

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

(19) World Intellectual Property
Organization
International Bureau



(10) International Publication Number
WO 2022/020371 A3

(43) International Publication Date
27 January 2022 (27.01.2022)

(51) International Patent Classification:

C12N 9/00 (2006.01) C12N 15/54 (2006.01)
C12N 9/12 (2006.01) C12N 15/86 (2006.01)
C12N 9/96 (2006.01)

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))

(21) International Application Number:

PCT/US2021/042407

(22) International Filing Date:

20 July 2021 (20.07.2021)

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

17 March 2022 (17.03.2022)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

63/054,228 20 July 2020 (20.07.2020) US

(71) Applicant: **INTEGRATED DNA TECHNOLOGIES, INC.** [US/US]; 1710 Commercial Park, Coralville, IA 52241 (US).

(72) Inventors; and

(71) Applicants: **BEAUDOIN, Sarah, Franz** [US/US]; 465 Terrapin Dr., Iowa City, IA 52240 (US). **VAKULSKAS, Christopher, Anthony** [US/US]; 420 Watts Ct., North Liberty, IA 52317 (US).

(74) Agent: **HELWIG, Bryan, G.**; McDonnell Boehnen Hulbert & Berghoff LLP, 300 South Wacker Drive, Chicago, IL 60606 (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).

(54) Title: REVERSE TRANSCRIPTASE MUTANTS WITH INCREASED ACTIVITY AND THERMOSTABILITY

(57) Abstract: The disclosure provides Moloney murine leukemia virus (MMLV) reverse transcriptase (RTase) mutants. The disclosure as provides suitable amino acid positions in MMLV RTase for mutagenesis and methods and kits for using MMLV RTase mutants to synthesize cDNA from RNA templates.



WO 2022/020371 A3