

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
30 June 2022 (30.06.2022)



(10) International Publication Number
WO 2022/140587 A1

(51) International Patent Classification:

C12N 5/0783 (2010.01) C12N 15/10 (2006.01)
C12N 9/22 (2006.01) C07K 14/74 (2006.01)
A61K 39/00 (2006.01) C07K 14/725 (2006.01)
A61K 35/17 (2015.01)

(21) International Application Number:

PCT/US2021/064933

(22) International Filing Date:

22 December 2021 (22.12.2021)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

63/130,098 23 December 2020 (23.12.2020) US
63/251,002 30 September 2021 (30.09.2021) US
63/254,971 12 October 2021 (12.10.2021) US
63/288,502 10 December 2021 (10.12.2021) US

(71) Applicant: **INTELLIA THERAPEUTICS, INC.**
[US/US]; 40 Erie Street, Cambridge, Massachusetts 02139
(US).

(72) Inventors: **HARRINGTON, William Frederick**; 40 Erie
Street, Cambridge, Massachusetts 02139 (US). **GOEL,**
Surbhi; 40 Erie Street, Cambridge, Massachusetts 02139
(US).

(74) Agent: **BAUR, Amelia Feulner** et al.; MCNEILL BAUR
PLLC, 125 Cambridge Park Drive, Suite 301, Cambridge,
Massachusetts 02140 (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, 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, 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:

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

(54) Title: COMPOSITIONS AND METHODS FOR GENETICALLY MODIFYING CIITA IN A CELL

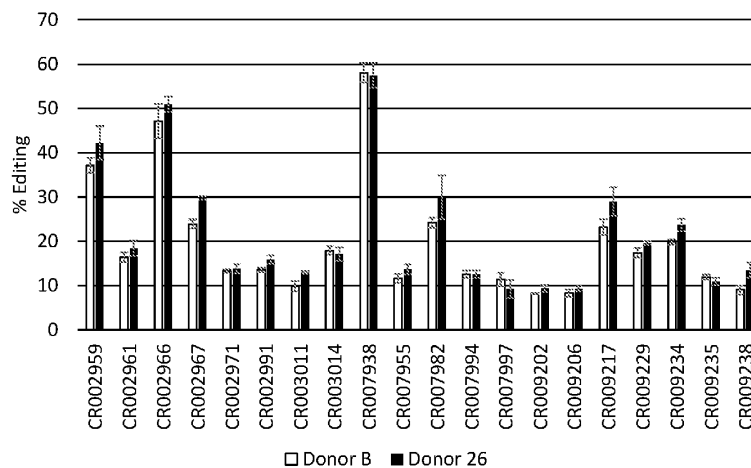


Fig. 1A

(57) Abstract: Compositions and methods for reducing MHC class II protein expression in a cell comprising genetically modifying CIITA for use e.g., in adoptive cell transfer therapies.

WO 2022/140587 A1