

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
13 March 2025 (13.03.2025)



(10) International Publication Number
WO 2025/054596 A2

- (51) **International Patent Classification:**
C12N 15/11 (2006.01) A61K 31/712 (2006.01)
- (21) **International Application Number:**
PCT/US2024/045826
- (22) **International Filing Date:**
09 September 2024 (09.09.2024)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
63/581,620 08 September 2023 (08.09.2023) US
63/586,079 28 September 2023 (28.09.2023) US
- (71) **Applicant: WAVE LIFE SCIENCES LTD.** [SG/SG]; 7 Straits View #12-00, Marina One East Tower, Singapore 018936 (SG).

(72) **Inventors; and**

(71) **Applicants (for US only): LIU, Wei** [CN/US]; C/o Wave Life Sciences Ltd., 733 Concord Avenue, Cambridge, MA 02138 (US). **YANG, Hsiu-Chiung** [US/US]; C/o Wave Life Sciences Ltd., 733 Concord Avenue, Cambridge, MA 02138 (US). **VARGESE, Chandra** [US/US]; C/o Wave Life Sciences Ltd., 733 Concord Avenue, Cambridge, MA 02138 (US). **IWAMOTO, Naoki** [JP/US]; C/o Wave Life Sciences Ltd., 733 Concord Avenue, Cambridge, MA 02138 (US). **LUU, Khoa, Ngoc Dang** [VN/US]; C/o Wave Life Sciences Ltd., 733 Concord Avenue, Cambridge, MA 02138 (US). **SHAH, Himali, Kavin** [IN/US]; C/o Wave Life Sciences Ltd., 733 Concord Avenue, Cambridge, MA 02138 (US). **MARAPPAN, Subramanian** [US/US]; C/o Wave Life Sciences Ltd., 733 Concord Avenue, Cambridge, MA 02138 (US). **KAWAMOTO, Tomomi** [US/US]; C/o Wave Life Sciences Ltd., 733 Concord Avenue, Cambridge, MA 02138 (US). **LAMATTINA, Anthony** [US/US]; C/o Wave Life Sciences Ltd., 733 Concord Avenue, Cambridge, MA 02138 (US). **PRAKASHA, Priyanka, Shiva** [IN/US]; C/o Wave Life Sciences Ltd., 733 Concord Avenue, Cambridge, MA 02138 (US).

(74) **Agent: LENDARIS, Steven, P.**; Baker Botts LLP, 30 Rockefeller Plaza, New York, NY 10112-4498 (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, 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).

Published:

— without international search report and to be republished upon receipt of that report (Rule 48.2(g))

(54) **Title:** INHIBIN SUBUNIT BETA E-RELATED DOUBLE STRANDED OLIGONUCLEOTIDE COMPOSITIONS AND METHODS RELATING THERETO

(57) **Abstract:** The present disclosure provides Inhibin subunit beta E (INHBE)-related double stranded oligonucleotides, compositions, and methods of using such double stranded oligonucleotides and compositions for preventing and/or treating various conditions, disorders, or diseases associated with expression of INHBE. In some embodiments, the provided double stranded oligonucleotides and compositions comprise nucleobase modifications, sugar modifications, internucleotidic linkage modifications and/or patterns thereof, and have improved properties, activities and/or selectivities. In some embodiments, the provided double stranded oligonucleotides and compositions target INHBE.



WO 2025/054596 A2