

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
17 April 2025 (17.04.2025)



(10) International Publication Number
WO 2025/080572 A1

(51) International Patent Classification:

A61K 47/54 (2017.01) A61K 47/69 (2017.01)
A61K 9/00 (2006.01) A61P 1/16 (2006.01)
A61K 31/00 (2006.01) C07H 15/00 (2006.01)

(21) International Application Number:

PCT/US2024/050364

(22) International Filing Date:

08 October 2024 (08.10.2024)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

63/543,422 10 October 2023 (10.10.2023) US

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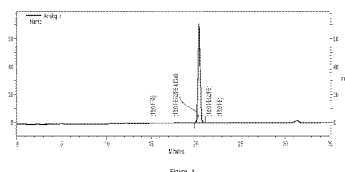
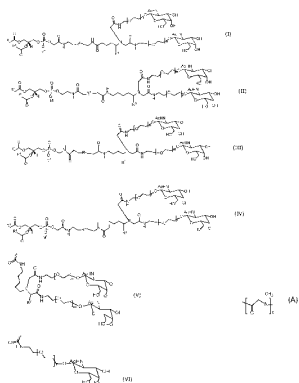
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(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ,
CA, CH, CL, CN, CO, CR, CU, CV, CZ, DE, DJ, DK, DM,
DO, DZ, EC, EE, EG, ES, FI, 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,
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).

(54) Title: LIVER ASIALOGLYCOPROTEIN RECEPTOR TARGETED LIPID AND USES THEREOF

(57) Abstract: A compound having the structure (I), (II), (III), or (IV) is provided: (I), (II), (III), (IV)) where in these structures, (I), (II), (III), and (IV), each R¹ is independently selected from aliphatic alkyl C₄-C₁₀₀ groups optionally substituted with one or more of alkenyl, alkynyl, hydroxyl, amide, ester, and/or ether groups; R² is selected from [-OCH₂CH₂-]_p or (A); R³ is selected from Formula (V) and Formula (VI): (V, (VI). M⁺ is selected from an alkali metal ion, an alkaline earth metal ion, or a primary, secondary or tertiary ammonium ion; and m, p, and s are independently selected from integers from 1 to 120. The compound is useful as a liver asialoglycoprotein receptor-targeted therapeutic agent in the form of a lipid nanoparticle, a liposome or a micelle including a drug or oligonucleotide.



Declarations under Rule 4.17:

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

Published:

- *with international search report (Art. 21(3))*