 2002, and to French patent application 0214828 filed Nov. 26, 2002, both incorporated herein by reference.

FIELD OF THE INVENTION

[0002] The present invention relates to a method for softening lines and/or relaxing the skin, and/or relaxing facial features, comprising topical application to the skin of a composition comprising at least one compound selected from the group consisting of adenosine and analogues of adenosine, in a physiologically acceptable medium. Particular uses of the invention composition include the decreasing of wrinkles, the reduction in laugh lines, the reduction in frown lines, etc.

[0003] It also relates to the use of at least one compound as defined above, in a composition suitable for topical application to the skin, as an agent intended to soften lines and/or relax the skin and/or relax facial features.

[0004] Additional advantages and other features of the present invention will be set forth in part in the description that follows and in part will become apparent to those having ordinary skill in the art upon examination of the following or may be learned from the practice of the present invention. The advantages of the present invention may be realized and obtained as particularly pointed out in the appended claims. As will be realized, the present invention is capable of other and different embodiments, and its several details are capable of modifications in various obvious respects, all without departing from the present invention. The description is to be regarded as illustrative in nature, and not as restrictive.

BACKGROUND OF THE INVENTION

[0005] Women and, increasingly, men have a tendency to want to appear young for as long as possible, and so they seek to tone down signs of ageing in the skin, primarily wrinkles and fine lines. Thus, advertisements and the fashion industry promote products intended to keep the skin radiant and wrinkle-free, the trade marks of a young skin, for as long as possible. Furthermore, physical appearance has an effect on psyche and/or morale.

[0006] Until now, wrinkles and fine lines have been treated using cosmetic products containing active ingredients that have an effect on the skin, for example by moisturizing it or improving cell renewal, or by encouraging the synthesis of collagen from which cutaneous tissue is formed, or by preventing its degradation.

[0007] Although such treatments can have an effect on wrinkles and fines lines due to chronological or intrinsic ageing, and on those cells due to photo-ageing, they do not have any effect on expression lines.

[0008] Expression lines are produced by mechanisms that differ from those generating lines due to ageing.

[0009] More precisely, they are produced by the stress exerted on the skin by the facial muscles which produce facial expressions. Depending on the shape of the face, the frequency of expressions and the existence of any tics, they can appear in childhood. Age and some environmental factors such as exposure to the sun do not have any effect on their genesis but can make them deeper and render them permanent.

[0010] Expression lines are characterized by the presence of furrows at the periphery of the orifices, namely the nose (nasogenic furrows), the mouth (parabuccal lines and bitterness lines) and the eyes (crows feet) around which the facial muscles are located, and also between the eyebrows (glabellar lines or frown lines) and on the forehead.

[0011] Until now, the only routine means for dealing with expression lines are botulinum toxin, which is injected into the glabellar lines (see J. D. Carruthers et al, *J. Dermatol. Surg. Oncol.,* 1992, 18, pp 17-21) and degradable collagen-based, hyalruonic acid-based or polylactic acid-based implants.

[0012] Further, as an alternative to those medical techniques requiring the services of a skilled practician, the Applicant has proposed a number of compounds that can provide a myorelaxing effect when topically applied to the skin and which allow expression lines to be dealt with in a different manner. Examples of such compounds that can be cited are antagonists for receptors associated with calcium channels (French application FR-A-2 793 681), and in particular manganese and its salts (FR-A-2 809 005) and alverine (FR-A-798 590); and agonists for receptors associated with the chlorine channel, including glycine (EP-A-0 704 210) and certain extracts of *Iris pallida* (FR-A-2 746 641).

[0013] However, there is still a need for effective compounds for relaxing the skin with a view to smoothing or toning down expression lines.

BRIEF DESCRIPTION OF THE FIGURE

[0014] **FIG. 1** illustrates the contraction over time of an equivalent dermis treated with adenosine.

DETAILED DESCRIPTION OF THE INVENTION

[0015] As noted above, the present invention relates to a method for softening lines and/or relaxing the skin, and/or relaxing facial features, comprising topical application to the skin of a composition comprising at least one compound selected from the group consisting of adenosine and analogues of adenosine, in a physiologically acceptable medium. Particular uses of the invention composition include the decreasing of wrinkles, the reduction in laugh lines, the reduction in frown lines, etc.

[0016] The inventor has surprisingly discovered that adenosine and its analogues can satisfy the above need for effective compounds for relaxing the skin with a view to smoothing or toning down expression lines, relaxing the skin, relaxing facial features, decreasing wrinkles, reducing laugh lines, reducing frown lines, etc. More precisely, the inventor has demonstrated that adenosine and its analogues can relax the dermal contractile cells which are believed to be involved in the genesis of expression lines, etc. It is

believed that the phenotype of certain fibroblasts located along the tension lines created under the effect of contraction of facial muscles when making a facial expression is progressively modified under the effect of said contractions, endowing said fibroblasts with particular contractile properties. Relaxing those cells would thus combat expression lines. Of course, the inventor is not bound by any theory of operation.

[0017] In the pharmaceutical field, adenosine is administered orally or intravenously as a vasodilator and an antiarrythmic.

[0018] In the cosmetics field, it has been suggested, in U.S. Pat. No. 6,423,327 and U.S.-2003/044439, that adenosine or an analogue of adenosine be used in a composition that is topically applied to the skin to improve skin condition and in particular to combat lines, skin laxity, skin dryness and pigmentary blemishes. It was indicated that adenosine increases the size of fibroblasts and increases the synthesis of proteins by fibroblasts.

[0019] In the same field, documents WO-A-01/43704, U.S. Pat. No. 3,978,213, U.S. Pat. No. 5,371,089, German patents DE-195 45 107 and DE-200 22 691 disclose compositions with an anti-ageing effect comprising adenosine or an adenosine analogue.

[0020] None of those documents suggests that adenosine could have a relaxing effect on contractile fibroblasts.

[0021] Thus, the present invention provides a method for softening lines and/or relaxing the skin, comprising topical application to the skin of a composition comprising at least one compound selected from adenosine and an analogue of adenosine, in a physiologically acceptable medium.

[0022] It also concerns the use of at least one compound as defined above in a composition adapted for topical application to the skin as an agent for softening lines and/or relaxing the skin.

[0023] The present invention further provides a method for softening lines and/or relaxing the skin, comprising topical application to the skin of an amount of a composition comprising at least one compound selected from the group consisting of adenosine and analogues of adenosine, in a physiologically acceptable medium, effective to provide a relaxing effect on contractile fibroblasts.

[0024] Adenosine analogues that can be used in accordance with the invention and can be cited as particularly useful herein include agonists of adenosine receptors and compounds increasing intra- or extra-cellular adenosine levels.

[0025] Examples of adenosine analogues include: 2'-deoxyadenosine; 2',3'-isopropoylidene adenosine; toyocamycin; 1-methyladenosine, N-6-methyladenosine; adenosine N-oxide; 6-methylmercaptopurine riboside; 6-chloropurine riboside; 5'-adenosine monophosphate; 5'-adenosine diphosphate and 5'-adenosine triphosphate.

[0026] Other adenosine analogues include agonists of adenosine receptors, including phenylisopropyl adenosine (PIA), 1-methylisoguanosine, N^6-cyclohexyl adenosine (CHA), N^6-cyclopentyl adenosine (CPA), 2-chloro-N-6-cyclopentyladenosine, 2-chloroadenosine, N^6-phenyladenosine, 2-phenylaminoadenosine, MECA, N^6-phenethyladenosine, 2-p-(2-carboxyethyl)-phenethyl-amino-5'-N-ethylcarboxamido-adenosine (CGS-21680), N-ethylcarboxamido-adenosine (NECA), 5'-(N-cyclopropyl)-carboxamidoadenosine, DPMA (PD 129,944) and metrifudil.

[0027] Other adenosine analogues include compounds which increase the intracellular concentration of adenosine such as erythro-9-(2-hydroxy-3-nonyl) adenine (EHNA) and iodotubercidin.

[0028] Other adenosine analogues include salts and esters of adenosin.

[0029] Adenosine is preferred for use in the present invention. It is commercially available in the form of a powder from PHARMA WALDHOF.

[0030] The composition in accordance with the invention is preferably intended to be applied to zones of the face or forehead marked with expression lines and/or to persons having expression lines.

[0031] The lines concerned are preferably selected from: crow's feet, nasogenic furrows, inter-eyebrow lines and forehead lines.

[0032] The quantity of adenosine and/or adenosine analogue for use in accordance with the invention is a function of the desired effect and can thus vary widely. To provide an order of magnitude, the composition of the invention can comprise 0.001% to 10% by weight, preferably 0.01% to 1% by weight of adenosine and/or adenosine analogue with respect to the total composition weight.

[0033] The composition of the invention is suitable for topical application to the skin and thus it contains a physiologically acceptable medium, i.e. a medium that is compatible with the skin. Such media can comprise water, C1-C8, preferably C1-C4, alcohols, etc.

[0034] This composition can be fluid to a greater or lesser extent and can have the appearance of a white or coloured cream, a pommade, milk, serum, paste or foam. It can also be in the form of a solid, in particular in the form of a stick. It can be used as a skin care product and/or as a skin makeup product.

[0035] The composition of the invention can be in any form, including any of the galenical forms that are normally used in the cosmetics field; in particular, it can be in the form of an aqueous, possibly gelled solution, a lotion type dispersion which may be a two-phased dispersion, an emulsion obtained by dispersing an oily phase in an aqueous phase (O/W) or vice versa (W/O), a triple emulsion (W/O/W or O/W/O) or an ionic and/or nonionic vesicular type dispersion. Said compositions are prepared using the usual methods. Preferably, a composition in the form of an oil-in-water emulsion is used in the present invention.

[0036] When the composition used in the invention is an emulsion, the proportion of oily phase can be from 5% to 80% by weight, preferably 5% to 50% by weight with respect to the total composition weight. Oils, emulsifying agents and co-emulsifying agents used in the composition in the emulsion form are selected from those conventionally used in the field under consideration. The emulsifying agent and co-emulsifying agent are present in the composition in

a proportion of 0.3% to 30% by weight, preferably 0.5% to 20% by weight with respect to the total composition weight.

[0037] Oils that can be used in the invention that can be cited are hydrocarbons of mineral or synthetic origin (Vaseline oil, isohexadecane), oils of plant origin (apricot kernel oil, the liquid fraction of karite butter oil, avocado, soya oil), oils of animal origin (lanolin), synthesized oils (perhydrosqualene, pentaerythrityl tetraoctanoate), silicone oils (cyclopentasiloxane and cyclohexasiloxane) and fluorinated oils (perfluoropolyethers). It is also possible to use fatty alcohols (cetyl alcohol or stearyl alcohol), fatty acids (stearic acid) or waxes (carnauba wax, ozokerite, beeswax) as the oily materials.

[0038] Examples of emulsifying and co-emulsifying agents that can be used in the invention that can be cited are esters of fatty acids and polyethylene glycol such as PEG-100 stearate and PEG-20 stearate and esters of fatty acids and glycerin such as glyceryl stearate.

[0039] The composition of the invention can also contain adjuvants, including those that are normal in the cosmetics field, such as hydrophilic or lipophilic gelling agents, hydrophilic or lipophilic active ingredients, preservatives, antioxidants, solvents, perfumes, fillers, filters, pigments, odour absorbers and colorants. The quantities of these different adjuvants are those that are conventionally used in the field under consideration, for example 0.01% to 20% of the total composition weight. Depending on their nature, such adjuvants can be introduced into the oily phase, into the aqueous phase or into the lipid vesicles. In all cases, said adjuvants and the proportions thereof should be selected so that they do not deleteriously affect the desired properties of the adenosine/analogue.

[0040] Particular examples of hydrophilic gelling agents that can be cited are carboxyvinyl polymers (carbomers), acrylic copolymers such as acrylate/alkylacrylate copolymers, polyacrylamides, polysaccharides, natural gums and clays, and examples of lipophilic gelling agents that can be cited are modified clays such as bentonites, metal salts of fatty acids, hydrophobic silicon and polyethylenes.

[0041] Examples of preservatives that can be cited are esters of para-hydroxybenzoic acid, octane-1,2-diol, 3-iodo-2-propynyl-butylcarbamate, phenoxyethanol and chlorhexidine gluconate.

[0042] Examples of fillers that can be cited are polyamide (Nylon) particles; polymethyl methacrylate microspheres; ethylene-acrylate copolymer powders; expanded powders such as hollow microspheres and in particular, microspheres formed from a terpolymer of vinylidene chloride, acrylonitrile and methacrylate and sold by Kemanord Plast under the trade name EXPANCEL; powders of natural organic materials such as starch powders, in particular corn starch, wheat starch or rice starch, which may or may not be cross-linked, such as starch powder cross-linked with octenyl succinate anhydride; silicone resin microbeads such as those sold by Toshiba Silicone under the trade name TOSPEARL; silica; metal oxides such as titanium dioxide or zinc oxide; mica; and mixtures thereof.

[0043] As indicated above, the composition of the invention can also include UVA and/or UVB filters in the form of organic or inorganic compounds, the latter optionally being coated to render them hydrophobic.

[0044] More particularly preferred organic filters are selected from the following compounds (cited using the CTFA nomenclature): Ethylhexyl Salicylate, Ethylhexyl Methoxycinnamate, Octocrylene, Phenylbenzimidazole Sulfonic Acid, Benzophenone-3, Benzophenone-4, Benzophenone-5,4-Methylbenzylidene camphor, Terephthalylidene Dicamphor Sulfonic Acid, Disodium Phenyl Dibenzimidazole Tetra-sulfonate, 2,4,6-tris-(diisobutyl-4'-aminobenzalmalonate)-s-triazine, Anisotriazine, Ethylhexyl triazone, Diethylhexyl Butamido Triazone, Methylene bis-Benzotriazolyl Tetramethylbutylphenol, Drometrizole Trisiloxane, 1,1-dicarboxy-(2,2'-dimethylpropyl)-4,4-diphenylbutadiene and mixtures thereof.

[0045] The inorganic filters are preferably constituted by an oxide of zinc, iron, zirconium, cerium and/or titanium (amorphous or crystalline in the form of rutile and/or anatase), preferably of nanometric dimensions (mean primary particle size: generally in the range 5 nm to 100 nm, preferably in the range 10 nm to 50 nm), optionally coated with alumina and/or stearic acid.

[0046] The invention will now be illustrated by the following non-limiting examples. In said examples, reference will be made to the accompanying FIGURE which illustrates the contraction over time of an equivalent dermis treated with adenosine.

EXAMPLES

Example 1

Determination of Dermo-Relaxant Effect of Adenosine

[0047] a) Principle of the Test

[0048] The principle of this test is to study the relaxing effect of adenosine on an equivalent dermis model constituted by a matrix of collagen seeded with normal human fibroblasts.

[0049] These conditions were intended to imitate in vitro the dermal contractile phenomena which occur during facial expressions. Under these conditions, cells spontaneously express tensile forces which induce retraction of the collagen gel. This results in a reduction in the total surface area of the equivalent dermis over time. Measuring that surface area allows the relaxation effects of substances that have been brought into contact with the equivalent dermis to be determined.

[0050] b) Protocol

[0051] Two series of 3 attached equivalent dermises containing normal human fibroblasts were prepared: a control series with no treatment, and a series treated with adenosine (0.01%). The experiment was carried out three times.

[0052] The skin equivalents were prepared as described by Asselineau et al, *Exp. Cell. Res.*, 1985, 159, 536-539; Models in Dermatology, 1987, vol 3, pp 1-7, in the following proportions:

MEM medium (1.76X) with or without adenosine:	45%
Foetal calf serum:	9%
NaOH (0.1 N):	5%
Acetic acid (1/1000):	4%
Collagen:	26%
Fibroblasts:	11%

[0053] The treated equivalent dermis differed from the control equivalent dermis in that 0.01% of adenosine had been added.

[0054] The collagen used was type I collagen (commercial solution), but it was also possible to use type III or IV collagen. It was extracted from rat tails or calf skin by acid hydrolysis and stored in an acidic medium at +4° C.; it polymerizes naturally by heating to 37° C. and by reducing the acidity. The collagen had been dialyzed against successive baths of water+acetic acid.

[0055] The following protocol was employed: the following were introduced into a sterile tube: 1.76×MEM medium in the presence of additives (glutamine 1%, non essential amino acids 1%, sodium pyruvate 1%, fungizone 1% and penicillin/streptomycin 1%), foetal calf serum, 0.1 N sodium hydroxide NaOH. Fibroblasts isolated from human skin explants were then added in a concentration of 1.4×10^5 cells per ml of culture medium.

[0056] A 1/1000 vol/vol mixture of collagen in acetic acid was then slowly added by pouring it down the tube wall so that the appearance of a whitish cloud was observed.

[0057] The ensemble was then carefully mixed and distributed into the wells of a 12-well culture plate (Costar, reference 3512) in an amount of 0.5 ml of mixture per cm^2. The culture plate was placed in an incubator at 37° C. with 5% CO_2.

[0058] Once formed after polymerizing the collagen, the equivalent dermises were left adhering to the culture support for 3 days then detached from the support so that contraction could commence. Said attached equivalent dermises were removed from the incubator to record images with a view to measuring their surface area at each point of the contraction kinetics (0, 4, 8 and 24 hours). They were immediately replaced in the incubator between each measuring point.

[0059] The spontaneous contraction of the treated (with adenosine) equivalent dermises and control (no adenosine) equivalent dermises was carried out by measuring their surface area at different times after the onset of spontaneous contraction.

[0060] To this end, a digital image was acquired for each treated or untreated equivalent dermis using a camera (CCD Camera—Iris Sony DXC—107P) and the surface area was then calculated for each image using an image analysis system (Zeiss Axiovision 3.0). This surface area measurement corresponded to a percentage contraction which equals the ratio of the surface areas in accordance with the formula:

$$\%\ \text{contraction}=(Sp-Si)/Sp\times100$$

[0061] in which:

[0062] "Sp" represents the surface area of one well in the culture plate; it corresponds to the total surface area of the equivalent dermis before contraction;

[0063] "Si" represents the surface area of the equivalent dermis at the instant i in the contraction kinetics.

[0064] c) Results

[0065] As shown in the accompanying FIGURE, the degree of contraction of the control equivalent dermis was 32% four hours after having been detached from its support. It increased to 42% after eight hours and reached 54% after twenty-four hours.

[0066] Adenosine reduced this contraction percentage by 6.4% after four hours, 10.5% after eight hours and 12.7% after twenty-four hours compared with the control.

[0067] Thus, this test demonstrates that adenosine causes less contraction in an equivalent dermis, and thus has a relaxing effect which can be exploited in the preparation of compositions with a dermo-relaxant effect. As used herein, the relaxing effect is noted any time less contraction is observed, including less than 1%, 1%, 3%, 5%, etc.

Example 2

Cosmetic Composition

[0068] This composition was prepared in a manner that was conventional for the skilled person. The quantities given in this example are indicated as percentages by weight.

Adenosine	0.10%
Stearic acid	3.00%
Mixture of glyceryl monostearate and polyethylene glycol stearate (100 OE)	2.50%
Polyethylene glycol stearate (20 OE)	1.00%
Cyclopentadimethylsiloxane	10.00%
Fillers	3.00%
Vegetable oils	7.00%
Synthetic oils	6.00%
Preservatives	1.20%
Dimethylsiloxane, oxyethylenated (16 OE) with methoxy extremities	1.00%
Silicone gum	0.20%
Acrylic copolymer, in reverse emulsion (Simulgel 600 from SEPPIC)	1.70%
Stearyl alcohol	1.00%
Water	qsp 100%

[0069] This cream was intended for application to the face and forehead to soften lines and relax the skin of the face.

[0070] The above written description of the invention provides a manner and process of making and using it such that any person skilled in this art is enabled to make and use the same, this enablement being provided in particular for the subject matter of the appended claims, which make up a part of the original description and including a cosmetic method for softening lines and/or relaxing the skin, and/or for relaxing facial features ("detendre les traits") comprising topical application to the skin of a composition comprising at least one compound selected from adenosine and an analogue of adenosine, in a physiologically acceptable medium. Similarly, the invention composition can decrease wrinkles, reduce laugh lines, reduce frown lines, etc.

[0071] Preferred embodiments of the invention similarly fully described and enabled include use of at least one compound selected from adenosine and an adenosine analogue in a composition suitable for topical application to the skin, as an agent intended to soften lines and/or relax the skin, and the use of the invention compositions in an amount effective to provide a relaxing effect on contractile fibroblasts.

[0072] As used above, the phrases "selected from the group consisting of" and "selected from" include mixtures of the specified materials.

[0073] All references, patents, applications, tests, standards, documents, publications, brochures, texts, articles, etc. mentioned herein are incorporated herein by reference. Where a numerical limit or range is stated, all values and subranges therewithin are specifically included as if explicitly written out.

[0074] The above description is presented to enable a person skilled in the art to make and use the invention, and is provided in the context of a particular application and its requirements. Various modifications to the preferred embodiments will be readily apparent to those skilled in the art, and the generic principles defined herein may be applied to other embodiments and applications without departing from the spirit and scope of the invention. Thus, this invention is not intended to be limited to the embodiments shown, but is to be accorded the widest scope consistent with the principles and features disclosed herein.

1. A method for softening lines and/or relaxing the skin and/or relaxing facial features, comprising topically applying to the skin a composition comprising at least one compound selected from the group consisting of adenosine and adenosine analogues, in a physiologically acceptable medium.

