

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

(19) World Intellectual Property  
Organization

International Bureau

(43) International Publication Date  
14 September 2023 (14.09.2023)



(10) International Publication Number  
**WO 2023/169226 A1**

(51) International Patent Classification:

C07D 491/048 (2006.01) A61K 31/496 (2006.01)  
C07D 491/147 (2006.01) A61P 35/00 (2006.01)  
C07D 495/04 (2006.01) A61P 35/02 (2006.01)  
C07D 471/00 (2006.01)

(21) International Application Number:

PCT/CN2023/077988

(22) International Filing Date:

23 February 2023 (23.02.2023)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

|                |                                |    |
|----------------|--------------------------------|----|
| 202210260944.7 | 11 March 2022 (11.03.2022)     | CN |
| 202210448803.8 | 24 April 2022 (24.04.2022)     | CN |
| 202211219599.9 | 30 September 2022 (30.09.2022) | CN |
| 202211505904.0 | 28 November 2022 (28.11.2022)  | CN |

(71) Applicant: **IMPACT THERAPEUTICS (SHANGHAI), INC** [CN/CN]; Room 603, No.3 Building, 111 Xiangke Road, China (Shanghai) Pilot Free Trade Zone, Pudong New Area, Shanghai 201210 (CN).

(72) Inventors: **CAI, Sui Xiong**; Room 3302, No.2, Lane 667, Gaoqing West Road, Pudong New Area, Shanghai 200124 (CN). **TIAN, Ye Edward**; Room 2704, No.2, Lane 667, Gaoqing West Road, Pudong New Area, Shanghai 200124 (CN). **WANG, Xiaozhu**; Room 2506, Kingmo Center, No. 1698 Shuanglong Avenue, Jiangning District, Nanjing, Jiangsu 211106 (CN). **ZHANG, Letian**; Room 2506, Kingmo Center, No. 1698 Shuanglong Avenue, Jiangning District, Nanjing, Jiangsu 211106 (CN).

(74) Agent: **SHANGHAI PATENT & TRADEMARK LAW OFFICE, LLC**; 435 Guiping Road, Xuhui District, Shanghai 200233 (CN).

(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, 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,

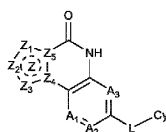
TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW.

(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: SUBSTITUTED TRICYCLIC COMPOUNDS AS PARP INHIBITORS AND THE USE THEREOF



(57) Abstract: Provided are substituted tricyclic compounds as PARP inhibitors and the use thereof. The compounds represented by Formula (I) as below, wherein, the ring Z, Z1, Z2, Z3, Z4, Z5, A1, A2, A3, L and Cy are defined herein. The compounds of Formula I are PARP inhibitors and thus are useful in the treatment of diseases, disorders and conditions, such as cancer, responsive to the inhibition of PARP activity.

(I)

WO 2023/169226 A1