



(51) International Patent Classification:

A61K 39/00 (2006.01) C07K 14/495 (2006.01)
A61P 35/04 (2006.01) C07K 14/71 (2006.01)
A61P 35/00 (2006.01) C07K 16/22 (2006.01)
C07K 14/725 (2006.01) C07K 16/28 (2006.01)

(21) International Application Number:

PCT/IB2022/000063

(22) International Filing Date:

15 February 2022 (15.02.2022)

(25) Filing Language:

English

(26) Publication Language:

English

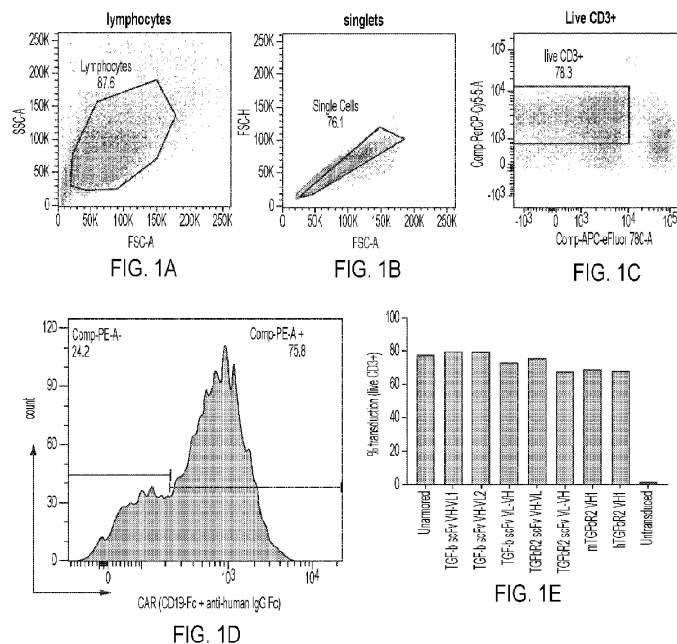
(30) Priority Data:

63/149,628 15 February 2021 (15.02.2021) US
63/306,836 04 February 2022 (04.02.2022) US

(71) Applicant: **TAKEDA PHARMACEUTICAL COMPANY LIMITED** [JP/JP]; 1-1, Doshomachi 4-chome, Chuoku, Osaka-shi, Osaka, 5410045 (JP).

(72) Inventors: **KUHN, Chantal**; c/o Takeda Pharmaceutical Company Limited, 40 Landsdowne Street, Cambridge, MA 02139 (US). **SHAPIRO, Gary**; c/o Takeda Pharmaceutical Company Limited, 40 Landsdowne Street, Cambridge, MA 02139 (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, IT, JM, 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, ST, SV, SY, TH, TJ, TM,

(54) Title: CELL THERAPY COMPOSITIONS AND METHODS FOR MODULATING TGF- β SIGNALING

(57) Abstract: Methods of using polypeptides to modulate transforming growth factor- β (TGF β) signaling (e.g., TGF β receptors, antibodies or antigen-binding fragments thereof that specifically bind TGF β or a TGF β receptor) are provided. Compositions comprising the antibodies or fragments thereof and methods of using the same for treatment of diseases involving TGF β activity are provided. Nucleic acids, recombinant expression vectors, host cells, antigen binding fragments, and pharmaceutical compositions comprising these antigen binding agents and fragments thereof are also disclosed. The invention also provides therapeutic methods for utilizing the TGF β signaling modulators are provided herein.

[Continued on next page]

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, 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:

— *without international search report and to be republished upon receipt of that report (Rule 48.2(g))*