2. The method according to claim 1, wherein said composition comprises an adenosine analogue selected from the group consisting of: agonists of adenosine receptors, compounds increasing intra- or extra-cellular adenosine levels, and mixtures thereof.

3. The method according to claim 1, wherein said composition comprises at least one adenosine analogue selected from the group consisting of: 2'-deoxyadenosine; 2',3'-isopropylidene adenosine; toyocamycin; 1-methyladenosine, N-6-methyladenosine; adenosine N-oxide; 6-methylmercaptopurine riboside; 6-chloropurine riboside; 5'-adenosine monophosphate; 5'-adenosine diphosphate and 5'-adenosine triphosphate; phenylisopropyl adenosine, 1-methylisoguanosine, N^6-cyclohexyladenosine, N^6-cyclopentyladenosine, 2-chloro-N^6-cyclopentyladenosine, 2-chloroadenosine, N^6-phenyladenosine, 2-phenylaminoadenosine, MECA, N^6-phenethyladenosine, 2-p-(2-carboxyethyl)phenethyl-amino-5'-N-ethylcarboxamidoadenosine, N-ethylcarboxamidoadenosine, 5'-(N-cyclopropyl)-carboxamidoadenosine, DPMA and metrifudil; erythro-9-(2-hydroxy-3-nonyl) adenine and iodotubercidin.

4. The method according to claim 1, wherein the composition comprises 0.01% to 1% by weight of adenosine and/or adenosine analogue with respect to the total composition weight.

5. The method according to claim 2, wherein the composition comprises 0.01% to 1% by weight of adenosine and/or adenosine analogue with respect to the total composition weight.

6. The method according to claim 3, wherein the composition comprises 0.01% to 1% by weight of adenosine and/or adenosine analogue with respect to the total composition weight.

7. The method of claim 1, wherein the composition is applied to one or more zones of the face or forehead marked with expression lines and/or to persons having expression lines.

8. The method of claim 1, wherein said composition comprises adenosine.

9. The method of claim 4, wherein said composition comprises adenosine.

10. The method according to claim 1, comprising topically applying to the skin an amount of said composition effective to provide a relaxing effect on contractile fibroblasts.

11. The method according to claim 10, wherein said composition comprises an adenosine analogue selected from the group consisting of: agonists of adenosine receptors, compounds increasing intra- or extra-cellular adenosine levels, and mixtures thereof.

12. The method according to claim 10, wherein said composition comprises at least one adenosine analogue selected from the group consisting of: 2'-deoxyadenosine; 2',3'-isopropylidene adenosine; toyocamycin; 1-methyladenosine, N-6-methyladenosine; adenosine N-oxide; 6-methylmercaptopurine riboside; 6-chloropurine riboside; 5'-adenosine monophosphate; 5'-adenosine diphosphate and 5'-adenosine triphosphate; phenylisopropyl adenosine, 1-methylisoguanosine, N^6-cyclohexyladenosine, N^6-cyclopentyladenosine, 2-chloro-N^6-cyclopentyladenosine, 2-chloroadenosine, N^6-phenyladenosine, 2-phenylaminoadenosine, MECA, N^6-phenethyladenosine, 2-p-(2-carboxyethyl)phenethyl-amino-5'-N-ethylcarboxamidoadenosine, N-ethylcarboxamidoadenosine, 5'-(N-cyclopropyl)-carboxamidoadenosine, DPMA and metrifudil; erythro-9-(2-hydroxy-3-nonyl) adenine and iodotubercidin.

13. The method according to claim 10, wherein the composition comprises 0.01% to 1% by weight of adenosine and/or adenosine analogue with respect to the total composition weight.

14. The method according to claim 11, wherein the composition comprises 0.01% to 1% by weight of adenosine and/or adenosine analogue with respect to the total composition weight.

15. The method according to claim 12, wherein the composition comprises 0.01% to 1% by weight of adenosine and/or adenosine analogue with respect to the total composition weight.

16. The method of claim 10, wherein the composition is applied to one or more zones of the face or forehead marked with expression lines and/or to persons having expression lines.

17. The method of claim 10, wherein said composition comprises adenosine.

18. The method of claim 13, wherein said composition comprises adenosine.

19. The method of claim 1, wherein said composition comprises adenosine and at least one adenosine analogue.

20. The method of claim 10, wherein said composition comprises adenosine and at least one adenosine analogue.

21. The method of claim 1, comprising topically applying to the skin an effective amount of said composition to decrease wrinkles and/or reduce laugh lines and/or reduce frown lines.

22. The method of claim 8, comprising topically applying to the skin an effective amount of said composition to decrease wrinkles and/or reduce laugh lines and/or reduce frown lines.

* * * * *

EXHIBIT 11

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/701,495	11/06/2003	Jean-Baptiste Galey	232979US0	7627

22850 7590 10/17/2008

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ART UNIT	PAPER NUMBER
1623	

NOTIFICATION DATE	DELIVERY MODE
10/17/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/701,495	GALEY, JEAN-BAPTISTE	
	Examiner	Art Unit	
	MICHAEL C. HENRY	1623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 July 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6,8-15 and 17-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6, 8-15, 17-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

The following office action is a responsive to the amendment filed, 07/03/08.

The amendment filed 07/03/08 affects the application, 10/701,495 as follows:

1. Claims 1, 4-6, 13-15, 23 have been amended. Applicants' amendments have overcome the rejections made under 35 U.S.C. 102(b) with Dobson et al. Consequently, the said rejections are withdrawn. However, the rejections made under 35 U.S.C. 103(a) with Dobson et al. and under 35 U.S.C. 102(b) with Lapinet et al. the are maintained

2. The responsive to applicants' arguments is contained herein below.

Claims 1-6, 8-15, 17-23 are pending in application

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1-2, 4, 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Lapinet et al. (US 3,978,213).

In claim 1, applicant claims "A method for softening expression lines on a face and/or forehead in need thereof, comprising topically applying a composition to one or more zones of the face or forehead marked with expression lines a composition comprising at least one compound selected from the group consisting of adenosine and adenosine analogues and a physiologically acceptable medium, wherein the composition comprises 0.1% to 10% by weight of adenosine and/or adenosine analogue with respect to the total composition weight." Lapinet

et al. disclose applicant's method of softening and enhancing the natural elasticity of the skin comprising applying topically to human skin a composition comprising an adenosine analogue, cyclic 3',5'-adenosine monophosphate (see claims 1-2 and col. 2, line 48- col. 4, line 7). It should be noted that the application of the composition to skin also encompasses the skin on the face and forehead and especially since that is where wrinkles (including expression lines) generally occur. Furthermore, it should be noted that the examiner considers that the softening of skin also includes a softening of lines especially since Lapinet also disclose that wrinkles (expression lines) are decreased (softened) by said treatment (see col. 4, lines 3-7) and that said treatment is applied to soften and soothe human skin that is wrinkled and dry (see col. 1, lines 47-52). It must also be noted that Lapinet et al. apply the same composition to the skin of the same subject as applicant and consequently it should have the same inherent effect of softening of expression lines. Claim 2, which is drawn to the method according to claim 1 wherein said composition comprises an adenosine analogue, is also encompassed by this rejection, since Lapinet et al.'s composition also comprises the adenosine analogue, cyclic 3',5'-adenosine monophosphate (see claims 1-2 and col. 2, line 48- col. 4, line 7). It should be noted that the application of the composition to skin also encompasses the skin on the face and forehead and especially since that is where wrinkles (including expression lines) generally occur. Furthermore, it should be noted that the examiner considers that the softening of skin also includes a softening of lines especially since Lapinet also disclose that wrinkles (expression lines) are decreased (softened) by said treatment (see col. 4, lines 3-7) and that said treatment is applied to soften and soothe human skin that is wrinkled and dry (see col. 1, lines 47-52). It must also be noted that Lapinet et al. apply the same composition to the skin of the same subject

as applicant and consequently it should have the same inherent effect of softening of expression lines. Claims 4 and 5 which are drawn to said method wherein the composition comprises specific % by weight of adenosine and/or adenosine analogue, are also anticipated by Lapinet et al. (see claims 1-2 and col. 2, line 48- col. 4, line 7).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-6, 8-15, 17-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dobson et al. (US 6,423,327 B1).

In claim 1, applicant claims "A method for softening expression lines on a face and/or forehead in need thereof, comprising topically applying a composition to one or more zones of the face or forehead marked with expression lines a composition comprising at least one compound selected from the group consisting of adenosine and adenosine analogues and a physiologically acceptable medium, wherein the composition comprises 0.1% to 10% by weight of adenosine and/or adenosine analogue with respect to the total composition weight." Claim 8 is drawn to a method of claim 1, wherein said composition comprises adenosine. Claims 21 and 22 are drawn to a method of claims 1 and 8 respectively, comprising the topical application to the skin an effective amount of said composition to reduce laugh lines and/or reduce frown lines.

Dobson et al. disclose a method for enhancing the condition of skin in a mammal by reducing (softening) wrinkles, roughness, dryness, or laxity of the skin, comprising topically applying to the skin a composition comprising adenosine (see claim 1 and claims 2-10). It should be noted that the application of the composition to skin also encompasses the skin on the face and forehead and especially since that is where wrinkles (including expression lines) generally occur. Furthermore, "expression lines" are referred to as types of wrinkles. That is, expression lines are wrinkles. Applicant's attention is drawn to Exhibit A and B which disclose that expression lines are forms of wrinkles. Exhibit A states that "The wrinkles that seem to bother us most are "character" or "expression" lines" (see page 1, 1st line of 2nd paragraph). In addition, Exhibit B sates that "Natural expressions that use specific facial muscles may cause some wrinkles called "expression lines" to reappear" (see page 4, 2nd paragraph, lines 2-3). Thus, these exhibits disclose that expression lines are wrinkles. It must also be noted that Dobson et al. apply the same composition to the skin of the same subject as applicant and consequently it should have the same inherent effect of softening of expression lines. Dobson et al.'s composition also reduces wrinkles (which includes frown lines and laugh lines-types of wrinkles) and contains adenosine (see claim 1 and claims 2-10). It should be noted that the application of the composition to skin also encompasses the skin on the face and forehead and especially since that is where wrinkles (including expression lines) generally occur. Furthermore, Applicant's attention is drawn to Exhibit C which discloses that expression lines and frown lines are different forms of wrinkles (i.e., dynamic wrinkles). For example, Exhibit C states that "Dynamic wrinkles typically form across the **forehead**, between the eyebrows (**frown lines**), and on the sides of the eyes ("crow's feet") (see page 1, 2nd paragraph and entire article).

The difference between applicant's claimed method and the method of Dobson et al. is that Dobson et al. do not disclose the specific % by weight of adenosine and/or adenosine analogue. However, the use of specific % by weight of adenosine and/or adenosine analogue, depends on factors like the severity of the skin or facial condition (such as wrinkles), the location of the condition and the kind of subject or mammal being treated.

It would have been obvious to one having ordinary skill in the art, at the time the claimed invention was made to have used the method of Dobson et al. to treat wrinkles or enhance skin or relax facial features which includes softening expression lines on said face and/or forehead with a composition comprising adenosine or adenosine analogue, and to use different % by weight of adenosine or adenosine analogue at the required location, based on factors like the severity of the skin or facial condition (such as wrinkles), and the kind of subject or mammal being treated.

One having ordinary skill in the art would have been motivated to use the method of Dobson et al. to treat wrinkles or enhance skin or relax facial features which includes softening expression lines on said face and/or forehead with a composition comprising adenosine or adenosine analogue, and to use different % by weight of adenosine or adenosine analogue at the required location, based on factors like the severity of the skin or facial condition (such as wrinkles), and the kind of subject or mammal being treated.

In claim 1, applicant claims "A method for softening expression lines on a face and/or forehead in need thereof, comprising topically applying a composition to one or more zones of the face or forehead marked with expression lines a composition comprising at least one compound selected from the group consisting of adenosine and adenosine analogues and a physiologically acceptable medium." Claim 2 is drawn to said method wherein said composition

comprises a specific adenosine analogue. Claim 3 is drawn to the method according to claim 1, wherein said composition comprises at least one adenosine analogue including 2'-deoxyadenosine 2', 3'-isoproplidene adenosine; toyocamycin, 1-methyladenosine …… Dependent claims 4-6 and 9 are drawn to a method wherein the composition comprises specific % by weight of adenosine and/or adenosine analogue. Dependent claims 10-15, 17-20 are drawn to a method wherein the composition has a specific relaxing effect, the use of specific adenosine analogues, specific % by weight of adenosine and/or adenosine analogue and the application of the composition on specific locations on the face. Claim 23 is drawn to a method for softening expression lines on a face and/or forehead in need thereof, comprising topically applying a composition to one or more zones of the face or forehead marked with expression lines a composition comprising adenosine in an amount of from 0.1% to 1% by weight with respect to the total composition and a physiologically acceptable medium.

Dobson et al. disclose a method for enhancing the condition of skin in a mammal by reducing (softening) wrinkles, roughness, dryness, or laxity of the skin, comprising topically applying to the skin a composition comprising adenosine (see claim 1 and claims 2-10). Dobson et al. disclose that adenosine and suitable adenosine analogues are suitable for use in enhancing skin condition (see col. 3, lines 35-64). Furthermore, Dobson et al. disclose that adenosine analogues such as adenosine agonists, adenosine receptor agonists, and compounds that increase intracellular or extracellular adenosine levels are suitable for use in the invention (see col. 3, lines 35-64). Examples of some adenosine analogues disclosed by Dobson et al. as useful in the method include 2'-deoxyadenosine 2', 3'-isoproplidene adenosine; toyocamycin, 1-methyladenosine (see col. 3, lines 40-64). It should be noted that the application of the

composition to skin also encompasses the skin on the face and forehead and especially since that is where wrinkles (including expression lines) generally occur. Furthermore, "expression lines" are referred to as types of wrinkles. That is, expression lines are wrinkles. Applicant's attention is drawn to Exhibit A and B which disclose that expression lines are forms of wrinkles. Exhibit A states that "The wrinkles that seem to bother us most are "character" or "expression" lines" (see page 1, 1st line of 2nd paragraph). In addition, Exhibit B sates that "Natural expressions that use specific facial muscles may cause some wrinkles called "expression lines" to reappear" (see page 4, 2nd paragraph, lines 2-3). Thus, these exhibits disclose that expression lines are wrinkles. It must also be noted that Dobson et al. apply the same composition to the skin of the same subject as applicant and consequently it should have the same inherent effect of softening of expression lines. Furthermore, the examiner considers the relaxing effect on contractile fibroblast (as recites in claim 10), an effect or means by which said wrinkles or roughness are being reduced.

The difference between applicant's claimed method and the method of Dobson et al. is that Dobson et al. do not disclose the specific % by weight of adenosine and/or adenosine analogue nor the application of the composition on specific locations on the face or skin. However, the use of specific % by weight of adenosine and/or adenosine analogue or the application of the composition on specific locations on the face or skin, depends on factors like the severity of the skin or facial condition (such as wrinkles), the location of the condition and the kind of subject or mammal being treated.

It would have been obvious to one having ordinary skill in the art, at the time the claimed invention was made to have used the method of Dobson et al. to treat wrinkles or enhance skin or

relax facial features with a composition comprising adenosine or adenosine analogue, and to use different % by weight of adenosine or adenosine analogue at the required location, based on factors like the severity of the skin or facial condition (such as wrinkles), and the kind of subject or mammal being treated.

One having ordinary skill in the art would have been motivated to use the method of Dobson et al. to treat wrinkles or enhance skin or relax facial features with a composition comprising adenosine or adenosine analogue, and to use different % by weight of adenosine or adenosine analogue at the required location, based on factors like the severity of the skin or facial condition (such as wrinkles), and the kind of subject or mammal being treated.

Response to Arguments

Applicant's arguments with respect to claims 1-6, 8-15 and 17-23 have been considered but are not found convincing.

The applicant argues that Dobson teaches applying minimal, millimolar amounts of adenosine such that dermal cell proliferation is avoided. Thus, the express teaching of Dobson is to strictly limit the amount of adenosine used to achieve a desired effect while, importantly, avoiding an undesired effect resulting from the use of too much adenosine. In other words, Dobson expressly teaches away from using "significant" (that is, greater than 10^{-3} M) amounts of adenosine. This is in sharp contrast to the claimed invention which requires the presence of a significant amount of adenosine compound to achieve the required dermo-relaxation effect. One skilled in the art, following Dobson, would be led to use extremely minimal amounts of adenosine and, thus, would be led away from the presently claimed invention which requires application of significant amounts of adenosine compound to effect dermo-relaxation. Given

this fundamental teaching away by Dobson, Dobson cannot teach or suggest the claimed invention.

However, One having ordinary skill in the art would have been motivated to use the method of Dobson et al. to treat wrinkles (which includes expression lines) or enhance skin or relax facial features with a composition comprising adenosine or adenosine analogue, and to use different % by weight of adenosine or adenosine analogue at the required location, based on factors like the severity of the skin or facial condition (such as wrinkles), and the kind of subject or mammal being treated. Also, it should be noted that Dobson et al. do not disclose the volume and density of the molar (M) solutions and thus the moles, concentration or percent by weight of the adenosine used by Dobson et al. may well be the same as applicant's.

The applicant argues that In accordance with the Federal Circuit's decision in *Jansen,* these claims must be interpreted to require the specific intent to effect softening of expression lines. However, as set forth in the above rejections, Dobson et al. disclose a method for enhancing the condition of skin in a mammal by reducing (softening) wrinkles, roughness, dryness, or laxity of the skin, comprising topically applying to the skin a composition comprising adenosine (see claim 1 and claims 2-10). Dobson et al. disclose a method for enhancing the condition of skin in a mammal by reducing (softening) wrinkles, roughness, dryness, or laxity of the skin, comprising topically applying to the skin a composition comprising adenosine (see claim 1 and claims 2-10). It should be noted that the application of the composition to skin also encompasses the skin on the face and forehead and especially since that is where wrinkles (including expression lines) generally occur. Furthermore, "expression lines" are referred to as types of wrinkles. That is, expression lines are wrinkles. Applicant's attention is drawn to

Exhibit A and B which disclose that expression lines are forms of wrinkles. Exhibit A states that "The wrinkles that seem to bother us most are "character" or "expression" lines" (see page 1, 1st line of 2nd paragraph). In addition, Exhibit B sates that "Natural expressions that use specific facial muscles may cause some wrinkles called "expression lines" to reappear" (see page 4, 2nd paragraph, lines 2-3). Thus, these exhibits disclose that expression lines are wrinkles. It must also be noted that Dobson et al. apply the same composition to the skin of the same subject as applicant and consequently it should have the same inherent effect of softening of expression lines (for similar arguments by made by applicant with respect to Lapinet et al., see also the rejections set forth above).

The applicant argues that neither Dobson nor Lapinet teaches or suggests anything concerning treatment of the condition (expression lines), let alone the specific amounts of adenosine required in claim 23. However, One having ordinary skill in the art would have been motivated to use the method of Dobson et al. to treat wrinkles (which includes expression lines) or enhance skin or relax facial features with a composition comprising adenosine or adenosine analogue, and to use different % by weight of adenosine or adenosine analogue at the required location, based on factors like the severity of the skin or facial condition (such as wrinkles), and the kind of subject or mammal being treated.

The applicant argues that as demonstrated by Exhibits A-C cited by the Office Action, expression lines differ from other wrinkles such as those caused by sun damage, and expression lines are "difficult to treat." Thus, merely because a reference might disclose methods of treating other types of less difficult-to-treat wrinkles, it does not mean that such a reference (directed to a

different type of wrinkle) teaches or suggests anything about how to treat expression lines. In other words, for example, a disclosure related to treating wrinkles caused by sun damage cannot teach or suggest how to treat expression lines, which are recognized as being different, more difficult-to-treat types of wrinkles. However, Dobson et al. disclose a method for enhancing the condition of skin in a mammal by reducing (softening) wrinkles, roughness, dryness, or laxity of the skin, comprising topically applying to the skin a composition comprising adenosine (see claim 1 and claims 2-10). That is, Dobson et al.'s method includes the treatment of wrinkles in general (i.e., all types of wrinkles including expression lines) and is not limited to any particular type of wrinkle such as wrinkles caused by sun damage. Furthermore, Dobson et al. do not disclose that any particular type of wrinkle is more difficult or easier to treat than others.

The applicant argues that by way of analogy, baldness can be caused by different mechanisms such as, for example, alopecia or testosterone-related baldness. However, whereas testosterone-related baldness might be treatable using compounds which inhibit testosterone production or inhibit conversion of testosterone to active forms, alopecia cannot be treated using such compounds. Thus, although the effect (baldness) is the same, treatment methods are not interchangeable for the different types of baldness. However, Dobson et al. disclose a method for enhancing the condition of skin in a mammal by reducing (softening) wrinkles, roughness, dryness, or laxity of the skin, comprising topically applying to the skin a composition comprising adenosine (see claim 1 and claims 2-10). That is, Dobson et al.'s method includes the treatment of wrinkles in general (i.e., all types of wrinkles including expression lines) and is not limited to any particular type of wrinkle such as wrinkles caused by sun damage. Furthermore, Dobson et al. do not disclose that any particular type of wrinkle is more difficult or easier to treat than

others. Consequently, a skilled artisan would expect to use Dobson et al.'s compound to treat all types of wrinkles (including expression lines). In fact, Dobson et al.'s compound may be more effective on wrinkles that are expression lines. Also, it should also be noted that applicant uses the same compound as Dobson et al.'s to treat wrinkles (expression lines). This indicates that a particular compound (such as Dobson et al.'s compound) can be used to treat different types of wrinkles (including expression lines). Thus, a comparison of baldness to wrinkles (two distinctly different conditions) is irrelevant especially.

