

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
02 February 2023 (02.02.2023)



(10) International Publication Number
WO 2023/009526 A3

(51) International Patent Classification:

C12N 15/113 (2010.01) C12N 15/70 (2006.01)
C12N 9/22 (2006.01) C12N 15/85 (2006.01)

(21) International Application Number:

PCT/US2022/038352

(22) International Filing Date:

26 July 2022 (26.07.2022)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

63/225,802 26 July 2021 (26.07.2021) US

(71) Applicant: **SHERLOCK BIOSCIENCES, INC.**
[US/US]; 200 Talcott Ave., First Floor, Watertown, MA
02472 (US).

(72) Inventors: **RAMESH, Pradeep**; c/o Sherlock Biosciences,
Inc., 200 Talcott Ave., First Floor, Watertown, MA 02472
(US). **BLAKE, William, Jeremy**; c/o Sherlock Bio-
sciences, Inc., 200 Talcott Ave., First Floor, Watertown,
MA 02472 (US). **MANNING, Brendan, John**; c/o Sher-
lock Biosciences, Inc., 200 Talcott Ave., First Floor, Water-
town, MA 02472 (US).

(74) Agent: **VETTER, Michael, L.** et al.; Choate, Hall & Ste-
wart LLP, Two International Place, Boston, MA 02110
(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, 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, 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, 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))

(54) Title: IMPROVED CRISPR-CAS TECHNOLOGIES

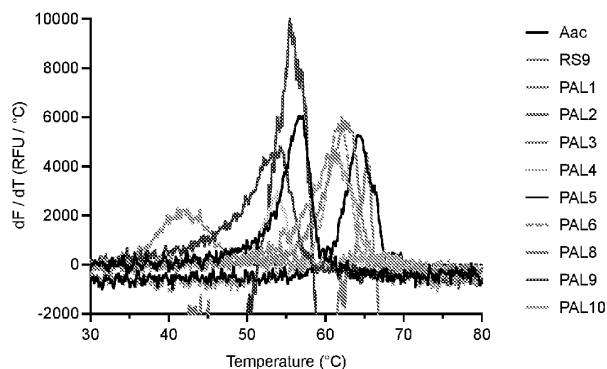


Figure 9

(57) Abstract: A variety of clustered regularly interspaced short palindromic repeats CRISPR-associated ("Cas") proteins have been discovered to have collateral (trans) cleavage activity and improved thermostability useful in, for example, detection (e.g., diagnostic) systems to detect particular nucleic acids of interest and as therapeutics. The present disclosure provides improved CRISPR-Cas proteins (e.g., improved thermostability).

[Continued on next page]

(88) Date of publication of the international search report:
28 September 2023 (28.09.2023)