

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
19 December 2024 (19.12.2024)



(10) International Publication Number
WO 2024/258866 A1

(51) International Patent Classification:

A61K 48/00 (2006.01) C12N 15/113 (2010.01)
A61P 35/00 (2006.01) C12N 15/63 (2006.01)
A61P 37/00 (2006.01) C12N 15/86 (2006.01)
C07K 14/005 (2006.01) C12N 7/01 (2006.01)
C07K 14/145 (2006.01) A61K 31/711 (2006.01)
C07K 14/705 (2006.01) A61K 38/16 (2006.01)
C07K 16/28 (2006.01)

(21) International Application Number:

PCT/US2024/033431

(22) International Filing Date:

11 June 2024 (11.06.2024)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

63/507,531	12 June 2023 (12.06.2023)	US
63/644,196	08 May 2024 (08.05.2024)	US

(71) Applicant: **INTERIUS BIOTHERAPEUTICS, INC.**
[US/US]: 3401 Grays Ferry Avenue, Building 200, Suite
300, Philadelphia, Pennsylvania 19146 (US).

(72) Inventor; and

(71) Applicant: **JOHNSON, Philip R.** [US/US]; c/o Interius
Biotherapeutics, Inc., 3401 Grays Ferry Avenue, Building
200, Suite 300, Philadelphia, Pennsylvania 19146 (US).

(74) Agent: **ZHANG, Clark et al.**; Goodwin Procter LLP, 100
Northern Avenue, Boston, Massachusetts 02210 (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,

(54) Title: COMPOSITIONS AND METHODS FOR THE TREATMENT OF IMMUNOLOGICAL DISORDERS

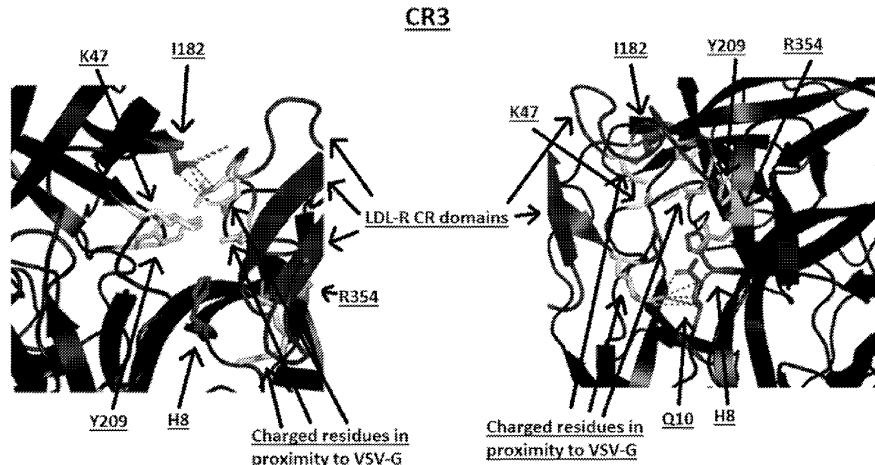


FIG. 1A

(57) Abstract: Provided for herein are viral particles comprising a heterologous viral glycoprotein and a targeting moiety, wherein the targeting moiety comprises a polypeptide comprising a formula of T-S₁, wherein T is a target binding domain and S₁ is a stalk portion. As provided for herein, the viral particles further comprise a nucleic acid molecule encoding for a heterologous molecule of interest. As provided for herein, the heterologous molecule of interest may be a CD19 CAR. Also provided for herein are compositions comprising the same, and methods of using the same.

[Continued on next page]

WO 2024/258866 A1

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))
- 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))