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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
27 March 2025 (27.03.2025)

WIPO | PCT

(10) International Publication Number
WO 2025/061171 A1

(51) International Patent Classification:
C07K 16/46 (2006.01) *A61K 39/395* (2006.01)
C12N 15/13 (2006.01) *A61P 35/00* (2006.01)

(21) International Application Number:
PCT/CN2024/120183

(22) International Filing Date:
20 September 2024 (20.09.2024)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
PCT/CN2023/120496
21 September 2023 (21.09.2023) CN
PCT/CN2023/139629
18 December 2023 (18.12.2023) CN
PCT/CN2024/115542
29 August 2024 (29.08.2024) CN

(71) Applicant: **CONCEPT TO MEDICINE BIOTECH CO., LTD.** [CN/CN]; Floor 3, Building 4, No. 651 Lianheng Road, Pujiang, Minhang District, Shanghai 201112 (CN).

(72) Inventors: **YANG, Liu**; Floor 3, Building 4, No. 651 Lianheng Road, Pujiang, Minhang District, Shanghai 201112 (CN). **GAO, Shan**; Floor 3, Building 4, No. 651 Lianheng Road, Pujiang, Minhang District, Shanghai 201112 (CN). **CAI, Zhijian**; Floor 3, Building 4, No. 651 Lianheng Road, Pujiang, Minhang District, Shanghai 201112 (CN). **JIANG, Wenqing**; Floor 3, Building 4, No. 651 Lianheng Road, Pujiang, Minhang District, Shanghai 201112 (CN). **CUI, Feifei**; Floor 3, Building 4, No. 651 Lianheng Road, Pujiang, Minhang District, Shanghai 201112 (CN). **ZHANG, Xiaoli**; Floor 3, Building 4, No. 651 Lianheng Road, Pujiang, Minhang District, Shanghai 201112 (CN). **FANG, Lei**; Floor 3, Building 4, No. 651 Lianheng Road, Pujiang, Minhang District, Shanghai 201112 (CN).

(74) Agent: **SHANGHAI BESHINING LAW OFFICE**; Xue Qi, Wang Weibin, Room 02, 29th Floor, SFECO Mansion, 681 Xiaomuqiao Road, Xuhui District, Shanghai 200032 (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, 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))*
— *with sequence listing part of description (Rule 5.2(a))*

(54) Title: MULTISPECIFIC ANTIBODIES AND USES THEREOF

(57) Abstract: T cell engagers that target both CD3 and 4-1BB are described, in which both targeting moieties have balanced activities to ensure efficacy and safety. For instance, the anti-CD3 moiety can have a T cell activation activity in the range of 0.5 to 10 nM, and the anti-4-1BB moiety can have a 4-1BB signaling activation activity in the range of 0.05 to 1 nM. Improved anti-CD3 antibodies are also disclosed, which exhibited better in vitro and in vivo stability while retaining the preferable affinity. These new anti-CD3 sequences can be used alone or in T cell engagers, which demonstrate great potentials in clinical uses.

WO 2025/061171 A1