

(19) World Intellectual Property
Organization
International Bureau



WIPO | PCT



(10) International Publication Number

WO 2021/150969 A8

(43) International Publication Date
29 July 2021 (29.07.2021)

(51) International Patent Classification:

C12N 15/113 (2010.01) A61K 31/7125 (2006.01)
A61K 31/712 (2006.01) A61K 48/00 (2006.01)

(21) International Application Number:

PCT/US2021/014729

(22) International Filing Date:

22 January 2021 (22.01.2021)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

62/965,452 24 January 2020 (24.01.2020) US
63/138,717 18 January 2021 (18.01.2021) US

(71) Applicant: ALNYLAM PHARMACEUTICALS, INC.

[US/US]; 675 West Kendall Street, Henri A. Termeer Square, Cambridge, Massachusetts 02142 (US).

(72) Inventors: MCININCH, James D.; c/o Alnylam Pharmaceuticals, Inc., 675 West Kendall Street, Henri A. Ter-

meer Square, Cambridge, Massachusetts 02142 (US). **GILBERT, Jason**; c/o Alnylam Pharmaceuticals, Inc., 675 West Kendall Street, Henri A. Termeer Square, Cambridge, Massachusetts 02142 (US). **CASTORENO, Adam**; c/o Alnylam Pharmaceuticals, Inc., 675 West Kendall Street, Henri A. Termeer Square, Cambridge, Massachusetts 02142 (US). **DANG, Lan Thi Hoang**; c/o Alnylam Pharmaceuticals, Inc., 675 West Kendall Street, Henri A. Termeer Square, Cambridge, Massachusetts 02142 (US). **LEBLANC, Sarah**; c/o Alnylam Pharmaceuticals, Inc., 675 West Kendall Street, Henri A. Termeer Square, Cambridge, Massachusetts 02142 (US). **PENG, Haiyan**; c/o Alnylam Pharmaceuticals, Inc., 675 West Kendall Street, Henri A. Termeer Square, Cambridge, Massachusetts 02142 (US). **KAITTANIS, Charalambos**; c/o Alnylam Pharmaceuticals, Inc., 675 West Kendall Street, Henri A. Termeer Square, Cambridge, Massachusetts 02142 (US). **SOUNDARAPANDIAN, Mangala Meenakshi**; c/o Alnylam Pharmaceuticals, Inc., 675 West Kendall Street, Henri A. Termeer Square, Cambridge, Massachusetts 02142 (US).

(54) Title: LEUCINE-RICH REPEAT KINASE 2 (LRRK2) iRNA AGENT COMPOSITIONS AND METHODS OF USE THEREOF

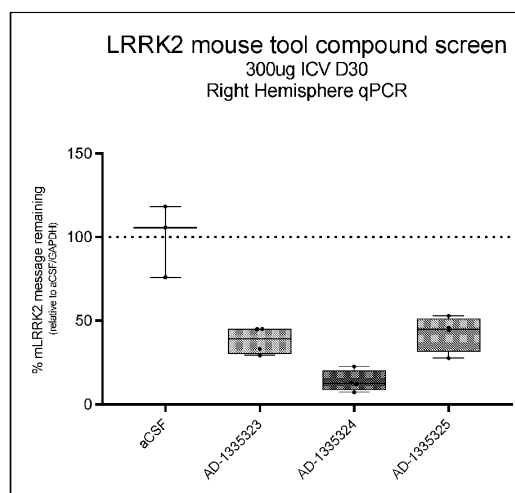


FIG. 1

(57) **Abstract:** The disclosure relates to double stranded ribonucleic acid (dsRNAi) agents and compositions targeting a leucine-rich repeat kinase 2 (LRRK2) gene, as well as methods of inhibiting expression of a LRRK2 gene and methods of treating subjects having a LRRK2-associated disease or disorder, e.g., Parkinson's disease, using such dsRNAi agents and compositions.

[Continued on next page]

(74) **Agent: MEIGS, Julie Broadus** et al.; Womble Bond Dickinson (US) LLP, P.O. Box 7037, Atlanta, Georgia 30357-0037 (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, 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))*
- *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))*
- *with sequence listing part of description (Rule 5.2(a))*
- *with information concerning refusal to authorize the rectification of an obvious mistake under Rule 91.1 (Rule 91.3(d))*

(48) **Date of publication of this corrected version:**
06 January 2022 (06.01.2022)

(15) **Information about Correction:**
see Notice of 06 January 2022 (06.01.2022)