The applicant argues that treatment methods for treating one type of wrinkle are not interchangeable with methods for treating expression lines. However, expression lines are a type of wrinkle and Dobson et al.'s treat wrinkles in general (i.e., all types of wrinkles including expression lines) not just one kind of wrinkle.

The applicant argues that Neither Dobson nor Lapinet teaches or suggests softening expression lines by applying an adenosine compound thereto. Both Dobson and Lapinet teach treating wrinkles or damaged skin caused by sun, age and/or environmental factors such as wind. (See, Dobson at col. 1, lines 28-34 and Lapinet at col. 1, lines 49-56). However, Dobson et al. disclose a method for enhancing the condition of skin in a mammal by reducing (softening) wrinkles, roughness, dryness, or laxity of the skin, comprising topically applying to the skin a composition comprising adenosine (see claim 1 and claims 2-10). That is, Dobson et al.'s method includes the treatment of wrinkles in general (i.e., all types of wrinkles including expression lines) and is not limited to any particular type of wrinkle such as wrinkles caused by sun damage. Furthermore, Dobson et al. does not disclose that any particular type of wrinkle is more difficult or easier to treat than others. In addition, Lapinet et al. disclose applicant's method

of softening and enhancing the natural elasticity of the skin comprising applying topically to human skin a composition comprising an adenosine analogue, cyclic 3',5'-adenosine monophosphate (see claims 1-2 and col. 2, line 48- col. 4, line 7). It should be noted that the application of the composition to skin also encompasses the skin on the face and forehead and especially since that is where wrinkles (including expression lines) generally occur. Furthermore, it should be noted that the examiner considers that the softening of skin also includes a softening of lines especially since Lapinet also disclose that wrinkles (expression lines) are decreased (softened) by said treatment (see col. 4, lines 3-7) and that said treatment is applied to soften and soothe human skin that is wrinkled and dry (see col. 1, lines 47-52). It must also be noted that Lapinet et al. apply the same composition to the skin of the same subject as applicant and consequently it should have the same inherent effect of softening of expression lines.

The applicant argues that as explained in the present specification (pages 2-4), the conditions treated by Dobson and Lapinet are different from expression lines: their causes are different and their treatments are different. For example, whereas wrinkles are caused by lack of collagen and can be addressed through collagen protection and/or synthesis, expression lines are caused by different mechanisms and cannot be addressed by increasing or protecting collagen. Thus, although Dobson and Lapinet teach addressing collagen-related conditions such as wrinkles or moisture-related conditions such as dry skin, these references neither teach nor suggest reducing or softening conditions unrelated to collagen or moisturization levels. Because expression lines are not collagen or moisturization-related, neither Dobson nor Lapinet could possibly teach or suggest anything concerning treatment of this condition. However, the

conditions treated by Dobson and Lapinet are not different from expression lines since Dobson et al.'s method treats wrinkles in general (i.e., all types of wrinkles including expression lines) and is not limited to any particular type of wrinkle. Also, the mechanism or manner by which the expression lines are produced does not alter the fact that it is a wrinkle or a type of wrinkle and that Dobson et al. disclose reducing (softening) wrinkles (expression lines) with the same composition as applicant. Furthermore, although applicant argues that the treatments for wrinkles do not effect expression lines (which are also wrinkles), it should be noted that the method of applicant's previously presented dependent claims 21 and 22 involves decreasing wrinkles with the same said composition as Dobson et al. This implies that the applicant also considers expression lines as been wrinkles (see previously presented claims 21 and 22 of the instant invention). Also, Dobson et al. disclose a method for enhancing the condition of skin in a mammal by reducing (softening) wrinkles, roughness, dryness, or laxity of the skin, comprising topically applying to the skin a composition comprising adenosine (see claim 1 and claims 2-10). That is, Dobson et al.'s method includes the treatment of wrinkles in general (i.e., all types of wrinkles including expression lines) and is not limited to any particular type of wrinkle such as wrinkles caused by sun damage. Furthermore, Dobson et al. do not disclose that any particular type of wrinkle is more difficult or easier to treat than others. Consequently, a skilled artisan would expect to use Dobson et al.'s compound to treat all types of wrinkles (including expression lines). In fact, Dobson et al.'s compound may be more effective on wrinkles that are expression lines. Also, it should also be noted that applicant uses the same compound as Dobson et al.'s to treat wrinkles (expression lines). In addition, applicant's attention is drawn to Exhibit A and B which disclose that expression lines are forms of wrinkles. Exhibit A states that "The

wrinkles that seem to bother us most are "character" or "expression" lines" (see page 1, 1st line of 2nd paragraph). In addition, Exhibit B sates that "Natural expressions that use specific facial muscles may cause some wrinkles called "expression lines" to reappear" (see page 4, 2nd paragraph, lines 2-3). Thus, these exhibits disclose that expression lines are wrinkles. . Furthermore, Applicant's attention is drawn to Exhibit C which discloses that expression lines and frown lines are different forms of wrinkles (i.e., dynamic wrinkles). For example, Exhibit C states that "Dynamic wrinkles typically form across the **forehead**, between the eyebrows (**frown lines**), and on the sides of the eyes ("crow's feet") (see page 1, 2nd paragraph and entire article).

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael C. Henry whose telephone number is 571-272-0652. The examiner can normally be reached on 8.30am-5pm; Mon-Fri. If attempts to reach the

examiner by telephone are unsuccessful, the examiner's supervisor, Shaojia A. Jiang can be reached on 571-272-0627. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Michael C. Henry
October 10, 2008.

/Shaojia Anna Jiang, Ph.D./
Supervisory Patent Examiner
Art Unit 1623

EXHIBIT 12

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/152,707	06/14/2005	Marc Cornell	LOREAL 3.0-093	6454

530 7590 09/01/2009

LERNER, DAVID, LITTENBERG,
KRUMHOLZ & MENTLIK
600 SOUTH AVENUE WEST
WESTFIELD, NJ 07090

EXAMINER	
MERCIER, MELISSA S	
ART UNIT	PAPER NUMBER
1615	

MAIL DATE	DELIVERY MODE
09/01/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	11/152,707	CORNELL ET AL.	
	Examiner	Art Unit	
	MELISSA S. MERCIER	1615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 June 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Summary

Receipt of Applicants Remarks and Amended Claims filed on June 12, 2009 is acknowledged.

Withdrawn Rejections

Claim Rejections - 35 USC § 102

The rejection of claims 1-9 under 35 U.S.C. 102(e) as being anticipated by Dryer et al. (US Patent 7,351,745) has been withdrawn in view of Applicants amendment to claims 1 and 9 to further comprise adenosine. Applicants additionally remarks regarding the inclusion of additional essential substances into the composition are not persuasive, as Applicant has employed comprising language allowing for such an inclusion.

Claim Rejections - 35 USC § 103

The rejection of claims 1-4, and 7-9 under 35 U.S.C. 103(a) as being unpatentable over Duggan et al. (US Patent 6,641,824) has been withdrawn in view of Applicants amendment to claims 1 and 9 to further comprise adenosine and the lack of a teaching of a nonaqueous polar solvent.

The rejection of claims 1-9 under 35 U.S.C. 103(a) as being unpatentable over Moaddel et al. (US 2003/0180333) in view of Lee et al. (US 2004/0052750) has been withdrawn in view of Applicants amendment to claims 1 and 9 to further comprise adenosine.

Newly Applied Rejections

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moaddel et al. (US 2003/0180333) in view of Lee et al. (US 2004/0052750) and further in view of Dobson, Jr. et al. (US Patent 6,423,327).

Moaddel discloses anti-aging compositions in the form of anhydrous emulsions having as a dispersed phase ascorbic acid dissolved in a nonaqueous polar organic solvent, and as a continuous phase a nonaqueous nonpolar organic solvent (abstract).

The composition comprises:

0.1-50% by weight ascorbic acid,

5-98% by weight of a nonaqueous polar organic solvent,

5-98% by weight of a nonaqueous nonpolar organic solvent (paragraphs 0034-0036). The disclosed percentages encompass all of Applicants claimed percentages for the individual components in claims 1, 3-4, 7, and 7.

The nonaqueous polar organic solvent can comprise polyols, polymeric or monomeric ethers, mono and dihydric alcohols, including propylene glycol, and sorbitan derivatives (paragraphs 0046-0059); thereby meeting the limitations of claims 5-6.

The nonaqueous nonpolar organic solvent include silicones, esters, fats and oils, fatty acids, fatty alcohols, hydrocarbons, lanolin and lanolin derivatives (paragraphs 0062-0083), thereby meeting the limitations of claim 8.

Moaddel does not disclose the use of adenosine. Moaddel additionally does not disclose the treatment of marionette lines, which are also known as the wrinkles around the mouth.

Dobson discloses the topical administration of adenosine or an adenosine analog to a region of skin of a mammal containing dermal cells (column 1, lines 62-66). Dobson disclosed adenosine allows for enhancement of skin conditions which results in less skin wrinkling (column 2, lines 44-45).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated adenosine into the composition of Moaddel because Dobson discloses adenosine does not cause proliferation of the dermal cell (column 1, lines 59-60). Dobson also discloses the adenosine containing composition is suitable for treating skin of a mammal, e.g., a human, for which promotion of fibroblast-associated dermal functions is desired. For example, promotion of fibroblast-associated functions is desirable in enhancing the condition of aged skin, which is associated with a decrease in dermal cell function and is characterized by increased dryness or roughness, or both. The method can also be used on subjects having otherwise damaged skin, e.g., wrinkled skin and skin with a non-proliferative disorder. The method may further be used prophylactically on a subject to minimize deterioration of skin condition associated with aging or environmental factors, such as photodamage (column 3, lines 22-35).

Lee discloses the effects of aging are shown as wrinkles in the skin which include neck wrinkles, worry lines, frown lines, crows feet, the folds from the side of the nose to

the corners of the mouth and fine lines around the eyes, below the lips, and over the face. With aging, the amount of dermal collagen of skin is decreased and alterations in elastic fibers occur, whereby the skin relaxes and fine wrinkles appear. It is known that collagen functions to provide structural stability to the skin, durability of connective tissues and cohesion of tissues while supporting cell coherence, cell proliferation, and induction of differentiation of unspecialized cells. Also, it is known that collagen is broken down by exposure to UV, an environmental cause of skin aging, and the damage by UV is proportional to the accumulated time of exposure thereto. UV denatures collagenous fibers, causing wrinkles and decreasing elasticity of the skin. Such a decrease of collagen makes the skin thin and further, is closely associated with the formation of skin wrinkles (paragraphs 0002-0003).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the composition of Moaddel and Marty for the treatment of marionette lines since Moaddel discloses ascorbic acid is a known stimulant of the synthesis of collagen, acts as a free radical scavenger, and minimized lipid peroxidation and other forms of cellular damage associated with aging (paragraph 0003). One of ordinary skill would have a reasonable expectation of success since Lee discloses that decreases in collagen production are a known cause of wrinkle formation and Moaddel discloses ascorbic acid is a collagen stimulant.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MELISSA S. MERCIER whose telephone number is (571)272-9039. The examiner can normally be reached on 8:00am-4:30pm Mon through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Woodward can be reached on (571) 272-8373. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Examiner, Art Unit 1615

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Supervisory Patent Examiner, Art Unit 1615

EXHIBIT 13

US 20060280711A1

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(54) **PROCESS FOR TREATING MARIONETTE LINES**

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(57) **ABSTRACT**

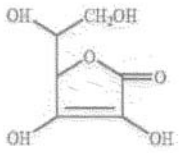
A process for treating marionette lines damaged by age, sun exposure and pollution involving contacting the marionette lines with a composition containing: (a) from about 1 to about 20% by weight of ascorbic acid; (b) from about 30 to about 80% by weight of a nonaqueous polar organic solvent; and (c) from about 20 to about 60% by weight of a nonaqueous nonpolar organic solvent, all weights being based on the weight of the composition.

PROCESS FOR TREATING MARIONETTE LINES

BACKGROUND OF THE INVENTION

[0001] It is well known that aging of the skin is due, at least in part, to continual stretching and contraction of both the dermal and epidermal layers of the skin and disruption of the collagen bundles which provide support to the epidermis. Collagen consists of long elastic polypeptide fibers interconnected by bridges which provide the cohesion and stability of connective tissue. This enables collagen to act as an elastic tissue in every direction and retain water. Collagen aging manifests itself as a break in connection between the collagen fibers. Age, severe weather, and pollution accelerate the breaks and slow down renewal of the collagen structure.

[0002] Ascorbic acid, or Vitamin C, has many known biological functions. The L-ascorbic acid isomer is biologically active and is known to stimulate the synthesis of collagen, act as a free radical scavenger, and minimize lipid peroxidation and other forms of cellular damage associated with aging. Ascorbic acid is a white, odorless, crystalline solid having the empirical formula C6H8O6, a molecular weight of about 176, and corresponds to the formula:



[0003] Another active ingredient typically used to reverse the damage caused by age, severe weather and pollution is retinol. Retinoic acid, which is derived from retinol, is known to activate skin cell metabolism resulting in collagen production.

[0004] Conventional anti-aging formulations based on ascorbic acid and retinol as the active ingredient have been found to have an effect on wrinkles such as, for example, orbital wrinkles and crows feet. Such formulations, however, have had minimal, if any, effect on marionette lines which are defined as lines which go down on either side of a person's mouth, also known as "oral commissures."

SUMMARY OF THE INVENTION

[0005] The present invention is thus directed to a process for treating marionette lines which have been damaged by age, severe weather and pollution comprising contacting the marionette lines with a composition containing:

[0006] from 1 to 20% by weight of ascorbic acid;

[0007] from 40 to 80% by weight of a nonaqueous polar organic solvent; and

[0008] from 20 to 60% by weight of a nonaqueous nonpolar organic solvent, all weights being based on the weight of the composition.

DETAILED DESCRIPTION

[0009] Other than in the operating examples, or where otherwise indicated, all numbers expressing quantities of ingredients and/or reaction conditions are to be understood as being modified in all instances by the term "about."

DEFINITIONS

[0010] The term "polar solvent" means one which is capable of dissolving at least 2 weight percent or more of ascorbic acid at room temperature (generally 25° C.)

[0011] The term "nonpolar solvent" means one which is capable of dissolving less than 2 weight percent of ascorbic acid at room temperature.

[0012] The term "anhydrous" means that no substantial amount of water is present in the compositions of the invention.

[0013] The compositions of the invention may be liquid, semi-solid, or solid at room temperature. The compositions exist in an anhydrous emulsion form. The term "emulsion" is generally used in the cosmetic art to mean water-in-oil or oil-in-water emulsions. However, the compositions of the invention are anhydrous emulsions wherein one anhydrous phase ('the dispersed phase') is dispersed into another anhydrous phase ("the continuous phase"). In the anhydrous emulsions of the invention, the ascorbic acid dissolved into the nonaqueous polar organic solvent forms the dispersed phase. The nonaqueous nonpolar organic solvent forms the continuous phase.

[0014] All percentages mentioned herein are percentages by weight unless otherwise indicated.

[0015] Ascorbic Acid

[0016] The term "ascorbic acid" when used in accordance with this invention means L-ascorbic acid, D-ascorbic acid, and derivatives thereof. Ascorbic acid may be employed in an amount of from 1 to 20% by weight, preferably from 5 to 15% by weight, and more preferably from 5 to 10% by weight, based on the weight of the composition.

[0017] The Nonaqueous Polar Organic Solvent

[0018] The anhydrous emulsions of the invention contain from 30 to 80% by weight, preferably from 40 to 60% by weight, and more preferably from 40 to 50% by weight, based on the weight of the total composition, of a nonaqueous polar organic solvent. A variety of nonaqueous polar organic solvents are suitable for use in the dispersed phase of the anhydrous emulsion. Examples are as follows.

[0019] Polyols

[0020] Polyols are suitable nonaqueous polar organic solvents. For purposes of this specification, polyols are defined as compounds which contain three or more hydroxyl groups per molecule. Examples of suitable polyols include fructose, glucamine, glucose, glucose glutamate, glucuronic acid, glycerin, 1,2,6hexanetriol, hydroxystearyl methylglucanine, inositol, lactose, malitol, mannitol, methyl gluceth-10, methyl gluceth-20, methyl glucose dioleate, methyl glucose sesquicaprylate/sesquicaprate, methyl glucose sesquicocoate, methyl glucose sesquiisostearate, methyl glucose sesquilaurate, methyl glucose sesquistearate, phytantriol, riboflavin, sorbeth-6, sorbeth-20, sorbeth-30, sorbeth-40, sorbitol, sucrose, thioglycerin, xylitol, and mix thereof. An especially preferred polyol is glycerin.

[0021] Polymeric or Monomeric Ethers

[0022] Also suitable as the nonaqueous polar organic solvent are homopolymeric or block copolymeric liquid ethers. Polymeric ethers are preferably formed by polymerization of monomeric alkylene oxides, generally ethylene or propylene oxides. Examples of such polymeric ethers include PEG, PPG, and derivatives thereof.

[0023] Other examples of suitable polymeric ethers include polyoxypropylene polyoxyethylene block copolymers. Such compounds are sold under the CTFA name Meroxapol 105, 108, 171, 172, 174, 178, 251, 252, 254, 255, 258, 311, 312, and 314.

[0024] Mono- and Dihydric Alcohols

[0025] Also suitable for use as to the nonaqueous polar organic solvent are mono- and dihydric alcohols of the general formula R(OH)n where n is 1 or 2 and R is a substituted or unsubstituted saturated C2-10, preferably C1-8 alkyl, or a substituted or unsubstituted alicyclic, bicyclic, or aromatic ring, with the substituents selected from halogen, alkoxy, hydroxy, and so on. Examples of suitable alcohols include monohydric alcohols such as ethanol, isopropanol, hexyldecanol, benzyl alcohol, propyl alcohol, and isopropyl alcohol, as well as dihydric alcohols such as hexylene glycol, diethylene glycol, ethylene glycol, propylene glycol, 1,2-butylene glycol, triethylene glycol, dipropylene glycol, and mixtures thereof.

[0026] Sorbitan Derivatives

[0027] Sorbitan derivatives, which are defined as ethers or esters of sorbitan, are also suitable polar solvents. Examples of suitable sorbitan derivatives are the Polysorbates, which are defined as stearate esters of sorbitol and sorbitan anhydrides, such as Polysorbate 20, 21, 40, 60, 61, 65, 80, 81, and 85. Also suitable are fatty esters of hexitol anhydrides derived from sorbitol, such as sorbitan trioleate, sorbitan tristearate, sorbitan sesquistearate, sorbitan stearate, sorbitan palmitate, sorbitan oleate, and mixtures thereof.

[0028] The Nonaqueous Nonpolar Organic Solvent

[0029] The anhydrous emulsions of the invention contain from 20 to 60% by weight, preferably from 20 to 50% by weight, and more preferably from 30 to 40% by weight, based on the weight of the total composition, of a nonaqueous nonpolar organic solvent as the continuous phase. A variety of nonaqueous nonpolar organic solvents can be used in the compositions of the invention.

[0030] Silicones

[0031] Silicones are suitable nonpolar compounds. The silicones may be volatile or non-volatile. The term "volatile" means that the silicone has a measureable vapor pressure, i.e. a vapor pressure of at least 2 mm. of mercury at 20° C. If volatile, the silicone generally will have a viscosity of 0.5 to 25 centistokes at 25° C. Suitable volatile silicones include cyclic silicones, linear silicones, or mixtures thereof.

[0032] Linear and cyclic volatile silicones are available from various commercial sources including Dow Corning Corporation and General Electric. The Dow Corning volatile silicones are sold under the tradenames Dow Corning 244, 245, 344, and 200 fluids. These fluids comprise octamethylcyclotetrasiloxane, decamethylcyclopentasiloxane, hexamethyldisiloxane, and mixtures thereof.

[0033] The silicone may also be nonvolatile, and in particular water insoluble nonvolatile silicones. The term "nonvolatile" means that the silicone has a vapor pressure of less than 2 mm. of mercury at 20° C. A variety of silicones fit this definition including dimethicone, phenyl trimethicone, diphenyl dimethicone, methicone, hexadecyl methicone, stearoxydimethicone, stearyl dimethicone, cetyl dimethicone, and so on.

[0034] Cyclomethicone is the preferred silicone for use in the compositions of the invention.

[0035] Esters

[0036] In addition to the sorbitan esters, other esters are also suitable as the nonaqueous nonpolar organic solvent. In general such esters have the formula RCO—OR wherein each R is independently a C1-25 straight or branched chain saturated or unsaturated alkyl, alkylcarbonyloxyalkyl, or alkoxycarbonylalkyl, aryl, which may be substituted or unsubstituted with halogen, hydroxyl, alkyl, and the like.

[0037] Examples of suitable esters include alkyl acetates, alkyl behenates, alkyl lactates, alkyl benzoates, alkyl octanoates, alkyl salicylates, and in particular C12-15 alkyl benzoate. Examples of further esters are set forth on pages 502-506 of the CTFA Cosmetic Ingredient Handbook, Second Edition, 1992, which is hereby incorporated by reference.

[0038] Fats and Oils

[0039] Fats and oils are also suitable as the nonaqueous nonpolar organic solvent. Preferably these materials are liquids or semi-solids at room temperature. They are generally defined as glyceryl esters of fatty acids (triglycerides), as well as the synthetically prepared esters of glycerin and fatty acids. Examples of such materials include oils such as apricot kernel oil, avocado oil, canola oil, olive oil, sesame oil, peanut oil, soybean oil, trilinolenin, trilinolein, trioctanoin, tristearin, triolein, sesame oil, rapeseed oil, sunflower seed oil, and so on.

