

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
07 October 2021 (07.10.2021)



(10) International Publication Number
WO 2021/202824 A1

(51) International Patent Classification:

A23L 33/13 (2016.01) A61K 9/127 (2006.01)
A23C 9/20 (2006.01) A61K 31/7105 (2006.01)
A23C 9/15 (2006.01) A61K 35/20 (2006.01)
A23L 33/00 (2016.01) A61P 3/10 (2006.01)

(21) International Application Number:

PCT/US2021/025300

(22) International Filing Date:

01 April 2021 (01.04.2021)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

20382267 03 April 2020 (03.04.2020) EP
20382934 27 October 2020 (27.10.2020) EP

(71) Applicant: **ABBOTT LABORATORIES** [US/US]; 100
Abbott Park Road, Abbott Park, Illinois 60064-3500 (US).

(72) Inventors: **LÓPEZ PEDROSA, José María**; C/ Luciano
nº 14, 18190 Cenes de la Vega, Granada (ES). **RUEDA
CABRERA, Ricardo**; C/Brazal, 2, Granada, 18008 Grana-

da (ES). **GARCÍA MARTÍNEZ, Jorge**; 80 Hipócrates
Street, 18100 Armilla, Granada (ES).

(74) Agent: **KOZLOWSKI, Holly**; 41 South High Street,
Porter Wright Morris & Arthur LLP, Columbus, Ohio
43215 (US).

(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, CZ, DE, DJ, DK, DM, DO,
DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN,
HR, HU, ID, IL, IN, IR, IS, IT, JO, JP, KE, KG, KH, KN,
KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD,
ME, MG, MK, MN, 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, 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, GH,
GM, KE, LR, LS, MW, MZ, NA, RW, 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, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM,

(54) Title: BOVINE MILK EXOSOME PRODUCTS AND METHODS, NUTRITIONAL COMPOSITIONS, AND THERAPEUTIC
METHODS

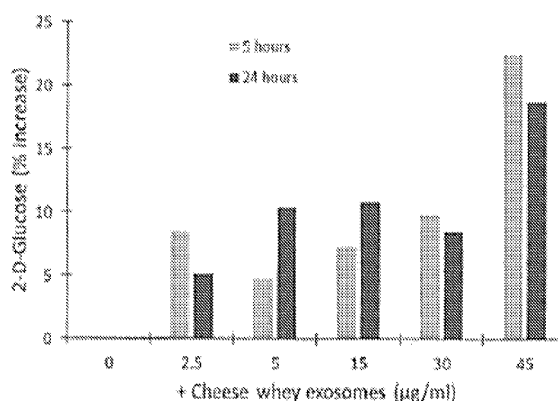


FIG. 1

(57) Abstract: A method of obtaining an exosome-enriched product comprises providing a whey-containing bovine milk fraction, conducting a first centrifugation of the whey-containing bovine milk fraction to obtain a whey middle fraction, conducting a second centrifugation of the whey middle fraction at an increased speed to obtain a concentrated whey fraction, filtering the concentrated whey fraction to obtain a filtered whey fraction, and conducting a third centrifugation of the filtered whey fraction at a further increased speed to obtain an exosome-enriched product. The exosome-enriched product comprises intact exosomes and less than 5 wt% casein based on the total weight of protein in the exosome-enriched product. Nutritional compositions comprise protein, carbohydrate, and/or fat, and exosomes provided by addition of the exosome-enriched product. A method of improving insulin sensitivity in a subject comprises administering a nutritional composition comprising the exosome-enriched product.

[Continued on next page]



WO 2021/202824 A1

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))*