

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
19 September 2024 (19.09.2024)



(10) International Publication Number
WO 2024/191886 A9



(51) International Patent Classification:

A61K 31/395 (2006.01) C07C 45/56 (2006.01)
A61K 31/404 (2006.01) A61K 31/33 (2006.01)

(21) International Application Number:

PCT/US2024/019321

(22) International Filing Date:

11 March 2024 (11.03.2024)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

63/451,448	10 March 2023 (10.03.2023)	US
63/451,453	10 March 2023 (10.03.2023)	US
63/451,457	10 March 2023 (10.03.2023)	US
63/451,462	10 March 2023 (10.03.2023)	US
63/595,456	02 November 2023 (02.11.2023)	US
63/600,612	17 November 2023 (17.11.2023)	US
63/600,616	17 November 2023 (17.11.2023)	US

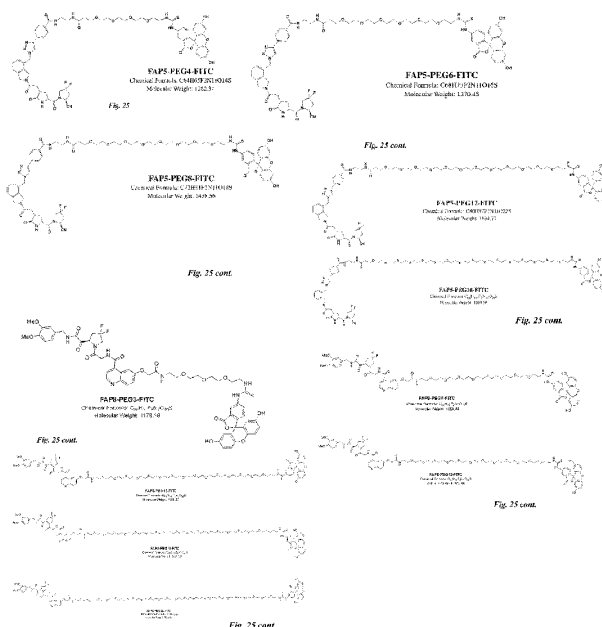
(71) Applicant: **PURDUE RESEARCH FOUNDATION**
[US/US]; 101 Foundry Drive, Suite 2500, West Lafayette,
Indiana 47906 (US).

(72) Inventors: **LOW, Philip**; 5850 Farm Ridge Road, West
Lafayette, Indiana 47906 (US). **CHU, Haiyan A.**; 1145
Republican Street, Apt. 1610, Seattle, Washington 98109
(US). **HUANG, Bo**; 1701 Ashbury Court, West Lafayette,
Indiana 47906 (US). **KASIREDDY, Sudarsan**; 2550 Yea-
ger Road #3-2, West Lafayette, Indiana 47906 (US).
SINGH, Yashpal; 2405 Loyola Lane, Austin, Texas
78723 (US). **ZHENG, Suilan**; 3130 Courthouse Drive
East #1C, West Lafayette, Indiana 47906 (US).
SRINIVASARAO, Madduri; 975 Marwyck Street, West
Lafayette, Indiana 47906 (US).

(74) Agent: **DEAN, Natalie**; Reichel Stohry Dean LLP, 6151
Central Avenue, Indianapolis, Indiana 46220 (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,

(54) Title: BI-SPECIFIC ADAPTERS AND THEIR USE WITH UNIVERSAL CAR-T CELLS IN THE TREATMENT OF TUMORS
AND THE INHIBITION OF CANCER-ASSOCIATED FIBROBLASTS



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).

Declarations under Rule 4.17:

- *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))*

(88) Date of publication of the international search report:

31 October 2024 (31.10.2024)

(48) Date of publication of this corrected version:

05 December 2024 (05.12.2024)

(15) Information about Correction:

see Notice of 05 December 2024 (05.12.2024)