[0040] Fatty Acids

[0041] Fatty acids are also suitable as the nonaqueous nonpolar organic solvent in the compositions of the invention. Preferably the fatty acids are liquid or semi solid at room temperature. Fatty acids are the carboxylic acids obtained by hydrolysis of animal or vegetable fats and oils. Carboxylic acids having alkyl chains shorter than about seven carbon atoms are not generally considered fatty acids. Fatty acids have the general structure R—COOH where R is a straight or branched chain saturated or unsaturated C7-65 alkyl. Examples of suitable fatty acids include arachidic acid, arachidonic acid, behenic acid, capric acid, caproic acid, caprylic acid, coconut acid, corn acid, cottonseed acid, hydrogenated coconut acid, hydroxystearic acid, lauric acid, linoleic acid, linolenic acid, linseed acid, myristic acid, oleic acid, palmitic acid, palm kernel acid, soy acid, tallow acid, and the like.

[0042] Fatty Alcohols

[0043] Fatty alcohols may also be used as the nonaqueous nonpolar organic solvent. Fatty alcohols are generally made by reducing the fatty acid —COOH group to the hydroxyl function. They generally have the formula RCH20H. Examples of fatty alcohols are behenyl alcohol, C9-11

alcohol, C12-13 alcohol, C12-15 alcohol, C12-16 alcohol, caprylic alcohol, cetearyl alcohol, cetyl alcohol, coconut alcohol, decyl alcohol, lauryl alcohol, myristyl alcohol, oleyl alcohol, and the like.

[0044] Hydrocarbons

[0045] Hydrocarbons are also good nonaqueous nonpolar organic solvents in accordance with the invention. Examples of suitable hydrocarbons include C7-60 isoparaffins, ethane, heptane, hexane, hydrogenated polyisobutene, isobutane, isododecane, isoeicosane, isohexadecane, isopentane, microcrystalline wax, mineral oil, mineral spirits, paraffin, petrolatum, petroleum distillates, squalene, polyethylene, and mixtures thereof. Preferred hydrocarbons are mineral oil and polyethylene.

[0046] Lanolin and Lanolin Derivatives

[0047] Also suitable as the nonaqueous nonpolar organic solvent are lanolin and derivatives thereof. Examples of such materials include acetylated hydrogenated lanolin, acetylated lanolin alcohol, laneth, lanolin acid, lanolin oil, lanolin alcohol, lanolin wax, and so on.

[0048] Other Ingredients

[0049] It may also be desired to include certain other ingredients in the anhydrous emulsions of the invention, such as surfactants, waxes, colorants, preservatives, and so on.

[0050] Surfactants

Silicone Surfactants

[0051] The compositions may contain 0.1-15%, preferably 0.5-10%, more preferably 1-8% by weight of the total composition of one or more surfactants. The term "surfactant" is defined, in accordance with the invention, as a compound having at least one hydrophilic moiety and at least one lipophilic moiety. The surfactants may be silicone surfactants (also referred to as organosiloxane emulsifiers) or organic surfactants.

[0052] Suitable silicone surfactants used in the compositions of the invention may be liquid or solid at room temperature and are generally a water-in-oil or oil-in-water type surfactants which are preferably nonionic, having an Hydrophile/Lipophile Balance (HLB) of 2 to 18. Preferably the organosiloxane is a nonionic surfactant having an HLB of 2 to 12, preferably 2 to 10, most preferably 4 to 6. The HLB of a nonionic surfactant is the balance between the hydrophilic and lipophilic portions of the surfactant and is calculated according to the following formula:

$$HLB=20(1-S/A)$$

where S is the saponification number of the surfactant and A is the acid number of the surfactant.

[0053] The silicone surfactant or emulsifier used in the compositions of the invention is a polymer containing a polymeric backbone including repeating siloxy units that may have cyclic, linear or branched repeating units, e.g. di(lower)alkylsiloxy units, preferably dimethylsiloxy units. The hydrophilic portion of the organosiloxane is generally achieved by substitution onto the polymeric backbone of a radical that confers hydrophilic properties to a portion of the molecule. The hydrophilic radical may be substituted on a terminus of the polymeric organosiloxane, or on any one or more repeating units of the polymer. In general, the repeating dimethylsiloxy units of modified polydimethylsiloxane emulsifiers are lipophilic in nature due to the methyl groups, and confer lipophilicity to the molecule. In addition, longer chain alkyl radicals, hydroxy-polypropyleneoxy radicals, or other types of lipophilic radicals may be substituted onto the siloxy backbone to confer further lipophilicity and organocompatibility. If the lipophilic portion of the molecule is due in whole or part to a specific radical, this lipophilic radical may be substituted on a terminus of the organosilicone polymer, or on any one or more repeating units of the polymer. It should also be understood that the organosiloxane polymer in accordance with the invention should have at least one hydrophilic portion and one lipophilic portion.

[0054] The term "hydrophilic radical" means a radical that, when substituted onto the organosiloxane polymer backbone, confers hydrophilic properties to the substituted portion of the polymer. Examples of radicals that will confer hydrophilicity are hydroxy-polyethyleneoxy, hydroxyl, carboxylates, sulfonates, sulfates, phosphates, or amines.

[0055] The term "lipophilic radical" means an organic radical that, when substituted onto the organosiloxane polymer backbone, confers lipophilic properties to the substituted portion of the polymer. Examples of organic radicals which will confer lipophilicity are C1-40 straight or branched chain alkyl, fluoro, aryl, aryloxy, C1-40 hydrocarbyl acyl, hydroxy-polypropyleneoxy, or mixtures thereof. The C1-40 alkyl may be non-interrupted, or interrupted by one or more oxygen atoms, a benzene ring, amides, esters, or other functional groups.

[0056] The polymeric organosiloxane emulsifier used in the invention may have any of the following general formulas:

M_xQ_y, or

M_xT_y, or

$MD_xD'_yD''_zM$

[0057] wherein each M is independently a substituted or unsubstituted trimethylsiloxy endcap unit. If substituted, one or more of the hydrogens on the endcap methyl groups are substituted, or one or more methyl groups are substituted with a substituent that is a lipophilic radical, a hydrophilic radical, or mixtures thereof. T is a trifunctional siloxy unit having the empirical formula $RSiO_{15}$ or $RSiO_{15}$. Q is a quadrifunctional siloxy unit having the empirical formula SiO_2, and D, D', D'', x, y, and z are as set forth below, with the proviso that the compound contains at least one hydrophilic radical and at least one lipophilic radical. Examples of emulsifiers used in the compositions of the invention are of the general formula:

$MD_xD'_yD''_zM$

wherein the trimethylsiloxy endcap unit is unsubstituted or mono-substituted, wherein one methyl group is substituted with a lipophilic radical or a hydrophilic radical. Examples of such substituted trimethylsiloxy endcap units include $(CH_3)_2HPSiO$, $(CH_3)_2LPSiO$, $(CH_3)_2CH_2HPSiO$, $(CH_3)_2CH_2LPSiO$, wherein HP is a hydrophilic radical and LP is a lipophilic radical. D, D', and D'' are difunctional siloxy units substituted with methyl, hydrogen, a lipophilic radical, a hydrophilic radical or mixtures thereof. In this general formula:

x=0-5000, preferably 1-1000

y=0-5000, preferably 1-1000, and

z=0-5000, preferably 0-1000,

with the proviso that the compound contains at least one lipophilic radical and at least one hydrophilic radical. Examples of these polymers are disclosed in U.S. Pat. No. 4,698,178, which is hereby incorporated by reference.

[0058] Particularly preferred is a linear silicone of the formula:

$MD_xD'_yD''_zM$

wherein M=$RRRSiO_{1/2}$

D and D'=$RR'SiO_{2/2}$

D''=$RRSiO_{2/2}$

x, y, and z are each independently 0-1000,

[0059] where R is methyl or hydrogen, and R' is a hydrophilic radical or a lipophilic radical, with the proviso that the compound contains at least one hydrophilic radical and at least one lipophilic radical.

[0060] Most preferred is wherein

M=trimethylsiloxy

D=$Si[(CH_3)][(CH_2)_aCH_3]O_{2/2}$ where a=1-40,

D'=$Si[(CH_3)][(CH_2)_o—O—PE]O_{2/2}$ where PE is $(—C_2H_4O)_a(—C_3H_6O)_bH$,

o=0-40, a=1-100 and b=1-100, and

D''=$Si(CH_3)_2O_{2/2}$.

[0061] Organosiloxane polymers useful in the compositions of the invention are commercially available from Goldschmidt Corporation under the ABIL tradename. The preferred polymer is cetyl dimethicone copolyol and has the tradename ABIL WE 09 or ABIL WS 08. The cetyl dimethicone copolyol may be used alone or in conjunction with other non-silicone organic emulsifiers. Preferred is where the cetyl dimethicone copolyol is in an admixture with other non-silicone organic emulsifiers and emollients. In particular, blends of 25-50% of the organosiloxane emulsifier, 25-50% of a non-silicone organic emulsifier, and 25-50% by weight emollients or oils are preferred. For example, the mixtures identified by the C.T.F.A. names cetyl dimethicone copolyol (and) polyglyceryl 4-isostearate (and) hexyl laurate, or cetyl dimethicone copolyol (and) polyglyceryl-3 oleate (and) hexyl laurate both work well. These blends contain approximately 25-50% of each ingredient, for example ABIL WE 09 contains approximately, by weight of the total ABIL composition, 25-50% cetyl dimethicone copolyol, 25-50%, polyglyceryl 4-isostearate, and 25-50% of hexyl laurate which is an emollient or oil.

[0062] Another type of preferred organosiloxane emulsifier suitable for use in the compositions of the invention are emulsifiers sold by Union Carbide under the Silwet™ trademark. These emulsifiers are represented by the following generic formulas:

$(Me_3Si)_2-2[(OSiMe_2)_x]yO—PE]_y$

wherein PE=$—(EO)_m(PO)_nR$

R=lower alkyl or hydrogen

Me=methyl

EO is polyethyleneoxy

PO is polypropyleneoxy

m and n are each independently 1-5000

x and y are each independently 0-5000, and 8

wherein PE=$—CH_2CH_2CH_2O(EO)_m(PO)_nZ$

Z=lower alkyl or hydrogen, and

Me, m, n, x, y, EO and PO are as described above,

with the proviso that the molecule contains a lipophilic portion and a hydrophilic portion. Again, the lipophilic portion can be supplied by a sufficient number of methyl groups on the polymer backbone.

[0063] A preferred organosiloxane emulsifier for use in the compositions of the invention is dimethicone copolyol.

[0064] Examples of other polymeric organosiloxane surfactants or emulsifiers include amino/polyoxyalkyleneated polydiorganosiloxanes disclosed in U.S. Pat. No. 5,147,578. Also suitable are organosiloxanes sold by Goldschmidt under the ABIL trademark including ABIL B-9806, as well as those sold by Rhone-Poulenc under the Alkasil tradename. Also, organosiloxane emulsifiers sold by Amerchol under the Amersil tradename, including Amersil ME-358, Amersil DMC-287 and Amersil DMC-357 are suitable. Dow Corning surfactants such as Dow Corning 3225C Formulation Aid, Dow Corning 190 Surfactant, Dow Corning 193 Surfactant, Dow Corning Q2-5200, and the like are also suitable. In addition, surfactants sold under the tradename Silwet by Union Carbide, and surfactants sold by Troy Corporation under the Troysol tradename, those sold by Taiwan Surfactant Co. under the tradename Ablusoft, those sold by Hoechst under the tradename Arkophob, are also suitable for use in the invention.

[0065] Also suitable as surfactants are various organic surfactants such as anionic, nonionic, amphoteric, zwitterionic, or cationic surfactants.

[0066] The compositions of the invention comprise 0.5-20%, preferably 0.5-15%, more preferably 0.5-10%, of a surfactant. Suitable surfactants may be anionic, nonionic, amphoteric, or zwitterionic.

[0067] Anionic Surfactants

[0068] Anionic surfactants include alkyl and alkyl ether sulfates generally having the formula $ROSO_3M$ and $RO(C_2H_4O)_xSO_3M$ wherein R is alkyl or alkenyl of from about 10 to 20 carbon atoms, x is 1 to about 10 and M is a water soluble cation such as ammonium, sodium, potassium, or triethanolamine cation.

[0069] Another type of anionic surfactant which may be used in the compositions of the invention are water soluble salts of organic, sulfric acid reaction products of the general formula:

$R_1—SO_3-M$

wherein R_1 is chosen from the group consisting of a straight or branched chain, saturated aliphatic hydrocarbon radical having from about 8 to about 24 carbon atoms, preferably 12 to about 18 carbon atoms; and M is a cation. Examples of such anionic surfactants are salts of organic sulfuric acid reaction products of hydrocarbons such as n-paraffins having 8 to 24 carbon atoms, and a sulfonating agent, such as sulfur trioxide.

[0070] Also suitable as anionic surfactants are reaction products of fatty acids esterified with isethionic acid and neutralized with sodium hydroxide. The fatty acids may be derived from coconut oil, for example.

[0071] In addition, succinates and succinimates are suitable anionic surfactants. This class includes compounds such as disodium N-octadecylsulfosuccinate; tetrasodium N-(1,2-dicarboxyethyl)-N-octadecyl-sulfosuccinate; and esters of sodium sulfosuccinic acid e.g. the dihexyl ester of sodium sulfosuccinic acid, the dioctyl ester of sodium sulfosuccinic acid, and the like.

[0072] Other suitable anionic surfactants include olefin sulfonates having about 12 to 24 carbon atoms. The term "olefin sulfonate" means a compound that can be produced by sulfonation of an alpha olefin by means of uncomplexed sulfur trioxide, followed by neutralization of the acid reaction mixture in conditions such that any sulfones which have been formed in the reaction are hydrolyzed to give the corresponding hydroxy-alkanesulfonates. The alpha-olefin from which the olefin sulfonate is derived is a mono-olefin having about 12 to 24 carbon atoms, preferably about 14 to 16 carbon atoms.

[0073] Other classes of suitable anionic organic surfactants are the beta-alkoxy alkane sulfonates or water soluble soaps thereof such as the salts of Cl_{0-20} fatty acids, for example coconut and allow based soaps. Preferred salts are ammonium, potassium, and sodium salts.

[0074] Still another class of anionic surfactants include N-acyl amino acid surfactants and salts thereof (alkali, alkaline earth, and ammonium salts). Examples of such surfactants are the N-acyl sarcosinates, including lauroyl sarcosinate, myristoyl sarcosinate, cocoyl sarcosinate, and oleoyl sarcosinate, preferably in sodium or potassium forms.

[0075] Nonionic Surfactants

[0076] The composition can contain one or more nonionic surfactants. Nonionic surfactants are generally compounds produced by the condensation of alkylene oxide groups with a hydrophobic compound. Classes of nonionic surfactants are:

[0077] (a) Long chain dialkyl sulfoxides containing one short chain alkyl or hydroxy alkyl radical of from about 1 to 3 carbon atoms and one long hydrophobic chain which may be an alkyl, alkenyl, hydroxyalkyl, or ketoalkyl radical containing from about 8 to 20 carbon atoms, from 0 to 10 ethylene oxide moieties, and 0 or 1 glyceryl moiety.

[0078] (b) Polysorbates, such as sucrose esters of fatty acids. Examples of such materials include sucrose cocoate, sucrose behenate, and so on.

[0079] (c) Polyethylene oxide condensates of alkyl phenols, for example the condensation products of alkyl phenols having an alkyl group of 6 to 20 carbon atoms With ethylene oxide being present in amounts of about 10 to 60 moles of ethylene oxide per mole of alkyl phenol.

[0080] (d) Condensation products of ethylene oxide with the reaction product of propylene oxide and ethylene diamine.

[0081] (e) Condensation products of aliphatic alcohols having 8 to 18 carbon atoms with ethylene oxide, for example a coconut alcohol/ethylene oxide condensate having 10 to 30 moles of ethylene oxide per mole of coconut alcohol, the coconut alcohol fraction having 10 to 14 carbon atoms.

[0082] (f) Long chain tertiary amine oxides such as those corresponding to the general formula:

$$R_1R_2R_3NO$$

wherein R_1 contains an alkyl, alkenyl or monohydroxyalkyl radical ranging from about 8 to 18 carbon atoms in length, from 0 to about 10 ethylene oxide moieties, and from 0 to about 1 glyceryl moiety and R_2 and R_3 are each alkyl or monohydroxyalkyl groups containing from about 1 to about 3 carbon atoms.

[0083] (g) Long chain tertiary phosphine oxides corresponding to the general formula:

$$RR_1R_2PO$$

wherein R contains an alkyl, alkenyl, or monohydroxyalkyl radical having 8 to 18 carbon atoms, from 0-10 ethylene oxide moieties and 0 or 1 glyceryl moiety, and R_2 and R_3 are each alkyl or monohydroxyalkyl group containing from about 1 to 3 carbon atoms.

[0084] (h) Alkyl polysaccharides having a hydrophobic group of 6 to 30, preferably 10, carbon atoms and a polysaccharide group such as glucose, galactose, etc. Suitable alkyl polysaccharides are octyl, nonydecyl, undecyldodecyl, tridecyl, tetradecyl, pentadecyl, hexadecyl, heptadecyl, and octadecyl, di-, tri-, tetra-, penta-, and hexaglucosides, galactosides, lactosides, glucoses, fructosides, fructoses, and so on.

[0085] (i) Polyethylene glycol (PEG) glyceryl fatty esters, having the formula

$$RC(O)OCH_2CH(OH)CH_2(OCH_2CH_2)_nOH$$

wherein n is 5-200 and RC(O) is a hydrocarbylcarbonyl group wherein R is preferably an aliphatic radical having 7 to 19 carbon atoms.

[0086] (j) Other nonionic surfactants that may be used include C_{10-18} alkyl(C_{1-6})polyhydroxy fatty acid amides such as C_{12-18} methylglucamides, N-alkoxy polyhydroxy fatty acid amides, N-propyl through N-hexyl C_{12-19} glucamides and so on.

[0087] Amphoteric Surfactants

[0088] Amphoteric surfactants that can be used in the compositions of the invention are generally described as derivatives of aliphatic secondary or tertiary amines wherein one aliphatic radical is a straight or branched chain alkyl of 8 to 18 carbon atoms and the other aliphatic radical contains an anionic group such as carboxy, sulfonate, sulfate, phosphate, or phosphonate.

[0089] Suitable amphoteric surfactants may be imidazolinium compounds. Examples of such materials are marketed under the tradename MIRANOL, by Miranol, Inc.

[0090] Also suitable amphoteric surfactants are monocarboxylates or dicarboxylates such as cocamphocarboxypropionate, cocoamphocarboxypropionic acid, cocamphocarboxyglycinate, and cocoamphoacetate.

[0091] Other types of amphoteric surfactants include aminoalkanoates of the formula

$$R—NH(CH_2)_nCOOM$$

or iminodialkanoates of the formula:

$$R—N[(CH_2)_mCOOM]_2$$

and mixtures thereof; wherein n and m are 1 to 4, R is C_{8-22} alkyl or alkenyl, and M is hydrogen, alkali metal, alkaline earth metal, ammonium or alkanolammonium. Examples of such amphoteric surfactants include n-alkylaminopropionates and n-alkyliminodipropionates, which are sold under the trade name MIRATAINE by Miranol, Inc. or DERIPHAT by Henkel, for example N-lauryl-beta-amino propionic acid, N-lauryl-beta-imino-dipropionic acid, or mixtures thereof.

[0092] Zwitterionic surfactants are also suitable for use in the compositions of the invention. Zwitterionics include betaines, for example higher alkyl betaines such as coco dimethyl carboxymethyl betaine, lauryl dimethyl carboxymethyl betaine, lauryl dimethyl alphacarboxyethyl betaine, cetyl dimethyl carboxymethyl betaine, lauryl bis-(2-hydroxyethyl)carboxymethyl betaine, stearyl bis-(2-hydroxypropyl)carboxymethyl betaine, oleyl dimethyl gamma-carboxylethyl betaine, and mixtures thereof. Also suitable are sulfo- and amido-betaines such as coco dimethyl sulfopropyl betaine, stearyl dimethyl sulfopropyl betaine, and the like.

[0093] Cationic surfactants and/or polymers may be incorporated into the compositions of the invention. If so, 0.01-15%, preferably 0.05-10%, preferably 0.10-8% of a cationic ingredients is suggested. Suitable cationic ingredients include cationic polymers, quaternary ammonium salts, or the salts of fatty amines. Suitable quaternary ammonium compounds may be mono-long chain alkyl, di-long chain alkyl, tri-long chain alkyl, and the like. Examples of such quaternary ammonium salts include behenalkonium chloride, behentrimonium chloride, behentrimonium methosulfate, benzalkonium chloride, benzethonium chloride, benzyl triethyl ammonium chloride, cetalkonium chloride, cetrimonium chloride, cetrimonium bromide, cetrimonium methosulfate, cetrimonium tosylate, cetylpyridinium chloride, dibehenyudiarachidyl dimonium chloride, dibehenyldimonium chloride, dibehenyldimonium methosulfate, dicapryl/dicaprylyl dimonium chloride, dicetyldimonium chloride, and mixtures thereof. Other quaternary ammonium salts useful as the cationic surfactant are salts of fatty primary, secondary, or tertiary amines, wherein the substituted groups have 12 to 22 carbon atoms. Examples of such amines include dimethyl stearamine, dimethyl soyamine, stearylamine, myristylamine, tridecylamine, ethyl stearamine, and so on.

