

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
15 August 2024 (15.08.2024)



(10) International Publication Number
WO 2024/166996 A1

(51) International Patent Classification:

C07K 16/30 (2006.01) *C12N 1/19* (2006.01)
A61K 39/395 (2006.01) *C12N 1/21* (2006.01)
A61P 35/00 (2006.01) *C12N 5/10* (2006.01)
C12N 1/15 (2006.01) *C12N 15/13* (2006.01)

(21) International Application Number:

PCT/JP2024/004456

(22) International Filing Date:

09 February 2024 (09.02.2024)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

2023-019304 10 February 2023 (10.02.2023) JP

(71) Applicant: **CHUGAI SEIYAKU KABUSHIKI KAISHA**
[JP/JP]; 5-1, Ukima 5-chome, Kita-ku, Tokyo, 1158543
(JP).

(72) Inventors: **SAVORY, Nasa**; c/o Chugai Pharmabody Research Pte. Ltd., 3, Biopolis Drive, #07-11 to 16 Synapse, 138623 (SG). **IKAWA, Yuri**; c/o CHUGAI SEIYAKU KABUSHIKI KAISHA, 135, Komakado 1-chome, Gotemba-shi, Shizuoka, 4128513 (JP). **KANAMORI, Masakazu**; c/o CHUGAI SEIYAKU KABUSHIKI KAISHA, 135, Komakado 1-chome, Gotemba-shi, Shizuoka, 4128513 (JP). **MORI, Keita**; c/o CHUGAI SEIYAKU KABUSHIKI KAISHA, 200, Kajiwara, Kamakura-shi, Kanagawa, 2478530 (JP). **SHIRAI, Kazuhide**; c/o CHUGAI SEIYAKU KABUSHIKI KAISHA, 200, Kajiwara, Kamakura-shi, Kanagawa, 2478530 (JP). **TAKIZAWA, Shuuki**; c/o CHUGAI SEIYAKU KABUSHIKI KAISHA, 200, Kajiwara, Kamakura-shi, Kanagawa, 2478530 (JP).

(74) Agent: **SHIMIZU, Hatsushi** et al.; Kantetsu Tsukuba Bldg. 6F, 1-1-1, Oroschi-machi, Tsuchiura-shi, Ibaraki, 3000847 (JP).

(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, 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 applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*

Published:

— *with international search report (Art. 21(3))*
— *with sequence listing part of description (Rule 5.2(a))*

(54) Title: ANTI-LATENT TGF-BETA 1 ANTIBODIES AND METHODS OF USE

(57) Abstract: An objective of the invention is to provide anti-latent TGF-beta 1 antibodies and methods of using such antibodies. The present invention provides anti-latent TGF-beta 1 antibodies which inhibit a protease mediated activation of latent TGF-beta 1 without inhibiting integrin mediated activation of latent TGF-beta 1 or with partially inhibiting integrin mediated activation of latent TGF-beta 1, or which inhibit a protease mediated activation of latent TGF-beta 1 but have less impact on inhibiting integrin mediated activation of latent TGF-beta 1. The invention also provides optimized anti-latent TGF-beta 1 antibodies in which pH-dependent binding property is improved. The anti-latent TGF-beta 1 antibodies may be used for treating fibrosis or cancer. For example, renal fibrosis, liver fibrosis, and lung fibrosis may be treated using the anti-latent TGF-beta 1 antibodies.



WO 2024/166996 A1