

- (51) International Patent Classification:
C07K 19/00 (2006.01) A61K 38/20 (2006.01)

(21) International Application Number:
PCT/US2024/034221

(22) International Filing Date:
14 June 2024 (14.06.2024)

(25) Filing Language:
English

(26) Publication Language:
English

(30) Priority Data:
63/472,939 14 June 2023 (14.06.2023) US
63/472,972 14 June 2023 (14.06.2023) US
63/527,948 20 July 2023 (20.07.2023) US
63/530,784 04 August 2023 (04.08.2023) US
63/641,265 01 May 2024 (01.05.2024) US

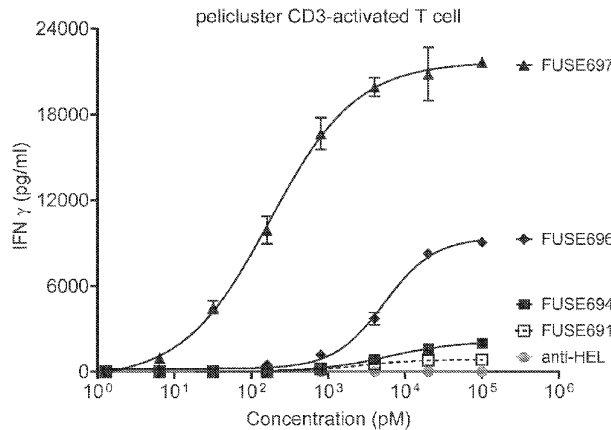
(71) Applicant: FUSE BIOTHERAPEUTICS INC. [US/US];
7A Henshaw Street, Woburn, Massachusetts 01801 (US).

(72) Inventors: RABINOVICH, Brian; 21 Bellevue Ave, Winchester, Massachusetts 01890 (US). TAKIMOTO, Jeffrey; 18327 Susan Place, Cerritos, California 90703 (US).

ZHOU, Xueyuan; 421 Pleasant Street, Belmont, Massachusetts 02478 (US).

(74) Agent: HUBER, Linda B. et al.; Nixon Peabody LLP, 300 South Grand Avenue, Suite 4100, Los Angeles, California 90071 (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,
- (54) Title: SINGLE-AND MULTI-CYTOKINE FUSION PROTEINS AND USES THEREOF
- 
- | | anti-HEL | Fuse-691 | Fuse-694 | Fuse-696 | Fuse-697 |
|--------------------------------|----------|------------|------------|-----------|------------|
| IFN gamma release Emax (pg/ml) | NA | 831 | 2002 | 9061 | 21679 |
| IFN gamma release EC50 (pM) | NA | ~5000-8000 | ~5000-8000 | 5354 | 174 |
| IFN gamma release AUC | 0 | 77593970 | 167007827 | 797028870 | 2094273460 |
- FIG. 3
- (57) Abstract: Described herein are single- and multi-cytokine fusion proteins as well as cytokine VHH fusion proteins. Method of producing these fusion proteins as well as their uses are also described. Further included are method of using the fusion proteins as separate compositions that are administered to a subject in need thereof.
- [Continued on next page]

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:

- *without international search report and to be republished
upon receipt of that report (Rule 48.2(g))*
- *with sequence listing part of description (Rule 5.2(a))*