[0094] Also suitable as the cationic ingredient are cationic polymers such as:

[0095] (a) Quaternary derivatives of cellulose ethers such as polymers sold under the tradename JR-125, JR-400, JR-30M. Preferred is Polyquaternium 10, which is a polymeric quaternary ammonium salt of hydroxyethyl cellulose reacted with a trimethyl ammonium subsituted epoxide.

[0096] (b) Copolymers of vinylpyrrolidone.

[0097] (c) Homopolymer of dimethyldiallylammonium chloride, or copolymer of dimethyldiallylammonium chloride and acrylamide. Such compounds are sold under the tradename MERQUAT.TM. by Merck and Company.

[0098] (d) Homopolymers or copolymers derived from acrylic or methacrylic acid wherein the monomer units are selected from the group consisting of acrylamide, methylacrylamide, diacetone-acrylamide, acrylamide or methacrylamide substituted on the nitrogen by lower alkyl, alkyl esters of acrylic acid and methacrylic acid, vinylpyrrolidone, and vinyl esters.

[0099] Examples of cationic polymers that can be used in the compositions of the invention are the cationic polymers disclosed in U.S. Pat. Nos. 5,240,450 and 5,573,709, which are hereby incorporated by reference.

[0100] Waxes

[0101] The compositions of the invention may contain 0.1-25%, preferably 0.5-20%, more preferably 1-15% by weight of the total composition of wax. Suitable waxes have a melting point of 35 to 120° C., and can be animal waxes, plant waxes, mineral waxes, silicone waxes, synthetic waxes, and petroleum waxes. Examples of waxes in accordance with the invention include bayberry, beeswax, candelilla, carnauba, ceresin, cetyl esters, hydrogenated jojoba oil, hydrogenated jojoba wax, hydrogenated microcrystalline wax, hydrogenated rice bran wax, japan wax, jojoba butter, jojoba esters, jojoba wax, lanolin wax, microcrystalline wax, mink wax, montan acid wax, montan wax, ouricury wax, ozokerite, paraffin, PEG-6 beeswax, PEG-8 beeswax, rice bran wax, shellac wax, spent grain wax, sulfurized jojoba oil, synthetic beeswax, synthetic candelilla wax, synthetic carnauba wax, synthetic japan wax, synthetic jojoba oil, ethylene homo- or copolymers, stearoxy dimethicone, dimethicone behenate, stearyl dimethicone, and the like, as well synthetic homo- and copolymer waxes such as PVP/eicosene copolymer, PVP/hexadecene copolymer, and the like.

[0102] Branched Chain Silicone Resins

[0103] It may be desirable to include one or more branched chain silicone resins in the compositions of the invention. If so, a range of 0.001-20%, preferably 0.01-15%, more preferably 0.1-10%0/by weight of the total composition is suggested. Examples of suitable silicone resins include siloxy silicate polymers having the following general formula:

$$[(RR'R'')_3SiO_{1/2}]_x[SiO_2]_y$$

wherein R, R' and R" are each independently a C_{1-10} straight or branched chain alkyl or phenyl, and x and y are such that the ratio of $(RR'R'')_3SiO_{1/2}$ units to SiO_2 units is 0.5 to 1 to 1.5 to 1.

[0104] Preferably R, R' and R" are a C_{1-6} alkyl, and more preferably are methyl and x and y are such that the ratio of $(CH_3)_3SiO_{1/2}$ units to SiO_2 units is 0.75 to 1. Most preferred is this trimethylsiloxy silicate containing 2.4 to 2.9 weight percent hydroxyl groups which is formed by the reaction of the sodium salt of silicic acid, chlorotrimethylsilane, and isopropyl alcohol. The manufacture of trimethylsiloxy silicate is set forth in U.S. Pat. Nos. 2,676,182; 3,541,205; and 3,836,437, all of which are hereby incorporated by reference. Trimethylsiloxy silicate as described is available from Dow Corning Corporation under the tradename 2-0749 and 2-0747, which is a blend of about 40-60% volatile silicone and 40-60% trimethylsiloxy silicate. Dow Corning 2-0749 in particular, is a fluid containing about 50% trimethylsiloxy silicate and about 50% cyclomethicone. The fluid has a viscosity of 200-700 centipoise at 25° C., a specific gravity of 1.00 to 1.10 at 25° C., and a refractive index of 1.40-1.41.

[0105] Other branched chain silicone resins are silicone esters comprising units of the general formula $R_aR^E_bSiO_{[4-}$

$_{(a+b)/2}$ or $R^{13}_{a}R^{E}_{y}SiO_{1/2}$, wherein R and R^{13} are each independently an organic radical such as alkyl, cycloalkyl, or aryl, or, for example, methyl, ethyl, propyl, hexyl, octyl, decyl, aryl, cyclohexyl, and the like a is an number ranging from 0 to 3, b is a number ranging from 0 to 3, a+b is a number ranging from 1 to 3, x is a number from 0 to 3, y is a number from 0 to 3 and the sum of x+y is 3, and wherein R^{E} is a carboxylic ester containing radical. Preferred RE radicals are those wherein the ester group is formed of one or more fatty acid moieities (e.g. of about 6, often about 6 to 30 carbon atoms) and one or more aliphatic alcohol moieities (e.g. of about 10 to 30 carbon atoms). Examples of such acid moieities include those derived from branched-chain fatty acids such as isostearic, or straight chain fatty acids such as behenic. Examples of suitable alcohol moieties include those derived from monohydric or polyhydric alcohols, e.g. normal alkanols such as n-propanol and branched-chain etheralkanols such as (3,3,3-trimethylolpropoxypropane. Preferably the ester subgroup (i.e. the group containing the carboxylic ester) will be linked to the silicon atom by a divalent aliphatic chain that is at least 2 or 3 carbon atoms in length, e.g. an alkylene group or a divalent alkyl ether group. Most preferably that chain will be part of the alcohol moiety, not the acid moiety. More particularly, the cross-linked silicone ester can be a liquid or solid at room temperature. Preferably it will have a waxy feel and a molecular weight of no more than about 100,000 daltons.

[0106] Such silicone resins having the above formula are disclosed in U.S. Pat. No. 4,725,658 and U.S. Pat. No. 5,334,737, which are hereby incorporated by reference. These ingredients are commercially available from General Electric under the tradenames SF 1318 and SF 1312, respectively.

[0107] Pigments and Powders

[0108] The composition of the invention may contain 0.001-35%, preferably 0.01-20% more preferably 0.1-10%, by weight of the total composition, of dry particulate matter having a particle size of 0.02 to 200, preferably 0.5 to 100, microns. The particulate matter may be colored or non-colored (for example white). Suitable powders include bismuth oxychloride, titanated mica, fumed silica, spherical silica, polymethylmethacrylate, micronized teflon, boron nitride, acrylate copolymers, aluminum silicate, aluminum starch octenylsuccinate, bentonite, calcium silicate, cellulose, chalk, corn starch, diatomaceous earth, fuller's earth, glyceryl starch, hectorite, hydrated silica, kaolin, magnesium aluminum silicate, magnesium trisilicate, maltodextrin, montmorillonite, microcrystalline cellulose, rice starch, silica, talc, mica, titanium dioxide, zinc laurate, zinc myristate, zinc rosinate, alumina, attapulgite, calcium carbonate, calcium silicate, dextran, kaolin, nylon, silica silylate, silk powder, sericite, soy flour, tin oxide, titanium hydroxide, trimagnesium phosphate, walnut shell powder, or mixtures thereof. The above mentioned powders may be surface treated with lecithin, amino acids, mineral oil, silicone oil or various other agents either alone or in combination, which coat the powder surface and render the particles more lipophilic in nature.

[0109] The powder component also may comprise various organic and inorganic pigments. The organic pigments are generally various aromatic types including azo, indigoid, triphenylmethane, anthraquinone, and xanthine dyes which are designated as D&C and FD&C blues, browns, greens, oranges, reds, yellows, etc. Organic pigments generally consist of insoluble metallic salts of certified color additives, referred to as the Lakes. Inorganic pigments include iron oxides, ultramarines, chromium, chromium hydroxide colors, and mixtures thereof.

[0110] The composition may contain a mixture of both pigmented and non-pigmented powders. The percentage of pigments used in the powder component will depend on the type of cosmetic being formulated.

[0111] Sunscreens

[0112] The compositions of the invention may contain 0.001-20%, preferably 0.01-10%, more preferably 0.05-8% of one or more sunscreens. A sunscreen is defined as an ingredient that absorbs at least 85 percent of the light in the UV range at wavelengths from 290 to 320 nanometers, but transmit UV light at wavelengths longer than 320 nanometers. Sunscreens generally work in one of two ways. Particulate materials, such as zinc oxide or titanium dioxide, as mentioned above, physically block ultraviolet radiation. Chemical sunscreens, on the other hand, operate by chemically reacting upon exposure to UV radiation. Suitable sunscreens that may be included in the compositions of the invention are set forth on page 582 of the CTFA Cosmetic Ingredient Handbook, Second Edition, 1992, as well as U.S. Pat. No. 5,620,965, both of which are hereby incorporated by reference. Examples of such sunscreen materials are p-aminobenzoic acid (PABA), cinoxate, diethanolamine p-methoxycinnamate (DEA-methoxycinnamate), Digalloyl trioleate, dioxybenzone (Benzophenone-8), ethyl 4-[bis-(hydroxypropyl)]amnobenzoate(ethyl dihydroxypropyl PABA), 2-ethythexyl-2-cyano-3,3-diphenylacrylate(octocrylene), ethylhexyl p-methoxycinnamate (Octyl methoxycinnamate), 2-ethylhexyl salicylate (Octyl salicylate), glyceryl aminobenzoate (Glyceryl PABA), homosalate, lawsone with dihydroxyacetone, menthyl anthranilate, oxybenzone (Benzophenone-3), Padimate A (Pentyl Dimethyl PABA), Padimate 0, (Octyl Dimethyl PABA), 2-Phenylbenzimidazole-5-sulfonic acid (Phenylbenzimidazole Sulfonic acid), Red Petrolatum, Sulisobenzone (Benzophenone4), triethanolamine salicylate (TEA-Salicylates), and so on.

[0113] Preservatives

[0114] The composition may contain 0.0001-8%, preferably 0.001-6%, more preferably 0.005-5% by weight of the total composition of preservatives. A variety of preservatives are suitable, including such as benzoic acid, benzyl alcohol, benzylhemiformal, benzylparaben, 5-bromo-5-nitro-1,3-diox-ane, 2-bromo-2-nitropropane-1,3-diol, butyl paraben, calcium benzoate, calcium propionate, captan, chlorhexidine diacetate, chlorhexidine digluconate, chlorhexidine dihydrochloride, chloroacetamide, chlorobutanol, p-chloro-m-cresol, chlorophene, chlorothymol, chloroxylenol, m cresol, o-cresol, DEDM Hydantoin, DEDM Hydantoin dilaurate, dehydroacetic acid, diazolidinyl urea, dibromopropamidine diisethionate, DMDM Hydantoin, and all of those disclosed on pages 570 to 571 of the CTFA Cosmetic Ingredient Handbook, Second Edition, 1992, which is hereby incorporated by reference.

[0115] Vitamins and Antioxidants

[0116] The compositions of the invention may contain vitamins and/or coenzymes, as well as antioxidants. If so,

0.001-10%, preferably 0.01-8%, more preferably 0.05-5% by weight of the total composition are suggested. Suitable vitamins include the B vitamins such as thiamine, riboflavin, pyridoxin, and so on, as well as coenzymes such as thiamine pyrophoshate, flavin adenin dinucleotide, folic acid, pyridoxal phosphate, tetrahydrofolic acid, and so on. Also Vitamin A and derivatives thereof are suitable. Examples are Vitamin A palmitate, acetate, or other esters thereof, as well as Vitamin A in the form of beta carotene. Also suitable is Vitamin E and derivatives thereof such as Vitamin E acetate, nicotinate, or other esters thereof. In addition, Vitamins D and K are suitable.

[0117] Suitable antioxidants are ingredients which assist in preventing or retarding spoilage. Examples of antioxidants suitable for use in the compositions of the invention are potassium sulfite, sodium bisulfite, sodium erythrobate, sodium metabisulfite, sodium sulfite, propyl gallate, cysteine hydrochloride, butylated hydroxytoluene, butylated hydroxyanisole, and so on.

[0118] Alpha or Beta Hydroxy Acids, Alpha Keto Acids

[0119] It may be desired to add one or more alpha or beta hydroxy acids or alpha ketoacids to the compositions of the invention. Suggested ranges are 0.01-20%, preferably 0.1-15%, more preferably 0.5-10% by weight of the total composition. Suitable alpha hydroxy acids and alpha ketoacids are disclosed in U.S. Pat. No. 5,091,171, which is hereby incorporated by reference. Such alpha hydroxy acids are as follows:

[0120] a) Organic carboxylic acids where one hydroxyl group is attached to the alpha carbon atom of the acid. The general structure of such alpha hydroxy acids may be represented by the following formula:

(Ra)(Rb)C(OH)COOH

wherein Ra and Rb are H, F, Cl, Br, alkyl, aralkyl, or aryl group of saturated, unsaturated, straight or branched chain or cyclic form having 1-10 carbon atoms, and in addition Ra or Rb may carry OH, CHO, COOH and alkoxy groups having 1 to 9 carbon atoms.

[0121] The second group of alpha hydroxy acids may be represented by the following formula:

(Ra)COCOO(Rb)

wherein Ra and Rb are H, alkyl, aralkyl, or aryl groups of straight or branched chain saturated or unsaturated alkyl having 1 to 10 carbon atoms, and in addition Ra may carry F, Cl, Br, I, OH, CHO, COOH, and alkoxy groups having 1 to 10 carbon atoms.

[0122] The alpha hydroxy acids may exist in the keto acid form, or the ester form. Examples of such alpha hydroxy acids include glycolic acid, malic acid, pyruvic acid, mandelic acid, lactic acid, methyllactic acid, and so on.

[0123] Also beta hydroxy acids such as salicylic acid, and derivatives thereof may be included in the compositions of the invention.

[0124] The anhydrous emulsions of the invention are made using conventional techniques known by those skilled in the art of cosmetic formulation.

[0125] The composition containing the ascorbic acid, nonaqueous polar organic solvent and nonaqueous nonpolar organic solvent will typically be applied onto marionette lines for a period of time sufficient to effectuate a statistically significant improvement in their appearance.

[0126] The present invention will be better understood from the examples which follow, all of which are intended for illustrative purposes only and are not meant to unduly limit the scope of the invention in any way.

EXAMPLE 1

[0127] A formulation for treating marionette lines in accordance with the present invention is listed in Table 1, below.

TABLE 1

Ingredient	% by weight
Propylene glycol	45.00
Ascorbic acid	10.50
glycerin	7.00
adenosine	0.04
Cetyl PEG/PPG - 10/1 dimethicone	3.00
Cyclopentasiloxane and dimethicone crosspolymer	18.00
cyclopentasiloxane	15.50
Acrylates copolymer	0.46
Lauroyl lysine	0.50
	100.00

[0128] The above-identified composition was then evaluated in order to determine its effect on treating marionette lines. The results are found in Table 2, below.

TABLE 2

ATTRIBUTE	SAMPLE SIZE	BASELINE	FOUR (4) WEEKS	EIGHT (8) WEEKS	TWELVE (12) WEEKS	P-VALUE
Marionette Lines	54	3.50 (2.00–4.00)	3.00 (2.00–4.00)	3.00 (2.00–4.00)	3.00 (2.00–4.00)	<0.001

[0129] As can be seen from the results, treatment of marionette lines with the composition in Table 1 yielded a statistically significant frequency of improvement in reducing marionette line appearance.

[0130] These results were compared to treatment of marionette lines with a conventional retinol-based cream (0.075% retinol), the results of which are found in Table 3, below.

TABLE 3

ATTRIBUTE	SAMPLE SIZE	BASELINE	FOUR (4) WEEKS	EIGHT (8) WEEKS	TWELVE (12) WEEKS	P-VALUE
Marionette Lines	54	3.50 (2.00–4.00)	3.50 (2.00–4.00)	3.50 (2.00–4.00)	3.00 (2.00–4.00)	0.135

[0131] As can be seen from the results in Table 3., treatment of marionette lines with a composition containing 0.075% conc. of retinol failed to yield a statistically significant frequency of improvement in reducing marionette line appearance.

What is claimed is:

1. A process for treating marionette lines damaged by age, sun exposure and pollution comprising contacting the marionette lines with a composition containing:

(a) from about 1 to about 20% by weight of ascorbic acid;

(b) from about 30 to about 80% by weight of a nonaqueous polar organic solvent; and

(c) from about 20 to about 60% by weight of a nonaqueous nonpolar organic solvent, all weights being based on the weight of the composition.

2. The process of claim 1 wherein the composition is anhydrous.

3. The process of claim 1 wherein the ascorbic acid is present in the composition in an amount of from about 5 to about 15% by weight, based on the weight of the composition.

4. The process of claim 1 wherein the nonaqueous polar organic solvent is present in the composition in an amount of from about 40 to about 60% by weight, based on the weight of the composition.

5. The process of claim 1 wherein the nonaqueous polar organic solvent is chosen from monohydric alcohols and dihydric alcohols.

6. The process of claim 1 wherein the nonaqueous polar organic solvent is propylene glycol.

7. The process of claim 1 wherein the nonaqueous nonpolar organic solvent is present in the composition in an amount of from about 20 to about 50% by weight, based on the weight of the composition.

8. The process of claim 1 wherein the nonaqueous nonpolar organic solvent is chosen from at least one silicone.

9. A process for imparting a more youthful appearance onto a human face comprising contacting marionette lines present on the human face with a composition containing:

(a) from about 1 to about 20% by weight of ascorbic acid;

(b) from about 30 to about 80% by weight of a nonaqueous polar organic solvent; and

(c) from about 20 to about 60% by weight of a nonaqueous nonpolar organic solvent, all weights being based on the weight of the composition.

* * * * *

EXHIBIT 14

Marc Cornell

Formulation scientist

Greater New York City Area · 500+ connections

Join to Connect

Self-employed

Elizabethtown College

About

R&D product development scientist with 30 years of experience in skincare, wound care and drug delivery fields. I am a skilled team builder who interacts across job functions (R&D, sales and marketing) in support of developing and launching consumer products.

Specialties: Formulation, cosmetic product development, drug delivery, skin biology, cosmetic active evaluation, process validation, process development, cosmeceutical product development, rheological analysis.

Activity

You need to read this!! Our CEO is one remarkable women

Liked by **Marc Cornell**

Great Information.

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Experience

Self-employed

2 years 1 month

Owner

Apr 2018 – Present · 2 years 1 month

Formulation Scientist

Apr 2018 – Present · 2 years 1 month

Owner

Mar-key Consulting

Jun 2018 – Present · 1 year 11 months

Freehold, New Jersey

Full service consultant for the cosmetic industry

Englewood Lab

4 years 5 months

VP of Innovation

Jan 2016 – May 2018 · 2 years 5 months

United States

Vice President of R&D and Technical Services
Jeen International

Mar 2012 – Dec 2013 · 1 year 10 months

Fairfield NJ

Marc develops innovative textures using raw materials and creative formulation science to promote and support Jeen International.

Cheif Formulator
ChemAid Laboratories, Inc.

Aug 2009 – Mar 2012 · 2 years 8 months

Saddle Brook NJ

Innovative creative formulation product development position. Interacts with internal and external customers in support of contract manufacturing operations for the cosmetic and personal care industry.

L'Oreal USA
8 years

Director , Skincare R&D, New Technology
2006 – 2009 · 3 years

Researching and developing new cosmetic active delivery platforms.

Director Skincare R&D
2001 – 2006 · 5 years

Working with and developing a team of cosmetic chemists that formulate innovative patent pending products that grow the brands sales and market share.

Senior Scientist
The Nesotrata Company

1997 – 2000 · 3 years

R&D product development of AHA skincare products

Technical Director

Senior Scientist
Convatec
1990 – 1994 · 4 years
R&D scientist in charge of wound care and skincare product development

Education

Elizabethtown College
BS · Biology
1975 – 1979
studied biochemistry

University of Missouri-Rolla

Patents

Enhancedly-solubilized beta-hydroxy acids and higher potency skin peels formulated therefrom
Issued July 23, 2013 · USPTO · 08492366
The solubility in solvent media, notably alcoholic media, of the beta-hydroxy acids ("BHAs"), notably the chemical skin peeling agent salicylic acid, is markedly enhanced by solubilizing same in the presence of at least one alpha-hydroxy acid ("AHA"); higher potency, more concentrated BHA skin peel products are thus formulated.

See patent

Groups

Anti-Ageing Skin Care Conference

Cosmetics News & Careers by New Chapter Consulting

Drug Delivery & Formulation Network

Natural and Organic Cosmetics Marketplace

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Recommendations

A preview of what LinkedIn members have to say about Marc:

" Marc was far more than a Chief Formulator at Chemaid Laboratories. Marc was a teacher, mentor, problem solver, customer advocate, inventor and much more. He understands not only the chemistry of formulating luxury beauty products but how to manufacture them as well. He is a wonderful mentor for younger chemists and a team player. I highly recommend Marc for Senior R&D positions. I enjoyed working with him and hope to do so in the future.

