



(51) International Patent Classification:

A61K 35/17 (2015.01) C07K 16/32 (2006.01)
A61K 39/395 (2006.01) C07K 16/46 (2006.01)
A61P 35/00 (2006.01) C12N 15/09 (2006.01)
C07K 14/705 (2006.01) C12N 15/13 (2006.01)
C07K 14/725 (2006.01) C12N 15/85 (2006.01)
C07K 16/28 (2006.01) C12N 5/0783 (2010.01)
C07K 16/30 (2006.01) A61K 35/12 (2015.01)

(21) International Application Number:

PCT/US2024/015017

(22) International Filing Date:

08 February 2024 (08.02.2024)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

63/483,814 08 February 2023 (08.02.2023) US

(71) Applicant: **CLADE THERAPEUTICS, INC.** [US/US];
25N, 38th Street, 11th Floor, Philadelphia, PA 19104 (US).

(72) Inventors: **HEINZE, Dar Mikael**; c/o Clade Therapeutics, Inc., 201 Brookline Avenue, Suite 1002, Boston, Massachusetts 02215 (US). **WELSTEAD, Gordon Grant**; c/o Clade Therapeutics, Inc., 201 Brookline Avenue, Suite 1002, Boston, Massachusetts 02215 (US).

(74) Agent: **HSING, Weihong** et al.; ICE MILLER, LLP, 1735 Market Street, Suite 3900, Philadelphia, PA 19104 (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, 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).

(54) Title: CD4⁺ AND CD8⁺ SINGLE POSITIVE T CELLS AND COMPOSITIONS AND METHODS FOR GENERATING THE SAME

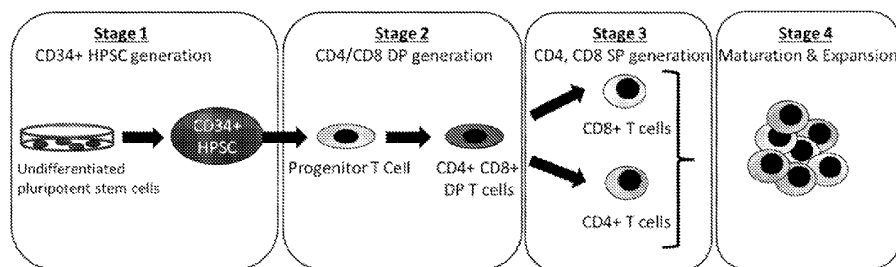


FIG. 1

(57) Abstract: Provided herein are cell and matrix compositions for the production of single positive T cells, such as CD4⁺ single positive T cells or CD8⁺ single positive T cells. Various methods for the generation of T cells by differentiation of stem cells are also provided. Further provided herein are methods of treating a disease or a condition in a subject, including, but not limited to cancer and autoimmune diseases.

[Continued on next page]

Declarations under Rule 4.17:

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
- *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))*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*
- *with sequence listing part of description (Rule 5.2(a))*

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

10 October 2024 (10.10.2024)