

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

(19) World Intellectual Property
Organization

International Bureau

(43) International Publication Date
02 March 2023 (02.03.2023)



(10) International Publication Number
WO 2023/028237 A1

(51) International Patent Classification:

C07D 495/20 (2006.01) C07D 333/38 (2006.01)
C07D 401/04 (2006.01)

(21) International Application Number:

PCT/US2022/041534

(22) International Filing Date:

25 August 2022 (25.08.2022)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

63/237,248	26 August 2021 (26.08.2021)	US
63/306,831	04 February 2022 (04.02.2022)	US
63/315,936	02 March 2022 (02.03.2022)	US

(71) Applicant: **VERTEX PHARMACEUTICALS INCORPORATED** [US/US]; 50 Northern Avenue, Boston, Massachusetts 02210 (US).

(72) Inventors: **DANIEL, Kevin Brett**; 50 Northern Avenue, Boston, Massachusetts 02210 (US). **FERRIS, Lori Ann**; 50 Northern Avenue, Boston, Massachusetts 02210 (US). **GAGNON, Kevin James**; 50 Northern Avenue, Boston, Massachusetts 02210 (US). **JUDELSON, Michael David**; 50 Northern Avenue, Boston, Massachusetts 02210 (US). **LAI, Mei-Hsiu**; 50 Northern Avenue, Boston, Massachusetts 02210 (US). **MAGUIRE, Courtney K.**; 50 Northern Avenue, Boston, Massachusetts 02210 (US). **MEDEK, Ales**; 50 Northern Avenue, Boston, Massachusetts 02210 (US). **PERESYPKIN, Andrey**; 50 Northern Avenue, Boston, Massachusetts 02210 (US). **ROSE, Peter Jamison**; 50 Northern Avenue, Boston, Massachusetts 02210 (US). **SHI, Yi**; 50 Northern Avenue, Boston, Massachusetts 02210 (US). **TSAY, Charlene**; 50 Northern Avenue, Boston, Massachusetts 02210 (US).

(74) Agent: **MCDONELL, Leslie A.**; Finnegan, Henderson, Farabow, Garrett & Dunner, LLP, 901 New York Avenue, NW, Washington, District of Columbia 20001 (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, 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, 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, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

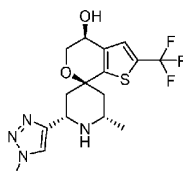
Declarations under Rule 4.17:

— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))

Published:

— with international search report (Art. 21(3))

(54) Title: SOLID FORMS OF SPIROTRICYCLIC APOL1 INHIBITORS AND METHODS OF USING SAME



(I)

(57) Abstract: The disclosure provides novel solid state forms of Compound I chosen from Compound I Phosphate Salt Hydrate Form A, Compound I free form Monohydrate, Compound I Phosphate Salt Methanol Solvate, and Compound I Phosphate Salt MEK Solvate, compositions comprising the same, and methods of making and using the same, including uses in treating APOL1 mediated disease (such as, e.g., APOL1 mediated kidney disease). Also provided herein are novel solid state forms of Compound II chosen from Compound II Phosphate Salt Hemihydrate Form A, Compound II free form Hemihydrate Form A, and Compound II free form Form C, compositions comprising the same, and methods of making and using the same, including uses in treating APOL1 mediated disease (such as, e.g., APOL1 mediated kidney disease).

WO 2023/028237 A1