" Innovation! Creativity! Mentor! Fun! Technical! Teacher! Marc is all of these and more. He is one of the best formulators I have had the privilege of working with. You can always depend on Marc to answer those tough formulation challenges. He is invaluable in helping the junior staff with their questions. He takes the time to educate customers in the fine art of technical innovation. Where else can you find someone who can publish a paper, work on a technical book, conference call with the sales force and make two hundred 50 gram batches in one day!

People also viewed

Alex Sways
CEO at Skin Solutions

Ni'Kita Wilson
Vice President of Ideation and Innovation at Voyant Beauty

Geoffrey Genesky
TOM FORD BEAUTY Global Product Marketing & Product Development Director at The Estée Lauder Companies Inc.

Tony O'Lenick
Principal Consultant at NASCENT TECHNOLOGIES CORPORATION

Lisa Gary
Business Development Executive

Judy Cohee
Product Development and Marketing professional open to new consulting opportunities

Jules Zecchino
Co Founder and Chief Technical Officer at Skyler Brand Ventures LLC

Highly Creative & Experienced Personal Care Chemist focused on Skincare Innovation, Manufacturing, & Product Development

Mark Chandler
ACT Solutions Corp

Others named **Marc Cornell**

Marc Cornell
Principal Development Planner at Sunshine Coast Council
Queensland, Australia

Marc Cornell
Logistics Officer at Royal Air Force
Saudi Arabia

Marc A. Cornell, CRPS®
Internal Client Advisor - Retirement Link at J.P. Morgan Asset Management
Columbus, Ohio Area

Marc Cornell
Sparky at Sparky
Greater Detroit Area

7 others named Marc Cornell are on LinkedIn

See others named **Marc Cornell**

Learn the skills Marc has

Learning Power BI Desktop

Productivity Principles to Make Time for What's Important

Marc's public profile badge

Include this LinkedIn profile on other websites

Marc Cornell
Formulation scientist

Owner at Self-employed

Elizabethtown College

View profile

LinkedIn

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View similar profiles

Mindy Goldstein, Ph.D.
Independent Cosmetic Consultant - R & D, Scientific Affairs, Expert Witness

William (Bill) Bryan
CEO/Owner/Microbiologist at Microconsult, Inc.

Judith Cooley
Owner at Global Confection Connections LLC

Roger Zellner
Owner at Rogue Zebra Consulting & Coaching

Edward Schack
Owner at EES Cosmetic Solutions

Lisa VanBockern

Pamela Jo Busiek

Owner at The PJB Group, LLC

Irene Strohbeen

Entrepreneur In Residence at Lawrence University

Frank LaRussa

CEO - Executive Recruiter - LaRussa & Associates (781)438-8373 frank@larussarecruiters.com

EXHIBIT 15

Hansenne Isabelle

VP Skin Care R&D at L'Oreal USA

Greater New York City Area · 7 connections

L'Oreal USA

Université Paris Descartes

Experience

VP Skin Care R&D
L'Oreal USA

Education

Université Paris Descartes
1982 – 1986

People also viewed

Mansi Patel
Associate Scientist-I at Merck

Hasina Abdul Karim
Assistant Store Manager at kate spade new york

Dan Mulhern
President at Daniel Mulhern Entertainment, Inc.

Grant Cardone
Real Estate Investor $1.8B AUM • Author 21 Bestselling Books/Business Programs • Creator of 10X Movement • 500 Employees

Ruba A.
Senior Strategic Communications & Marketing Professional

Melissa Mora
interior designer

Melissa Mora
Senior Accountant at Guzman & Guzman P.A.

Mike Bloomberg
Entrepreneur, philanthropist, and three-term mayor of New York City.

Melissa Mora
BSN, RN

Melissa Mora
Currently seeking entry level Human Resource position.

EXHIBIT 16

Hani Fares

Ashland

Somerset, New Jersey · 478 connections

Join to Connect

Ashland Inc

Rutgers University

About

Experienced leader in the Cosmetics and Pharmaceutical industries with an extensive track record in formulating and launching skin, oral and personal care products. Worked closely with Marketing and product development teams to launch products in brands like Kiehl's, Skinceuticals, La Roche-Posay, Maybelline, Aqua Fresh and Oxy. In addition, launched and promoted several polymers for skin, oral and hair care applications. Published extensively, and presented at National, and International conventions and won several distinguished scientific awards.

Activity

Today is the last day of my 13 year journey at NeoStrata and JNJ. What was once a small start up company has turned into an amazing collection of...

Liked by **Hani Fares**

CONGRATULATIONS....DR. Michelle Obama. Since her husband has been out of office, and her children out of the house, Mrs. Obama decided to complete...

Liked by **Hani Fares**

Experience

Senior Director

Ashland Inc

May 2008 – Present · 12 years

Bridgewater, NJ

• Responsible for Oral Care, Skincare, and Aerosol applications, and Consumer Science worldwide
• Lead an international team of scientist to develop both local and global applications.
• Oversee the global R&D portfolio for innovation for Oral Care, Skin Care and Aerosol.
• Provide insight on how to launch new polymers in Skin Care, Aerosol, and Oral Care.
• Lead the design of new tests and formulations to highlight the unique properties of the molecules.
• Work closely with the...

Show more

Assistant Vice President

L'Oreal

Nov 2001 – May 2008 · 6 years 7 months

• Presented to the president of L'Oreal USA on new product opportunities and incoming launches.
• Presented to senior R&D management on new technologies as well as progress ongoing projects.
• Presented new launches to the press and interacted with experts in the field to plan

Show more

Senior Chemist

GlaxoSmithKline

Sep 1991 – Nov 2001 · 10 years 3 months

• Reformulated creams, lotions, deodorants, hair-care shampoos and after-shave products for South America, Canada and the United States.
• Managed multi project timelines for product launches.
• Lead multifunctional teams in the development of new Dermatological and Oral Healthcare products.
• Formulated skin and oral healthcare products such as Oxy and Aquafresh.
• Set-up systems for studying the release and permeation of actives, such as: benzoyl peroxide, salicylic acid,...

Show more

Research And Development Scientist

Block Drug Company, Inc.

Apr 1990 – Sep 1991 · 1 year 6 months

Formulated creams, lotions and gels both for OTC and prescription products.
* Studied the mucosal and dermal permeation of actives from the formulations developed.
• Formulated toothpaste, mouthwashes and oral care products
* Scaled-up formulations to pilot plant and production scale.
* Monitored stability of the formulations and managed the overall process of developing a formulation and moving it all the way to the market.

Research Assistant

Felton Worldwide

May 1988 – Apr 1990 · 2 years

• Formulated gels, creams and lotions with sunscreens to achieve high SPF values.
* Investigated the effect of solvents on the degradation and performance of sunscreens.

Education

Rutgers University
Ph. D. · Pharmaceutics
2000 – 2007

INACTIVE-1703030558-LIU Brooklyn
M. S. · Industrial Pharmacy
1997 – 2000

Alexandria University
B.S. · BioChemistry
1981 – 1985

Groups

The Art of Formulation Discussion Group

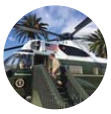
LuxuryIn: the ultimate beauty, fashion, lifestyle & retail network

Recommendations

A preview of what LinkedIn members have to say about Hani:

" Hani is a remarkable professional with a great expertise and passion for his work. I had the pleasure of working with him over the course of two years while Director of Product Development for Kiehl's since 1851, and Hani is responsible for launches such as Dermatologist Solutions, which represented a total formulation breakthrough in the beauty industry at the time. Hani is a team player, understands the marketing needs while challenging

People also viewed



Tim Hellem
EHS Manager at Nutrilite

Janjira Intra
Research and Development Deputy Director at Amway Thailand

Jorge Valencia
Director empresarial en Amway Nutrilite Vitamins

June Rust
Owner, Eliza's Quest Foods, LLC (Postum.com)

Casey Arbiso
Director Of Manufacturing Operations at MeriCal LLC

Tom Gourley
Account Manager - Health & Wellness at Ashland

Christian Bo Johnson
R&D Analytical Lab Coordinator

Connie Choi
Sr. Quality Engineer at Amway Nutrilite Vitamins

Others named **Hani Fares**

Hani Fares
Public Health Officer UNHCR
Barcelona Area, Spain

Hani Fares
Web Software Developer at Knowledge-Hero GmbH
Kempten (Allgäu) Area, Germany

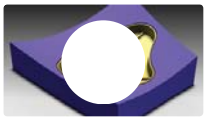
Hani Fares
AGENT COMMERCIAL EN IMMOBILIER at A La Lucarne de l'Immobilier
Bordeaux Area, France

Hani Fares
مدير في لحظات الدعايه والإعلان
Kuwait

12 others named Hani Fares are on LinkedIn

See others named **Hani Fares**

Learn the skills Hani has



Siemens NX: Design for Injection Molding

Managing a Cross-Functional Team

See all courses

Hani's public profile badge

Include this LinkedIn profile on other websites

Hani Fares
Ashland

Senior Director at Ashland Inc

Rutgers University

View profile

LinkedIn

View profile badges

Get a job like Hani's

Python jobs in Raritan, NJ
48,551 open jobs

Python jobs in Edison, NJ
48,551 open jobs

Executive jobs in New Brunswick, NJ
64,153 open jobs

Python jobs in New Brunswick, NJ
48,551 open jobs

Python jobs in North Brunswick, NJ
48,551 open jobs

EXHIBIT 17

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

UNIVERSITY OF MASSACHUSETTS and CARMEL LABORATORIES, LLC, Plaintiffs, v. L'ORÉAL USA, INC., Defendant.	Case No. 17-cv-868-CFC-SRF

PLAINTIFFS' INITIAL DISCLOSURES

Pursuant to Rule 26(a)(1)(A), Plaintiffs University of Massachusetts ("UMass") and Carmel Laboratories, LLC ("Carmel Labs") (together, "Plaintiffs"), by their attorneys, hereby submit these Initial Disclosures to Defendant L'Oréal USA, Inc. ("L'Oréal USA"). These disclosures are based upon information reasonably and currently available to Plaintiffs. Plaintiffs reserve the right to supplement these disclosures based upon information developed in the course of this lawsuit through discovery, factual investigation, and/or any information provided by Defendant. Plaintiffs also reserve the right to object to the admissibility of any information disclosed.

I. DISCLOSURE OF INDIVIDUALS LIKELY TO HAVE DISCOVERABLE INFORMATION

NAME AND ADDRESS	SUBJECT MATTER
James G. Dobson, Jr. Dr. Dobson is represented by Susman Godfrey L.L.P. in this matter and should be contacted from Susman Godfrey L.L.P.	Dr. Dobson is a named inventor of the patents-in-suit. Dr. Dobson is likely to have information concerning the conception, reduction to practice, history, licensing, and ownership of the patents-in-suit; prosecution of the patent application from which the patents-in-suit

	issued; Defendant's willful infringement; and Defendant's affirmative defenses of invalidity, and prosecution history estoppel and disclaimer
Michael F. Ethier Dr. Ethier is represented by Susman Godfrey L.L.P. in this matter and should be contacted from Susman Godfrey L.L.P.	Dr. Ethier is a named inventor of the patents-in-suit. Dr. Ethier is likely to have information concerning the conception, reduction to practice, history, licensing, and ownership of the patents-in-suit; prosecution of the patent application from which the patents-in-suit issued; and Defendant's affirmative defenses of invalidity, and prosecution history estoppel and disclaimer
Dennis Wyrzykowski Mr. Wyrzykowski is represented by Susman Godfrey L.L.P. in this matter and should be contacted from Susman Godfrey L.L.P.	Mr. Wyrzykowski is the Founder and President of Teresian Carmelites and Carmel Labs. Mr. Wyrzykowski is likely to have information concerning Carmel Labs' products embodying claims of the patents-in-suit; Plaintiffs' damages, including lost profits and a reasonable royalty; Plaintiffs' efforts to ensure compliance with 35 U.S.C. § 287; Defendant's willful infringement; and Defendant's affirmative defense of equitable defenses.
Renato Jose Mr. Jose is represented by Susman Godfrey L.L.P. in this matter and should be contacted from Susman Godfrey L.L.P.	Mr. Jose is likely to have information concerning Carmel Labs' products embodying claims of the patents-in-suit.
James McNamara Mr. McNamara is represented by Susman Godfrey L.L.P. in this matter and should be contacted from Susman Godfrey L.L.P.	Dr. McNamara is the Executive Director of UMass Medical School's Office of Technology Management. Dr. McNamara is likely to have information concerning licensing of the patents-in-suit; and Plaintiffs' damages.
Kevin Lehman Dr. Lehman is represented by Susman Godfrey L.L.P. in this matter and should be contacted from Susman Godfrey L.L.P.	Dr. Lehman is Licensing Officer at UMass Medical School's Office of Technology Management. Dr. Lehman is likely to have information concerning licensing of the patents-in-suit; and Plaintiffs' damages.
L'Oréal USA May be contacted through Defense	L'Oréal USA is the defendant in this case. It is believed that L'Oréal USA has knowledge relevant to the manufacture,

counsel.	sale, use, importation, and distribution of products using the technology at issue in this case, as well as L'Oréal USA's willful infringement of the patents-in-suit. It is further believed that L'Oréal USA will have knowledge of the facts related to the design, development and operation of products using the technology at issue in this case.
Thomas Sarakatsannis May be contacted through Defense counsel.	Mr. Sarakatsannis is the General Counsel of L'Oréal U.S.A. It is believed that Mr. Sarakatsannis has knowledge relevant to the manufacture, sale, use, importation, and distribution of products using the technology at issue in this case, as well as L'Oréal USA's willful infringement of the patents-in-suit. It is further believed that Mr. Sarakatsannis will have knowledge of the facts related to the design, development and operation of products using the technology at issue in this case.
L'Oréal S.A. May be contacted through Defense counsel.	It is believed that L'Oréal S.A. has knowledge relevant to the manufacture, sale, use, importation, and distribution of products using the technology at issue in this case, as well as L'Oréal USA's willful infringement of the patents-in-suit. It is further believed that L'Oréal S.A. will have knowledge of the facts related to the design, development and operation of products using the technology at issue in this case.
Jean-Paul Agon May be contacted through Defense counsel.	Mr. Agon is the CEO of L'Oréal S.A. It is believed that Mr. Agon has knowledge relevant to the manufacture, sale, use, importation, and distribution of products using the technology at issue in this case, as well as L'Oréal USA's willful infringement of the patents-in-suit. It is further believed that Mr. Agon will have knowledge of the facts related to the design, development and operation of products using the technology at issue in this case.
Alain Evrard	Mr. Evrard is the former Director of Corporate Acquisitions, Licensing &

May be contacted through Defense counsel.	External Business Development for L'Oréal S.A. It is believed that Mr. Evrard has knowledge relevant to the manufacture, sale, use, importation, and distribution of products using the technology at issue in this case, as well as L'Oréal USA's willful infringement of the patents-in-suit. It is further believed that Mr. Evrard will have knowledge of the facts related to the design, development and operation of products using the technology at issue in this case.
Denis Boulard May be contacted through Defense counsel.	Mr. Boulard is the Global Head of Patents at L'Oréal S.A. It is believed that Mr. Boulard has knowledge relevant to the manufacture, sale, use, importation, and distribution of products using the technology at issue in this case, as well as L'Oréal USA's willful infringement of the patents-in-suit. It is further believed that Mr. Boulard will have knowledge of the facts related to the design, development and operation of products using the technology at issue in this case.
Elizabeth Hunter Lauten May be contacted through Defense counsel.	Ms. Lauten is an employee of L'Oréal U.S.A. It is believed that Ms. Lauten has knowledge relevant to the manufacture, sale, use, importation, and distribution of products using the technology at issue in this case, as well as L'Oréal USA's willful infringement of the patents-in-suit. It is further believed that Ms. Lauten will have knowledge of the facts related to the design, development and operation of products using the technology at issue in this case.
Jean-Thierry Simonnet May be contacted through Defense counsel.	Mr. Simonnet is an employee of L'Oréal U.S.A. It is believed that Mr. Simonnet has knowledge relevant to the manufacture, sale, use, importation, and distribution of products using the technology at issue in this case, as well as L'Oréal USA's willful infringement of the patents-in-suit. It is further believed that Mr. Simonnet will have knowledge of the facts related to the design, development

	and operation of products using the technology at issue in this case.
Zhi Pan May be contacted through Defense counsel.	Ms. Pan is an employee of L'Oréal U.S.A. It is believed that Ms. Pan has knowledge relevant to the manufacture, sale, use, importation, and distribution of products using the technology at issue in this case, as well as L'Oréal USA's willful infringement of the patents-in-suit. It is further believed that Ms. Pan will have knowledge of the facts related to the design, development and operation of products using the technology at issue in this case.
Guive Balooch May be contacted through Defense counsel.	Mr. Balooch is an employee of L'Oréal U.S.A. It is believed that Mr. Balooch has knowledge relevant to the manufacture, sale, use, importation, and distribution of products using the technology at issue in this case, as well as L'Oréal USA's willful infringement of the patents-in-suit. It is further believed that Mr. Balooch will have knowledge of the facts related to the design, development and operation of products using the technology at issue in this case.
Ashleigh Murtaugh May be contacted through Defense counsel.	Ms. Murtaugh is an employee of L'Oréal U.S.A. It is believed that Ms. Murtaugh has knowledge relevant to the manufacture, sale, use, importation, and distribution of products using the technology at issue in this case, as well as L'Oréal USA's willful infringement of the patents-in-suit. It is further believed that Ms. Murtaugh will have knowledge of the facts related to the design, development and operation of products using the technology at issue in this case.
Jamie Iannacone Spomer Chicago, Illinois	Ms. Spomer is a former employee of L'Oréal U.S.A. It is believed that Ms. Spomer has knowledge relevant to the manufacture, sale, use, importation, and distribution of products using the technology at issue in this case, as well as L'Oréal USA's willful infringement of the patents-in-suit. It is further believed that

	Ms. Spomer will have knowledge of the facts related to the design, development and operation of products using the technology at issue in this case.
Marc Cornell New York, New York	Mr. Cornell is a former employee of L'Oréal U.S.A. It is believed that Mr. Cornell has knowledge relevant to the manufacture, sale, use, importation, and distribution of products using the technology at issue in this case, as well as L'Oréal USA's willful infringement of the patents-in-suit. It is further believed that Mr. Cornell will have knowledge of the facts related to the design, development and operation of products using the technology at issue in this case.
Isabelle Hansenne May be contacted through Defense counsel.	Ms. Hansenne is an employee of L'Oréal U.S.A. It is believed that Ms. Hansenne has knowledge relevant to the manufacture, sale, use, importation, and distribution of products using the technology at issue in this case, as well as L'Oréal USA's willful infringement of the patents-in-suit. It is further believed that Ms. Hansenne will have knowledge of the facts related to the design, development and operation of products using the technology at issue in this case.
Hani Fares New York, New York	Mr. Fares is a fomer employee of L'Oréal U.S.A. It is believed that Mr. Fares has knowledge relevant to the manufacture, sale, use, importation, and distribution of products using the technology at issue in this case, as well as L'Oréal USA's willful infringement of the patents-in-suit. It is further believed that Mr. Fares will have knowledge of the facts related to the design, development and operation of products using the technology at issue in this case.
Julien Laboureau May be contacted through Defense counsel.	Mr. Laboureau is an employee of L'Oréal S.A. It is believed that Mr. Laboureau has knowledge relevant to the manufacture, sale, use, importation, and distribution of products using the technology at issue in this case, as well as L'Oréal USA's

	willful infringement of the patents-in-suit. It is further believed that Mr. Laboureau will have knowledge of the facts related to the design, development and operation of products using the technology at issue in this case.
Pascal Portes May be contacted through Defense counsel.	Mr. Portes is an employee of L'Oréal S.A. It is believed that Mr. Portes has knowledge relevant to the manufacture, sale, use, importation, and distribution of products using the technology at issue in this case, as well as L'Oréal USA's willful infringement of the patents-in-suit. It is further believed that Mr. Portes will have knowledge of the facts related to the design, development and operation of products using the technology at issue in this case.
Marie-Laurence Abella May be contacted through Defense counsel.	Ms. Abella is an employee of L'Oréal S.A. It is believed that Ms. Abella has knowledge relevant to the manufacture, sale, use, importation, and distribution of products using the technology at issue in this case, as well as L'Oréal USA's willful infringement of the patents-in-suit. It is further believed that Ms. Abella will have knowledge of the facts related to the design, development and operation of products using the technology at issue in this case.

Plaintiffs reserve their rights to seek discovery from and/or rely on the testimony of any individual identified in the Rule 26 disclosures of any other party in this action.

II. DISCLOSURE OF CATEGORIES OF DOCUMENTS

Plaintiffs generally maintain possession, custody, or control of documents and electronically stored information concerning the matters described in the operative complaint, including the file history and prosecution of the patents-in-suit, the conception and reduction to practice of the patents-in-suit, Carmel Labs' products embodying the claims of the patents-in-suit, agreements concerning the patents-in-suit, and Defendant's infringing products. Plaintiffs

will produce such documents in accordance with the discovery time-table established by the parties and the Court.

III. DISCLOSURE OF COMPUTATION OF DAMAGES

This case is in its infancy, and Plaintiffs' investigation concerning damages is continuing. Plaintiffs are entitled to damages adequate to compensate them for Defendant's infringement, i.e., at least a reasonable royalty. Plaintiffs also are entitled to lost profits resulting from Defendant's infringement, as well as interest and costs as fixed by the Court. Because the computation of damages depends on a number of factors, which will be subject to fact and expert discovery, the complete computation cannot be provided at this time. It is anticipated, however, that Plaintiffs' damages will be calculated by applying a reasonable royalty to the total revenues generated by Defendant, based on or through Defendant's infringing products and activities. To this damages amount, Plaintiffs' lost profits will be added.

