

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
08 May 2025 (08.05.2025)



(10) International Publication Number
WO 2025/096619 A1

(51) International Patent Classification:

A61K 31/395 (2006.01) A61K 31/13 (2006.01)
A61K 31/4192 (2006.01) A61K 31/33 (2006.01)

(21) International Application Number:

PCT/US2024/053672

(22) International Filing Date:

30 October 2024 (30.10.2024)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

63/594,277 30 October 2023 (30.10.2023) US

(71) Applicant: **THE REGENTS OF THE UNIVERSITY OF MICHIGAN** [US/US]; 1600 Huron Parkway, 2nd Floor, Ann Arbor, Michigan 48109-2590 (US).

(72) Inventors: **SUN, Duxin**; The Regents of the University of Michigan, 1600 Huron Parkway, 2nd Floor, Ann Arbor, Michigan 48109-2590 (US). **LI, Chengyi**; The Regents of the University of Michigan, 1600 Huron Parkway, 2nd Floor, Ann Arbor, Michigan 48109-2590 (US). **GAO, Wei**; The Regents of the University of Michigan, 1600 Huron Parkway, 2nd Floor, Ann Arbor, Michigan 48109-2590 (US). **WEN, Bo**; The Regents of the University of Michigan, 1600 Huron Parkway, 2nd Floor, Ann Arbor, Michigan 48109-2590 (US). **WANG, Meilin**; The Regents of the University of Michigan, 1600 Huron Parkway, 2nd Floor, Ann Arbor, Michigan 48109-2590 (US). **HE, Miao**; The Regents of the University of Michigan, 1600 Huron Parkway, 2nd Floor, Ann Arbor, Michigan 48109-2590 (US). **ZHAO, Hongyi**; The Regents of the University of Michigan, 1600 Huron Parkway, 2nd Floor, Ann Arbor, Michigan 48109-2590 (US). **MAO, Shuai**; The Regents of the University of Michigan, 1600 Huron Parkway, 2nd Floor, Ann Arbor, Michigan 48109-2590 (US). **DJIBO, Mahamadou**; The Regents of the University of Michigan, 1600 Huron Parkway, 2nd Floor, Ann Arbor, Michigan 48109-2590 (US). **LIU, Zhongwei**; The Regents of the University of Michigan, 1600 Huron Parkway, 2nd Floor, Ann Arbor, Michigan 48109-2590 (US). **WEN, Hanning**; The Regents of the University of Michigan, 1600 Huron Parkway, 2nd Floor, Ann Arbor, Michigan 48109-2590 (US). **KE, Fang**; c/o The Regents of the University of Michigan, 1600 Huron Parkway, 2nd Floor, Ann Arbor, MI 48109-2590 (US).

(74) Agent: **BARTON, Kelly A.**; Casimir Jones, S.C., 2275 Deming Way, Suite 310, Middleton, Wisconsin 53562 (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:

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

(54) Title: DUAL FUNCTIONING IMMUNE MODULATING COMPOUNDS, FORMULATIONS, AND USES THEREOF

(57) Abstract: The present disclosure provides dual functioning compounds, compositions, formulations, and methods for inducing or modulating an immune or inflammatory response and treating diseases or disorders (e.g., cancer, autoimmune diseases, inflammatory diseases, and infectious diseases) with the compounds or compositions thereof. In particular disclosed herein are dual functioning compounds comprising a stimulator of interferon (IFN) genes (STING) agonist moiety and a phosphatidylinositol 3-kinase (PI3K) inhibitor moiety, and compositions and formulations thereof.



WO 2025/096619 A1