

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
05 March 2020 (05.03.2020)



(10) International Publication Number
WO 2020/047323 A1

(51) International Patent Classification:

C07D 213/76 (2006.01) C07D 417/14 (2006.01)
C07D 401/14 (2006.01) C07D 471/04 (2006.01)
C07D 409/12 (2006.01) C07D 487/08 (2006.01)
C07D 413/12 (2006.01) A61K 31/4439 (2006.01)
C07D 417/12 (2006.01) A61P 25/00 (2006.01)

(21) International Application Number:

PCT/US2019/048917

(22) International Filing Date:

29 August 2019 (29.08.2019)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

62/725,956 31 August 2018 (31.08.2018) US

(71) Applicant: **XENON PHARMACEUTICALS INC.**
[CA/CA]; 200 - 3650 Gilmore Way, Burnaby, British Columbia V5G 4W8 (CA).

(72) Inventors: **FOCKEN, Thilo**; 200 - 3650 Gilmore Way, Burnaby, British Columbia V5G 4W8 (CA). **ANDREZ, Jean-Christophe**; 200 - 3650 Gilmore Way, Burnaby, British Columbia V5G 4W8 (CA). **BURFORD, Kristen Nicole**; 200 - 3650 Gilmore Way, Burnaby, British Columbia V5G 4W8 (CA). **DEHNHARDT, Christoph Martin**; 200 - 3650 Gilmore Way, Burnaby, British Columbia V5G 4W8 (CA). **GRIMWOOD, Michael Edward**; 200 - 3650 Gilmore Way, Burnaby, British Columbia V5G 4W8 (CA). **JIA, Qi**; 200 - 3650 Gilmore Way, Burnaby, British Columbia V5G 4W8 (CA). **LOFSTRAND, Verner Alexander**; 200 - 3650 Gilmore Way, Burnaby, British Columbia V5G 4W8 (CA). **WILSON, Michael Scott**; 200 - 3650 Gilmore Way, Burnaby, British Columbia V5G 4W8 (CA). **ZENOVA, Alla Yurevna**; 200 - 3650 Gilmore Way, Burnaby, British Columbia V5G 4W8 (CA). **WESOLOWSKI, Steven Sigmund**; 200 - 3650 Gilmore Way, Burnaby, British Columbia V5G 4W8 (CA). **SUN, Shaoyi**; 200 - 3650 Gilmore Way, Burnaby, British Columbia V5G 4W8 (CA).

(74) Agent: **GODDARD, Christine, A.** et al.; Fish & Richardson P.C., P.O. Box 1022, Minneapolis, Minnesota 55440-1022 (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, 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))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

WO 2020/047323 A1

(54) Title: HETEROARYL-SUBSTITUTED SULFONAMIDE COMPOUNDS AND THEIR USE AS THERAPEUTIC AGENTS

(57) Abstract: This invention is directed to pyridine- and thiophene-sulfonamide compounds, as stereoisomers, enantiomers, tautomers thereof or mixtures thereof; or pharmaceutically acceptable salts, solvates or prodrugs thereof, for the treatment of diseases or conditions associated with voltage-gated sodium channels, such as epilepsy and/or epileptic seizure disorders.