

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
12 December 2024 (12.12.2024)



(10) International Publication Number
WO 2024/254228 A1

(51) International Patent Classification:

A61K 47/12 (2006.01) A61K 45/06 (2006.01)
A61K 9/06 (2006.01) C07C 59/08 (2006.01)

(72) Inventor: **MORRIS, Calvin Dexter**; c/o LifeActive, Inc.,
30 N. Gould Street, Suite 28877, Sheridan, Wyoming 82801
(US).

(21) International Application Number:

PCT/US2024/032685

(74) Agent: **HENDRICKS, Diana G.** et al.; c/o Greenberg
Traurig, LLP, One International Place, Suite 2000, Boston,
Massachusetts 02110 (US).

(22) International Filing Date:

06 June 2024 (06.06.2024)

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ,
CA, CH, CL, CN, CO, CR, CU, CV, CZ, DE, DJ, DK, DM,
DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT,
HN, HR, HU, ID, IL, IN, IQ, IR, IS, IT, JM, JO, JP, KE, KG,
KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY,
MA, MD, MG, MK, MN, MU, MW, MX, MY, MZ, NA,
NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO,
RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH,

(25) Filing Language:

English

(26) Publication Language:

English

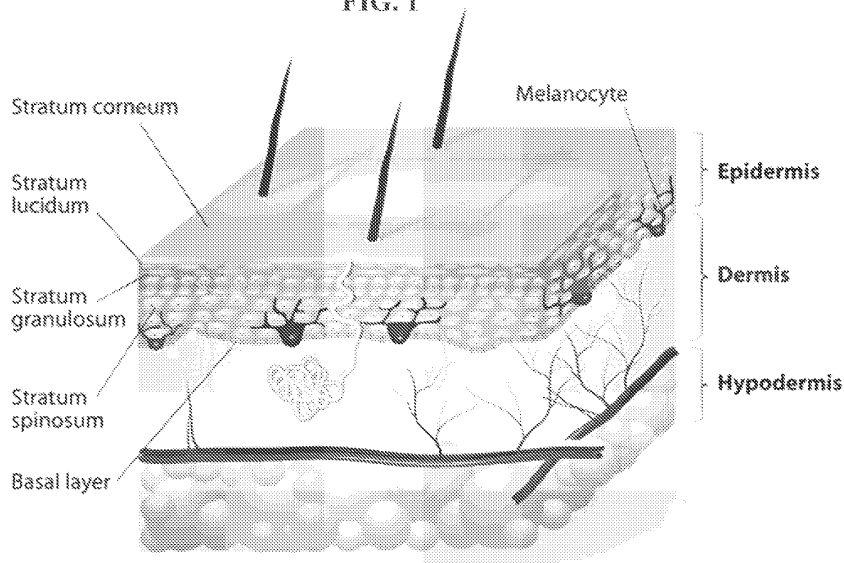
(30) Priority Data:

63/471,487 06 June 2023 (06.06.2023) US
63/617,608 04 January 2024 (04.01.2024) US

(71) Applicant: **LIFEACTIVE, INC.** [US/GT]; 30 N. Gould
Street, Suite 28877, Sheridan, Wyoming 82801 (US).

(54) Title: TRANSDERMAL DELIVERY FORMULATIONS

FIG. 1



(57) Abstract: Provided are transdermal delivery formulations, and methods for the manufacture thereof, for the epicutaneous administration of therapeutic agents, drugs, and nutrients to human subjects; veterinary animals; domesticated or undomesticated animals, plants or insects; or agricultural animals, plants, or insects. Transdermal delivery formulations disclosed herein comprise a homogeneous mixture of (a) a transdermal accelerant comprising a weak organic acid having a pKa greater than 2.0 and (b) a microemulsion comprising a nonionic emulsifier, water, and a cis-unsaturated long-chain fatty acid. Fatty acid microemulsions are combined with the acidified transdermal accelerants having a pH greater than 1.0 (typically from 1.5 to 2.5) to yield a homogenous transdermal delivery formulation comprising fatty acid micelles and/or liposomes that encapsulate one or more compound, such as a nutrient or a drug, and incorporate one or more cis-unsaturated fatty acid having a 12 to 26 carbon chain that includes one or more double bond in a cis configuration. Transdermal delivery formulations exhibit ideal solubility and absorption properties in high humidity conditions, such

[Continued on next page]

TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS,
ZA, ZM, ZW.

(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, CV, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SC, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, ME, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published:

- *with international search report (Art. 21(3))*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

as in a warm to hot shower or sauna.