Plaintiffs will provide supplementary information regarding a computation of damages after damages-related discovery is made available by Defendant, and in accordance with the Court's expert discovery schedule.

IV. DISCLOSURE OF INSURANCE AGREEMENTS

Subject to and without waiving the above qualifications, Plaintiffs are not aware of any relevant insurance agreement under which an insurance business may be liable to satisfy all or part of a possible judgment in this action or to indemnify or reimburse for payments made to satisfy the judgment.

DATED: August 19, 2019

Respectfully submitted,

FARNAN LLP

/s/ *Brian E. Farnan*

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Michael J. Farnan (Bar No. 5165)
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Attorneys for Carmel Laboratories, LLC

COMMONWEALTH OF MASSACHUSETTS,

By its attorney,

MAURA HEALEY
ATTORNEY GENERAL

By: *William Christopher Carmody*
William Christopher Carmody
Special Assistant Attorney General
SUSMAN GODFREY L.L.P.
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New York, NY 10019
Telephone: (212) 336-8330
Facsimile: (212) 336-8340
bcarmody@susmangodfrey.com

Attorney for University of Massachusetts

CERTIFICATE OF SERVICE

I, Brian E. Farnan, hereby certify that on Augsut 19, 2019, a copy of Plaintiffs' Initial Disclosures was served on the following as indicated:

Via E-Mail
Frederick L. Cottrell, III
Jeffrey L. Moyer
Katharine L. Mowery
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Attorneys for Defendant L'Oreal USA, Inc.

Via E-Mail
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Katherine F. Murray
Serli Polatoglu
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Attorneys for Defendant L'Oreal USA, Inc.

/s/ Brian E. Farnan
Brian E. Farnan (Bar No. 4089)

EXHIBIT 18

REMARKS

Claim 1 has been amended to require the presence of adenosine (so it corresponds to previous claim 23).

Claims 2, 3, 5, 6, 8, 9, 11, 12, 14, 15, 17, 18, 22 and 23 have been canceled.

Claims 1, 4, 10, 13 and 19-21 are currently pending.

The Office Action rejected claims 1, 2, 4 and 5 under 35 U.S.C. § 102 as anticipated by U.S. patent 3,978,213 ("Lapinet"), and claims 1-6, 8-15 and 17-23 under 35 U.S.C. § 103 as obvious over U.S. patent 6,423,327 ("Dobson"). In view of the following comments, Applicant respectfully requests reconsideration and withdrawal of these rejections.

The pending claims relate to methods of softening expression lines using specified amounts (0.1-10%, more specifically 0.1-1.0%) of adenosine. Of particular note, the invention methods require direct application of the specified amount of adenosine to the expression lines with the intent and effect of softening the expression lines. None of the applied art teaches or suggests these unique treatment methods.

Initially, Applicant notes that Lapinet does not relate to adenosine. The Office Action recognized this fact – previous claim 23 was not rejected over Lapinet. Given that the claims have been amended to require the presence of adenosine, Applicant respectfully submits that the rejection based upon Lapinet has been rendered moot, and that this rejection should be withdrawn.

Regarding Dobson, this reference teaches applying minimal, millimolar amounts of adenosine such that dermal cell proliferation is avoided. Thus, the express teaching of Dobson is to strictly limit the amount of adenosine used to achieve a desired effect while,

importantly, avoiding an undesired effect resulting from the use of too much adenosine. In other words, Dobson expressly teaches away from using "significant" (that is, greater than 10^{-3} M) amounts of adenosine. This is in sharp contrast to the claimed invention which requires the presence of a significant amount of adenosine compound to achieve the required dermo-relaxation effect. One skilled in the art, following Dobson, would be led to use extremely minimal amounts of adenosine and, thus, would be led away from the presently claimed invention which requires application of significant amounts of adenosine compound to effect dermo-relaxation. Given this fundamental teaching away by Dobson, Dobson cannot teach or suggest the claimed invention.

In this regard, Applicant notes the attached precedential opinion from the Board of Patent Appeals and Interferences in *Ex parte Whalen* (Tab A). In *Whalen*, the Examiner's obviousness rejection was based on the reasoning that a person of ordinary skill in the art would have been motivated to optimize a specific property of prior art embolizing compositions (viscosity) because he would have had a reasonable expectation of success in achieving the safest clinical outcome and avoiding transvenous passage of the embolizing composition. (Pages 13-14). The Board rejected this reasoning, and concluded that the Examiner had not made out a *prima facie* case of obviousness.

Initially, the Board noted that "while discovery of an optimum value of a variable in a normal process is normally obvious, this is not always the case. One exception to the rule is where the parameter optimized was not recognized in the prior art as one that would affect the results." (Page 14).

The Board explained that the Examiner had not pointed to any teaching in the cited references, or had not provided any reasoning based on scientific reasoning, that would support the conclusion that it would have been obvious to optimize the prior art embolizing compositions by increasing viscosity to the levels required by the claims. In fact, the Board stated, the prior art suggested a low viscosity was desired (pages 14-15), leading the Board to conclude that "in our view, none of the cited references would have led a person of ordinary skill in the art to modify the known embolic compositions by increasing their viscosity..." (Page 15).

The Board then reasoned that *KSR* stands for the proposition that when prior art teaches away from the claimed solution, obviousness cannot be proven merely by showing that a known composition cold have been modified by routine experimentation or solely on the expectation of success – it must be shown that some apparent reason to modify the known composition in the required manner existed. (Page 16).

Following *Whalen*, it is clear that Dobson does not render the claimed methods obvious. As noted above, Dobson teaches using minimal amounts of adenosine (just as the prior art in *Whalen* taught that low viscosity compositions were desirable). Also, no apparent reason to ignore Dobson's teachings and to increase adenosine concentration exists (just as no apparent reason to increase viscosity existed in Whalen). Accordingly, no *prima facie* case of obviousness exists.

Furthermore, the pending rejection over Dobson is improper because in making the pending rejection, the Office Action asserted that because expression lines are a type of wrinkle and because Dobson relates to treating wrinkles, Dobson therefore relates to treating

expression lines. However, the logic upon which this assertion is based is flawed, meaning that the rejections themselves are flawed.

As demonstrated by Exhibits A-C relied upon by the Office Action, expression lines differ from other wrinkles such as those caused by sun damage, and expression lines are "difficult to treat." Thus, merely because a reference might disclose methods of treating other types of less difficult-to-treat wrinkles, it does not mean that such a reference (directed to a different type of wrinkle) teaches or suggests anything about how to treat expression lines. In other words, for example, a disclosure related to treating wrinkles caused by sun damage cannot teach or suggest how to treat expression lines, which are recognized as being different, more difficult-to-treat types of wrinkles.

By way of analogy, baldness can be caused by different mechanisms such as, for example, alopecia or testosterone-related baldness. However, whereas testosterone-related baldness might be treatable using compounds which inhibit testosterone production or inhibit conversion of testosterone to active forms, alopecia cannot be treated using such compounds. Thus, although the effect (baldness) is the same, treatment methods are not interchangeable for the different types of baldness.

Similarly, in this case, treatment methods for treating one type of wrinkle are not interchangeable with methods for treating expression lines. Accordingly, references directed to treating wrinkles other than expression lines cannot teach or suggest methods of how to treat expression lines.

Dobson does not teach or suggest softening expression lines by applying adenosine thereto. Rather, Dobson teaches treating wrinkles or damaged skin caused by sun, age and/or

environmental factors such as wind. (See, Dobson at col. 1, lines 28-34). As explained in the present specification (pages 2-4), the conditions treated by Dobson are different from expression lines: their causes are different and their treatments are different. For example, whereas wrinkles are caused by lack of collagen and can be addressed through collagen protection and/or synthesis, expression lines are caused by different mechanisms and cannot be addressed by increasing or protecting collagen. Thus, although Dobson teaches addressing collagen-related conditions such as wrinkles or moisture-related conditions such as dry skin, these references neither teach nor suggest reducing or softening conditions unrelated to collagen or moisturization levels. Because expression lines are not collagen- or moisturization-related, Dobson could not possibly teach or suggest anything concerning treatment of this condition.

In view of the above, Applicant respectfully requests reconsideration and withdrawal of the rejections under 35 U.S.C. §§ 102 and 103.

Applicant believes that the present application is in condition for allowance. Prompt and favorable consideration is earnestly solicited.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.

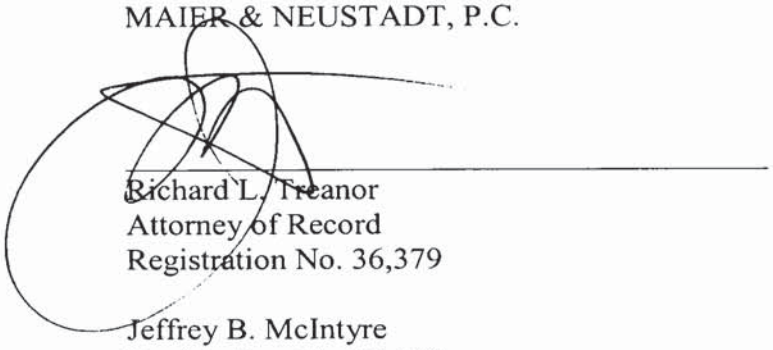

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EXHIBIT 19

REDACTED

EXHIBIT 20

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

UNIVERSITY OF MASSACHUSETTS and CARMEL LABORATORIES, LLC, Plaintiffs, v. L'ORÉAL USA, INC., Defendant.	Case No. 17-cv-868-CFC-SRF

UNIVERSITY OF MASSACHUSETTS AND CARMEL LABORATORIES, LLC'S SECOND SET OF REQUESTS FOR PRODUCTION OF DOCUMENTS TO DEFENDANT L'OREAL USA, INC.

Pursuant to Rules 26 and 34 of the Federal Rules of Civil Procedure, Plaintiffs University of Massachusetts ("UMass") and Carmel Laboratories, LLC ("Carmel Labs") hereby request that Defendant L'Oréal USA, Inc. ("L'Oréal") produce the following documents and things at the office of Susman Godfrey L.L.P., 1301 Avenue of the Americas, 32nd Floor, New York, NY 10019, or at such other mutually agreed upon place, within 30 days hereof and in the manner required by the Federal Rules of Civil Procedure.

DEFINITIONS

1. The term "UMass" refers to the University of Massachusetts, including any of its past and present affiliates, operating divisions, campuses, subsidiaries, directors, officers, agents, employees, representatives, and all persons acting on its behalf.
2. The term "Carmel Labs" refers to Carmel Laboratories, LLC, including any of its past and present affiliates, operating divisions, parent corporations, subsidiaries, directors, officers, agents, employees, representatives, and all persons acting on its behalf.

3. The terms "Defendant," "You," "Your," or "L'Oréal" shall refer to defendant L'Oréal USA, Inc., and shall include L'Oréal S.A. as well as L'Oréal USA Inc.'s parent, subsidiaries, affiliates, divisions, successors or assignees, and their respective officers, directors, employees, consultants, representatives, and agents.

4. The term "Present Lawsuit" refers to the case styled *University of Massachusetts, et al. v. L'Oréal USA, Inc.*, Case No. 1:17-cv-00868-CFC-SRF, pending in the United States District Court for the District of Delaware.

5. The term "Document" or "Documents" is used in the broadest sense permitted by the Federal Rules of Civil Procedure and means the original (or any copy when originals are not available) and any drafts or non-identical copies thereof, whether different from the original because of interlineations, receipt stamp, notation of copy sent or received or otherwise, of any email, instant message, voicemail, book, pamphlet, periodical, letter, report, note, memorandum, record, minutes, calendar or diary entry, transcript, study, compilation, analysis, tabulation, map, diagram, drawing, plan, picture, summary, working paper, chart, paper, graph index, data sheet, data processing card, computer printout, summary of a computer printout, tape, contract, agreement, lease, ledger, journal, balance sheet, account, invoice, purchase order, receipt, billing record, financial data, financial statement, file, diary, film, trip tickets, telex, teletype or other messages, telegram, expense vouchers, instructions, bulletins or any other writing or recording of information, as well as all tape recordings, computer tapes, discs and other electronic or mechanical recordings, however produced, maintained or reproduced, including information stored in or generated by a computer whether or not ever printed out or displayed, within the possession,

custody or control of Defendant or any of its officers, directors, employees, attorneys, or other agents and/or representatives.

6. The term "Person" means natural person, corporation, firm, company, sole proprietorship, partnership, joint venture, association, institute, or other business, legal or governmental entity or association, including any directors, officers, employees, agents or representatives thereof.

7. The term "Agreement" means a contract, agreement, arrangement, or understanding, formal or informal, oral or written, between two or more persons.

8. The term "Communication" refers to any transfer of information, oral or written, be it in the form of facts, ideas, inquiries, opinions or otherwise, by any means, at any time or place, under any circumstances, and is not limited to transfers between persons, but includes other transfers, such as records and memoranda to the file.

9. The phrase "Relating To" means discussing, describing, referring to, pertaining to, containing, analyzing, studying, reporting on, commenting on, evidencing, constituting, setting forth, considering, recommending, concerning, or pertaining to, in whole or in part.

10. The terms "Asserted Patents" and "Patents-in-Suit" shall mean United States Patents No. 6,423,327 and 6,645,513.

11. The term "'327 Patent" refers to U.S. Patent No. 6,423,327.

12. The term "'513 Patent" refers to U.S. Patent No. 6,645,513.

13. The term "Prior Art" means any evidence qualifying as prior art to the Patents-in-Suit under 35 U.S.C. § 102 and/or 35 U.S.C. § 103.

14. The terms "all" and "each" shall be construed as "and," "each," and "and/or."

15. The term "any" should be understood in either its most or least inclusive sense as will bring within the scope of the topic all responses that might otherwise be construed to be out of its scope.

16. The term "including" shall mean including but not limited to.

17. The terms "relate," "relating," or "related" mean in any way, directly or indirectly, in whole or part, relating to, concerning, referring to, discussing, mentioning, regarding, pertaining to, describing, reflecting, containing, analyzing, studying, reporting on, commenting on, evidencing, constituting, setting forth, considering, recommending, modifying, amending, confirming, endorsing, representing, supporting, qualifying, terminating, revoking, refuting, undermining, canceling, contradicting or negating.

18. The terms "and" and "or" shall be construed disjunctively or conjunctively as necessary to bring within the scope of these topics all information which might otherwise be construed to be outside their scope.

19. References to the singular shall include the plural, and references to the plural shall include the singular as may be appropriate to construe the individual document requests in their broadest form.

20. The masculine form of a noun or pronoun shall be considered to include within its meaning the feminine form of the noun or pronoun, and vice versa as may be appropriate to make the individual document requests inclusive rather than exclusive.

INSTRUCTIONS

1. Responsive documents shall be produced as they have been kept in the usual course of business and shall not be shuffled or otherwise rearranged. Alternatively, you may produce responsive documents organized and labeled to correspond to the enumerated

requests of this demand. If any portion of any document is responsive to any request, then the entire document must be produced. Documents that are found stapled, clipped, or otherwise fastened together shall be produced in such form. If there is no document responsive to any particular category, you shall so state in writing.

2. If any portion of a document is responsive to an individual document request, then the entire document shall be produced. If the document contains privileged material, produce the entire document with the privileged material redacted, noting the redactions on the face of the document.

3. If information stored in, or accessible through, computer or other data retrieval systems is produced, it must be accompanied with instructions and all other materials necessary to use or interpret such data.

4. All documents which cannot be legibly copied should be produced in their original form.

5. Each individual document request set forth herein shall be construed independently and not with reference to any other request for purposes of limitation unless a particular request so specifies.

6. Where specific documents are listed as part of a general category of documents, then such listed documents as well as all other documents falling within such general category shall be produced. If any responsive document is withheld under a claim of privilege, You shall furnish a list specifying each such document and setting forth the following information: (i) the date of the document; (ii) the number of pages of the document; (iii) the name and last known address of each person who prepared or participated in the preparation of the document; (iv) the name and last known address

of each addressee or other person to whom the document, or any part thereof, was sent or to whom the document or its contents, or any part thereof, was disclosed; (v) a summary of the general subject matter of the document (and such other information as is necessary to identify the document such as whether the document is a letter or memorandum); (vi) a statement of the basis upon which the asserted privilege is claimed; and (vii) the individual document request herein to which the document is responsive. If no documents are withheld under a claim of privilege, so state. Any document or part of a document withheld under a claim of privilege must be preserved.

7. If any document responsive to this request once existed but has been destroyed or discarded, or is otherwise not capable of being produced, You shall furnish a list specifying each such document and setting forth the following information: (i) the date of the document; (ii) a description of the subject matter of the document; (iii) the name and last known address of each person who prepared or participated in the preparation of the document; (iv) the name and last known address of each addressee or other person to whom the document, or any part thereof, was sent or to whom the document or its contents, or any part thereof, was disclosed; (v) the name and last known address of any person not covered by items (iii) and (iv) who had possession, custody or control of the document or a copy thereof; (vi) the date on which the document was destroyed or discarded and a statement of the reasons why the document was destroyed or discarded or why such document is not capable of being produced; and (vii) the individual document request herein to which the document is responsive.

8. Unless otherwise specified, the documents requested herein are documents prepared, written, sent, dated, received, or in effect at any time on or after October 26, 1998.

9. This request for documents shall be deemed continuing in nature so as to require prompt supplemental responses in accordance with Rule 26(e) of the Federal Rules of Civil Procedure in the event You become aware of, or acquire within Your possession, custody, or control, additional responsive documents at any time hereafter.

REQUEST FOR PRODUCTION

REQUEST FOR PRODUCTION NO. 35: Documents sufficient to show Your corporate governance and structure, including the identity and affiliation of Your corporate officers and directors.

REQUEST FOR PRODUCTION NO. 36: Documents relating to any intellectual property, governance, license, or transfer agreements between L'Oréal USA, Inc., and L'Oréal S.A.

REQUEST FOR PRODUCTION NO. 37: Documents relating to any agreement between L'Oréal USA, Inc., and L'Oréal S.A. relating to any product containing adenosine.

REQUEST FOR PRODUCTION NO. 37: Documents relating to the financing or funding of U.S. Patent Application No. 10/701,495, 11/152,707, 12/649,367 and the development of and applications for U.S. Patents No. 9,018,177; 9,023,826; 9,072,919; and 9,107,853.

DATED: July 19, 2019

Respectfully submitted,

FARNAN LLP

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CERTIFICATE OF SERVICE

I, Brian E. Farnan, hereby certify that on July 19, 2019, a copy of University of Massachusetts and Carmel Laboratories, LLC's Second Set of Requests for Production of Documents to Defendant L'Oreal USA, Inc. was served on the following as indicated:

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/s/ Brian E. Farnan
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EXHIBIT 21

REDACTED

EXHIBIT 22

L'ORÉAL USA MANAGEMENT

STÉPHANE RINDERKNECH, PRESIDENT & CEO, L'ORÉAL USA

Stéphane Rinderknech has spent 19 years at L'Oréal working in foreign markets, both in the Americas and Asia Pacific. In that time, Rinderknech has distinguished himself as a modern business leader known for operational excellence, visionary brand management, digital marketing innovation, a passion for beauty in all of its diverse expressions, and a commitment to corporate social responsibility, ethics and sustainability.

Rinderknech started his career at L'Oréal in Miami, Florida in 2001, as area manager of Lancôme South America within the Travel Retail Division. He was then appointed Director of the Biotherm and Helena Rubenstein brands for the Americas.

He was relocated to Japan in 2005 to take on the role of General Manager of Biotherm. In 2007, he was promoted to Deputy General Manager of Lancôme in Japan. After much success, he was then appointed General Manager of the L'Oréal Luxe Division in South Korea in 2008. In 2011, Rinderknech started his L'Oréal China journey, first as General Manager of L'Oréal Luxe and then as Head of the Consumer Products Division in 2015.

In 2016, Rinderknech was promoted to CEO of L'Oréal China, which, under his management, became the L'Oréal Group's second largest subsidiary and its fastest growing market. In recognition of his strong leadership and strategic acumen, Rinderknech was appointed as a new member of the Executive Committee of the L'Oréal Group in February 2018.

In October 2019, Rinderknech was appointed President and CEO of L'Oréal USA, the company's largest subsidiary, and Executive Vice President, North America.

Rinderknech is a graduate of the Institut Supérieur de Gestion (ISG) in Paris.

STEPHANE CHARBONNIER, SENIOR VICE PRESIDENT, HUMAN RESOURCES AND CHIEF HUMAN RESOURCES OFFICER

Stephane Charbonnier is Senior Vice President of Human Resources and Chief Human Resources Officer for L’Oréal USA, as of February 2017.

In this role, Mr. Charbonnier is responsible for driving leadership and learning initiatives, developing talent and building an HR team with an “employee first” approach. He serves on the L’Oréal USA Strategic Committee and Human Resources Management Committee and reports to L’Oréal USA President and Chief Executive Officer, Frédéric Rozé and Executive Vice President of Human Resources, Jérôme Tixier.

