

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
02 September 2021 (02.09.2021)



(10) International Publication Number
WO 2021/173681 A1

(51) International Patent Classification:

C12Q 1/6869 (2018.01) *G01N* 27/327 (2006.01)
C12Q 1/6825 (2018.01) *C12M* 1/34 (2006.01)

(21) International Application Number:

PCT/US2021/019428

(22) International Filing Date:

24 February 2021 (24.02.2021)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

62/983,417 28 February 2020 (28.02.2020) US

(71) Applicant: **ARIZONA BOARD OF REGENTS ON BEHALF OF ARIZONA STATE UNIVERSITY** [US/US];
1475 N. Scottsdale Road, Suite 200, Scottsdale, Arizona
85257 (US).

(72) Inventor: **LINDSAY, Stuart**; c/o 1475 N. Scottsdale
Road, Suite 200, Scottsdale, Arizona 85257 (US).

(74) Agent: **SCHLUETER, Peter J.**; c/o Casimir Jones, S.C.,
2275 Deming Way, Suite #310, Middleton, Wisconsin
53562 (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,

(54) Title: METHODS FOR SEQUENCING BIOPOLYMERS

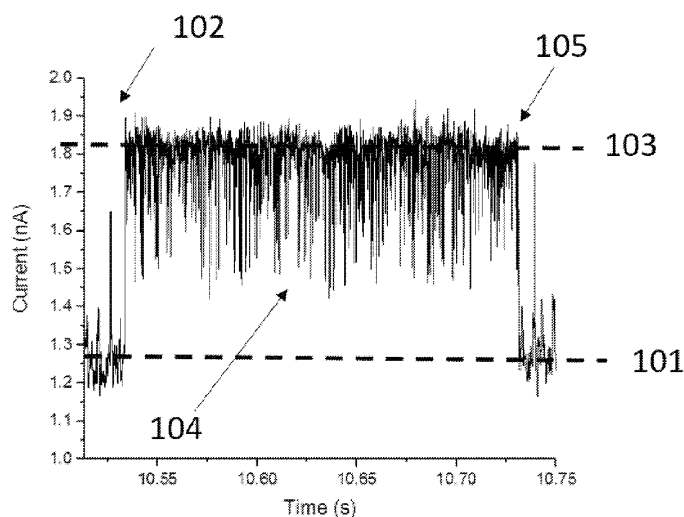


FIG. 1

(57) Abstract: The present disclosure provides devices, systems, and methods related to sequencing a biopolymer. In particular, the present disclosure provides methods of obtaining a bioelectronic signature based on current fluctuations that correspond to the activity of an enzyme-of-interest. As described herein, certain aspects of the bioelectronic signature can be used to determine the sequence of a biopolymer.

[Continued on next page]



WO 2021/173681 A1

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))*