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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
19 March 2020 (19.03.2020)

WIPO | PCT

(10) International Publication Number
WO 2020/056104 A1

(51) International Patent Classification:
A61K 31/573 (2006.01) *A61K 9/127* (2006.01)

(21) International Application Number:
PCT/US2019/050769

(22) International Filing Date:
12 September 2019 (12.09.2019)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
62/731,101 14 September 2018 (14.09.2018) US

(71) Applicants: **PHARMOSA BIOPHARM INC.** [—/CN]; 3F-3, No.66, Sanchong Rd., Nangang Dist., Taipei City, 11560 (TW). **PHARMOSA THERAPEUTICS, INC.** [US/US]; Corporation Trust Center 1209 Orange St., Wilmington, Delaware 19801 (US).

(72) Inventors: **KAN, Pei**; 3F-3, No.66, Sanchong Rd., Nangang Dist., Taipei City, 11560 (TW). **LIN, Yi Fong**; 4F., No.3, Ln. 105, Zhiguang St., Yonghe Dist., New Taipei City, 234 (TW). **CHEN, Ko Chieh**; 3F-3, No.66, Sanchong Rd., Nangang Dist., Taipei City, 11560 (TW).

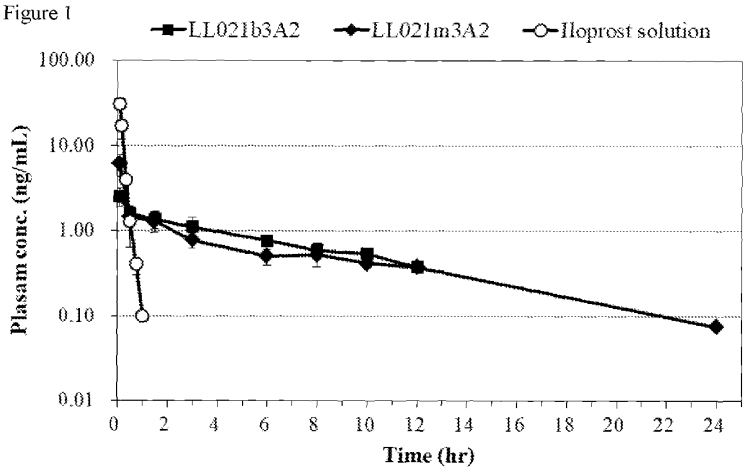
(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, 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, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, 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, 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))*

(54) **Title:** PHARMACEUTICAL COMPOSITION FOR CONTROLLED RELEASE OF WEAK ACID DRUGS AND USES THEREOF

Figure 1



(57) **Abstract:** Provided herein are pharmaceutical compositions containing at least one liposome, said liposome comprise an external lipid bilayer including at least one vesicle-forming phospholipid and less than 15 mole % of sterol; and an internal aqueous medium including a weak acid drug and weak acid salt. The pharmaceutical compositions reduce the burst release of the weak acid drug. Also provided is the use of the pharmaceutical composition disclosed herein to treat respiratory diseases and reduce the side effect of the weak acid drug.

WO 2020/056104 A1