Charbonnier is a solution-oriented leader with proven success building and leading multi-disciplinary HR teams within dynamic organizations. In 2013, he joined L’Oréal USA as the Vice President of Human Resources for the Company’s Consumer Products Division. Under Charbonnier’s leadership, his team supported digital transformation with the redesign of the Marketing and Integrated Marketing Communications teams and successfully integrated employees from NYX and the Multi-Cultural Beauty Division, which includes brands such as Carol’s Daughter and Softsheen-Carson. Prior to joining L’Oréal USA, he worked more than two decades in key HR leadership positions at Towers Watson, PepsiCo, Kraft Foods, American Express and McDonalds in Europe and in the United States.

MATTHEW DIGIROLAMO, CHIEF COMMUNICATIONS OFFICER

Matthew DiGirolamo was appointed L’Oreal USA’s Chief Communications Officer in February 2015. Reporting directly to CEO Frédéric Rozé, Mr. DiGirolamo is responsible for protecting and promoting L’Oréal’s reputation in the U.S. by increasing the visibility of its product innovations, scientific expertise, business success, leadership and social contributions. In this role he directs the company’s communications strategy, overseeing all internal and external communications functions. Mr. DiGirolamo’s Corporate Communications Office partners with the company’s 30 leading beauty brands, across all divisions, to advance the organization’s “beauty for all” mission and its 2020 global sustainability commitments known as “Sharing Beauty With All.”

Mr. DiGirolamo joined L’Oreal USA in January 2014 and previously served as Vice President of External Communications. Prior to joining the company, he was a Los Angeles-based consultant leading strategic communications initiatives for a range of high-profile clients and projects, including Maria Shriver, The Shriver Report, Special Olympics, The Women's Conference, The California Endowment, U.S. Green Building Council and Live Earth.

Matthew DiGirolamo holds a BA in English Literature from the University of Massachusetts-Amherst.

GRETCHEN SAEGH-FLEMING, CHIEF MARKETING OFFICER

Gretchen Saegh-Fleming is the Chief Marketing Officer of L'Oréal USA, a position she was appointed to in 2018.

As Chief Marketing Officer, Gretchen is responsible for the entire marketing function of L'Oréal USA including driving new marketing models, digital innovations and strategic partnerships across the company's portfolio of more than 30 iconic brands. Prior to her current role as Chief Marketing Officer, Gretchen served as a Senior Vice President of Digital and Marketing for L'Oréal USA's Luxe division where she led direct-to-consumer business for luxury brands like Yves Saint Laurent Beauté, Giorgio Armani Beauty & Fragrance, Urban Decay, IT Cosmetics and Clarisonic.

Gretchen joined L'Oréal USA in 2012 as a Vice President of e-commerce and digital innovation within the Luxe division where she launched an omnichannel ecommerce strategy to engage and retain customers, and drove the digital transformation of the brands within the portfolio.

Before joining L'Oréal, Gretchen held various leadership roles at startups and at General Electric, where she launched GE's digital "ecomagination" brand campaign and website in China, and led a digital rebranding effort for GE Healthcare.

Gretchen holds a Master's Degree in business administration from Boston College and a Bachelor's Degree in arts from Dartmouth College.

BERTRAND FONTAINE, PRESIDENT, SALONCENTRIC

Bertrand Fontaine is President of SalonCentric, a position he has held since 2014. As President of SalonCentric, L'Oréal's distribution arm for the Professional Products Division, Mr. Fontaine is responsible for managing company-wide system conversions, salon acquisitions, e-commerce strategy and culture development.

Mr. Fontaine joined L'Oréal in 1995, holding multiple positions in sales and marketing before leading L'Oréal 's Professional Products Division in Japan and the United Kingdom in 2000. Prior to joining L'Oréal, Mr. Fontaine held many roles in human resources, IT and logistics.

Mr. Fontaine received an undergraduate degree from Lycée Henri-IV and a master's degree in economics from Paris-Sorbonne University in France.

NATHALIE GERSCHTEIN, PRESIDENT, L'ORÉAL USA CONSUMER PRODUCTS DIVISION

Nathalie Gerschtein was appointed as President of L'Oréal USA Consumer Products Division in March 2019 and is responsible for the development of the division in the region.

Previously, Ms. Gerschtein was President of Maybelline New York, Garnier and essie in the U.S., a position she held since August 2018.
Ms. Gerschtein started her career with L'Oréal 17 years ago in France as Marketing Director for L'Oréal Paris. In 2009, she led Garnier brand marketing for the European zone, and then moved to India in 2011 to lead the L'Oréal Paris and Garnier brands as General Manager.

Most recently, Ms. Gerschtein contributed to several achievements of L'Oréal Thailand, first as Consumer Products Division General Manager and then as Country Manager. Under her active

leadership, L'Oréal Thailand became the organization's strongest business in South Asia. Beyond the impressive business results, Ms. Gerschtein has been instrumental in modernizing L'Oréal Thailand, attracting and retaining many talents, and launching a promising e-commerce business.

Ms. Gerschtein is a graduate from HEC Paris and London Business School.

ALI GOLDSTEIN, BRAND PRESIDENT, L'ORÉAL PARIS USA

Ali Goldstein is the Brand President of L'Oréal Paris USA, responsible for the strategy, development and growth of the world's biggest beauty brand in the US market. Prior to her appointment in October of 2019, Ms. Goldstein served as General Manager, CPD New Ventures, supporting the President and Management Committee of the Consumer Products Division. Ms. Goldstein also previously played a strategic role as the SMART/Simplicity PMO for CPD.

Ms. Goldstein joined L'Oréal in 2001 and grew from Assistant Marketing Manager to Assistant Vice President, Marketing within the L'Oréal Paris Division working on the haircolor brands and then on the Anti-Aging skincare brands. In 2008, Ms. Goldstein joined the Maybelline marketing team overseeing the Eye category and was promoted to Vice President, Maybelline Marketing in March 2010. From 2010 to 2013, Ms. Goldstein led the Maybelline US Marketing team to reclaim the position as the #1 cosmetics brand in the United States surpassing $1B in retail sales. In 2013, Ms. Goldstein transitioned to Garnier as the SVP, Marketing and led the total Garnier brand until 2017 with highlights including the launch of Whole Blends and the Micellar Cleansing Water. In addition, in 2016, Garnier received the WWD Beauty Inc. "Brand of the Year" award under Ali's leadership.

Ms. Goldstein graduated from Cornell University with a BS in Policy Analysis and received an MBA from Harvard Business School.

DAVID GREENBERG, PRESIDENT, PROFESSIONAL PRODUCTS DIVISION

David Greenberg was appointed to Group President of Professional Products Division North America in 2017 and will hold direct responsibility for the division's U.S. and Canada operations and SalonCentric. In this role, Greenberg will continue to grow brand activities across both markets by leveraging SalonCentric and seizing new opportunities to further develop the professional brand portfolio.

Mr. Greenberg joined L'Oréal in 1993 in the L'Oréal Paris (then L'Oréal Haircare) Division as a marketing manager on Studio Line. Mr. Greenberg then held various roles before becoming Vice President of marketing for haircolorants and haircare. During this time, he developed and launched Feria haircolor which helped L'Oréal take leadership in the category.

In 1999, Mr. Greenberg became General Manager, Consumer Products Division, at L'Oréal Mexico. There Mr. Greenberg launched Garnier colorants, skincare and haircare, increasing the business dramatically over four years.

Mr. Greenberg returned to New York at the end of 2003 to become Worldwide General Manager of Matrix in the Professional Products Division. While there, Mr. Greenberg launched Matrix into over 20 countries, including China & the Middle East.

At the end of 2004, Mr. Greenberg became SVP Human Resources for L'Oréal USA. He was named President of Maybelline New York-Garnier in July of 2008. Mr. Greenberg was given responsibility of Essie Cosmetics in 2010.

Mr. Greenberg holds an MBA from NYU Stern and a BA from Lehigh University.

ANGELA GUY, SENIOR VICE PRESIDENT, DIVERSITY & INCLUSION

Angela Guy is the Senior Vice President, Diversity and Inclusion for L'Oréal USA, the largest subsidiary of the L'Oréal Group, the world's leading beauty company. Ms. Guy is responsible for shaping the diversity efforts for L'Oréal USA as a business imperative that highlights the value of all forms of beauty while respecting and reflecting the differences of our rapidly changing marketplace. She is a member of the L'Oréal USA Executive Committee and collaborates to align L'Oréal's global diversity efforts. Ms. Guy reports directly to Frédéric Rozé, President and CEO, L'Oréal USA.

Prior to this appointment, Ms. Guy was Senior Vice President, General Manager of SoftSheen-Carson, the #1 ethnic haircare brand in the world, and a Consumer Division of L'Oréal USA. In this role, Ms. Guy oversaw all aspects of the SoftSheen-Carson brand in the U.S., Canada and the Caribbean. Ms. Guy also worked 19 years at Johnson & Johnson in Sales leadership positions throughout the USA and Canada; 3 years in Sales with Levi Strauss & Company, Accessories Division and 3 years in Retail Management with Hills Department Stores.

Ms. Guy has a B.A. in Psychology from Pennsylvania State University. She has attended Executive Leadership Programs at the University of California Los Angeles, Northwestern University and The Center for Creative Leadership.

STEPHAN HABIF, SENIOR VICE PRESIDENT, RESEARCH & INNOVATION

Stephan Habif was appointed Senior Vice President, Research & Innovation, in January 2014. He is responsible for Research & Innovation for all divisions across L'Oreal Americas, which includes North America, Spanish -speaking Latin America and Brazil.

Prior to joining L'Oreal in 2013, Dr. Habif worked at Unilever in the Research and Development division, where he started his career in 1994. During his time there, Dr. Habif worked in positions across the spectrum of R&D from Advanced Research to Product Development in global and regional roles in the U.S., Mexico, Brazil, and Italy before being named Vice President of R&D North America and finally Global VP of R&D Packaging. He held various leadership positions in Formulation, Clinical Evaluation, Consumer Science, and Packaging and worked in diverse categories such as Skin Care, Skin Cleansing, Hair Care, Deodorants, Household Care, Ice Cream, Spreads and Dressings, and Beverages.

Dr. Habif received an Engineering Degree in Food Chemistry &Technology from the University of Bordeaux (ENSCPB) in France in 1989 and a Ph.D. in Physical Chemistry (Colloids and Surface Science) from the City University of New York in 1994.

CAROL HAMILTON, GROUP PRESIDENT, ACQUISITIONS

Carol Hamilton is the Group President of Acquisitions for L'Oreal USA. During her 35-year tenure at L'Oreal, she has been responsible for building the L'Oreal Paris flagship brand from an indie brand in the 80's into the number 1 global beauty brand worldwide. In 2008, she took over the helm of the L'Oreal Luxury Division, tripling its sales in her 10-year tenure. Leading the successful acquisitions of Clarisonic, Urban Decay and It Cosmetics, she went on to run these brands - along with Kiehl's Since 1851- globally. Most recently, she has been placed in charge of acquisitions for all divisions of L'Oreal. She has also been named one of Advertising Age's Marketing 100 and 50 Most Powerful People in Marketing.

Throughout her career, Ms. Hamilton has been dedicated to numerous philanthropic causes all linked by

her passion to better women and children's lives. In 1997, L'Oreal made a long-term commitment to the Ovarian Cancer Research Fund, raising over $14 Million for research to eradicate this disease. In 2005, she created the "Women of Worth" program, honoring women's commitments to their local communities. In 2009, she spearheaded the Acqua for Life program with UNICEF for the Giorgio Armani Brand, and subsequently has joined the National Board for UNICEF. In the same year, she partnered with Lancôme to support St. Jude's Children's Hospital.

Ms. Hamilton has an undergraduate degree from Vassar College.

MICHAEL KINGSTON, CHIEF INFORMATION OFFICER, AMERICAS ZONE

Michael Kingston is Chief Information Officer for L'Oréal Americas Zone, a position he has held since June 2017.

In his current position, Mr. Kingston is responsible for IT strategy, infrastructure, program execution and system operations across L'Oréal's subsidiaries in North and South America.

Prior to joining L'Oréal, Mr. Kingston led digital transformation projects in key markets for AlixPartners, a global management consulting firm. Prior to that, he held Chief Information Officer and Senior Vice President roles within Neiman Marcus and Ann Inc. He has also served as Vice President of Applications for Coach Inc. and Director of Information Services for LVMH Moet Hennessey Louis Vuitton.

Mr. Kingston received his Bachelor of Arts from William Paterson University and serves as a Columbia University Graduate Technology Mentor. In addition to his professional career, he is an avid Ironman competitor, successfully completing a world championship in 2010.

ALANNA MCDONALD, PRESIDENT, MAYBELLINE, GARNIER & ESSIE

Alanna McDonald is the President of Maybelline New York, Garnier and essie. In this role, McDonald is responsible for all aspects of business leadership on the portfolio of brands and for accelerating their growth in the U.S. market.

McDonald is a general management and marketing executive with more than 20 years of experience in the consumer goods industry across diverse categories and has lived in the U.S., China, Hong Kong and Canada, and worked across six regions with global, regional and country business ownership.

Prior to joining L'Oréal, McDonald spent 18 years at Procter & Gamble in various roles.
Most recently, McDonald was the President of L'Oréal's Consumer Products Division in Canada.
Passionate commitment to developing people and building collaborative relationships, McDonald is a seasoned traveler.

Alanna is a graduate of The University of Calgary.

DAVID MORGAN, SENIOR VICE PRESIDENT, BUSINESS DEVELOPMENT

David Morgan was appointed Senior Vice President of Business Development of L'Oréal USA in January 2017.

A native of the UK, David has extensive international experience, living and working in France and the USA, covering each of the major L'Oréal geographic regions.

David joined L'Oreal in the UK in 1991, and subsequently spent 15 years in the Group headquarters in Paris. While at L'Oréal, he has head up multi-division Finance for the UK and the Asia Pacific, Latin America and Africa Middle East Zones, as well as globally for the Consumer Products Division.

David holds a degree from Durham University in the UK.

ALEXANDRE PAGLIANO, CHIEF FINANCIAL OFFICER

Alexandre Pagliano was appointed Chief Financial Officer for L'Oréal USA in September, 2010.

Prior to coming to L'Oréal, Mr. Pagliano spent time in Brazil where he held positions at Banco Fator SA, Mesbla Department Stores and Banco Nacional/Unibanco. He joined L'Oréal in 1997 as Finance Director for L'Oréal Consumer Products Division, Brazil.

Mr. Pagliano has served in Europe as Finance Director for the Consumer Goods Division in France, and as CFO for the Consumer Division in Western Europe. Prior to joining the US Operations, Mr. Pagliano was the World Wide CFO for L'Oréal Active Cosmetics Division, the dermo cosmetics business of L'Oréal.

Mr. Pagliano received his undergraduate degree in economics from the American Presbiterian College – Mackenzie University in Sao Paulo, and his Master of Business Administration from IBMEC Business School in Rio de Janeiro.

Mr. Pagliano was recently named Chief Financial Officer for L'Oréal Americas where he reports directly to the President and CEO of L'Oréal Americas.

MARC-ALEXANDRE RISCH, CHIEF RETAIL OFFICER

Marc-Alexandre Risch was appointed Chief Retail officer of L'Oréal USA in June 2016.

In 2012, he was appointed General Manager of The Body Shop Canada. Along with his team, he successfully implemented a number of key initiatives, including strategic focus on retail excellence and the transformation of the brand's real estate portfolio.

In 2010, he joined Garnier International as Axis Director Fructis and took over the responsibilities of International Marketing Director for Garnier Haircare (Fructis, Ultra Doux /Ultra Blends).

Risch joined the L'Oréal Group in March 2005 as the International Project Manager for Garnier and ascended quickly with numerous leadership positions.

ANTONIO MARTINEZ-RUMBO, PRESIDENT, PROFESSIONAL PRODUCTS DIVISION

Antonio Martinez-Rumbo is the General Manager of the Professional Products Division for L'Oréal USA, a position he assumed in 2017.

Prior to his current role, he was the Professional Products Division General Manager in Italy beginning in 2013 after having served as the General Manager in Portugal since 2010.

Mr. Martinez-Rumbo began his career at L'Oréal Spain in 1996 as a Marketing Product Manager and was promoted to Group Product Manager in 1998. Thereafter, he moved to a Regional Sales Manager

role and then Key Account Manager before his first expat assignment in Portugal as Kérastase's General Manager in 2004.

Antonio holds a degree in law and business management from San Pablo CEU University in Madrid, Spain and an MBA from IE Madrid.

THOMAS SARAKATSANNIS, SENIOR VICE PRESIDENT, GENERAL COUNSEL, AMERICAS ZONE

Thomas Sarakatsannis is Senior Vice President, General Counsel for L'Oréal USA and the Americas Zone. In addition, he is the Ethics Correspondent for L'Oréal USA. He has held these positions since 2007.
In his current role, Mr. Sarakatsannis is responsible for all legal matters relating to L'Oréal USA. As Ethics Correspondent, Mr. Sarakatsannis works to maintain, integrate and enforce compliance of L'Oréal's ethical principles for L'Oréal USA.

Prior to joining L'Oréal, Mr. Sarakatsannis held positions at Avon Products and the law firm of Taft, Stettinius & Hollister. Mr. Sarakatsannis also worked as an Assistant Press Secretary during the 1984 Vice Presidential and 1988 Presidential campaigns for President George H. W. Bush before attending law school.

Mr. Sarakatsannis received his undergraduate degree from Harvard University and his law degree from the University of Chicago. He is a recipient of a postgraduate Rotary International Foundation Fellowship at Flinders University of South Australia.

MARC TOULEMONDE, PRESIDENT, ACTIVE COSMETICS DIVISION

Marc Toulemonde is the Group President of L'Oréal USA and Canada's Active Cosmetics Divisions, a position he has held since 2016.

In his current role, Mr. Toulemonde oversees the division in charge of dermatological beauty in North America. He leads the brand strategies, innovation plans, digital transformation, and multi-channel distribution models (including drugstore and mass retailers, Amazon, specialty/department stores, dispensing physicians, premium spas, and direct-to-consumer e-boutiques) for the division. The brand portfolio includes CeraVe (the #1 dermatologist-recommended US skincare brand), SkinCeuticals (the #1 physician-dispensed US skincare brand), La Roche-Posay, Vichy, Dermablend and Acne Free.

Prior to becoming President of the Active Cosmetics Division, Mr. Toulemonde led SkinCeuticals as the brand's Global General Manager, accelerating domestic growth and leading the brand's international expansion throughout 20 countries, making SkinCeuticals a worldwide leader in premium medical skincare.

Mr. Toulemonde joined L'Oréal in 1995 as an Assistant Product Manager for Biotherm in Germany before holding multiple marketing roles for Garnier, L'Oréal Paris and Maybelline. In 2006 he served as General Manager for Global Travel Retail, managing global duty-free sales, marketing, and brand positioning for L'Oréal Paris and Maybelline. He was then General Manager of the Garnier - Maybelline business unit in Spain before joining the US in 2010.

Mr. Toulemonde obtained a master's in business administration from École Supérieure de Commerce de Paris-École. He is based at Hudson Yards, L'Oréal USA's New York Headquarters.

MEGAN GRANT, PRESIDENT, L'ORÉAL LUXE USA

Megan Grant is the President of the Luxe Division, a position she has held since May 2019. In her role, Grant oversees the brand portfolio, business strategies, growth and retailer relationships within L'Oréal's luxury division in the U.S. The brand portfolio includes Lancôme, Kiehl's, Urban Decay, IT Cosmetics, YSL, Giorgio Armani, Ralph Lauren, and Viktor & Rolf.

Grant joined L'Oréal in 2002 as a Marketing Manager for L'Oréal Paris, where she was responsible for many iconic launches including True Match and Infallible Lip. In her seven-year tenure at the brand, Grant was instrumental in positioning L'Oréal Paris for growth and guiding it to become one of the top makeup brands in the mass market.

Returning to her love of skincare, Grant joined Kiehl's Since 1851 as Vice President, Marketing in 2009. Within one year, Grant was promoted to Senior Vice President, followed by Deputy General Manager in 2013; a role in which she oversaw both Sales and Marketing for the brand. Through her strong leadership and business expertise, she has been instrumental in the continued success of the Kiehl's brand in the U.S. market.

Grant holds a bachelor's degree in economics from Trinity College – Hartford.

XAVIER WINDAL, SENIOR VICE PRESIDENT, OPERATIONS AMERICAS

Xavier Windal was appointed Senior Vice President Corporate Operations for North America in 2013. Xavier has been with the L'Oréal group for almost 28 years and has held a variety of positions. He started in 1985 as Logistics Manager in the Soprocos Plant in France. In 1990, he was promoted as Plant Director for Faprogi - the Garnier plant in France. In 1997, he became plant manager for the Luxe plant in Sicos. In 1999, he was promoted to Operations Director for Lancôme International. In 2002, Xavier came back to CPD as Operations Director L'Oreal European zone. Most recently, Xavier was in charge of Operations for all CPD.

Xavier has had a very successful career and has been a key actor in the transformation and evolution of our manufacturing models. Under Xavier's leadership, the CPD plants in Europe were reorganized by production technology. Thanks to the implementation of manufacturing performance tools, the plants' productivity improved significantly as did the quality and safety levels. Xavier was also one of the first to demonstrate the necessity for development and packaging to work very closely with the business. He has been at the forefront of many manufacturing initiatives including the opening of our first "green" plant in Libramont and our first "wall to wall" to manufacture our bottles in-house.

Xavier has great people leadership skills. While demanding in terms of results, he is a team-player and a people developer.

IN THE SAME SECTION

› L'Oréal USA at Hudson Yards
› Our mission
› Our values and ethical principles
› Key figures

EXHIBIT 23

REDACTED

EXHIBIT 24

REDACTED