



(51) International Patent Classification:

G01N 33/543 (2006.01) G01N 33/487 (2006.01)
G01N 33/547 (2006.01) A61B 5/1468 (2006.01)

(21) International Application Number:

PCT/US2020/015931

(22) International Filing Date:

30 January 2020 (30.01.2020)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

62/799,006 30 January 2019 (30.01.2019) US

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

(72) Inventors: **LINDSAY, Stuart**; 3229 E. Desert Lane, Phoenix, AZ 85042 (US). **ZHANG, Bintian**; 1001 S McAllister Avenue, Tempe, AZ 85281 (US). **DENG, Hanqing**; 995 E. Baseline Road, Tempe, AZ 85283 (US).

(74) Agent: **BRADLEY, Karri Kuenzli et al.**; Schwabe Williamson & Wyatt, P.C., 1211 SW Fifth Avenue, Suite 1900, Portland, OR 97204 (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, 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))
- 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))

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

10 September 2020 (10.09.2020)

(54) Title: BIOELECTRONIC CIRCUITS, SYSTEMS AND METHODS FOR PREPARING AND USING THEM

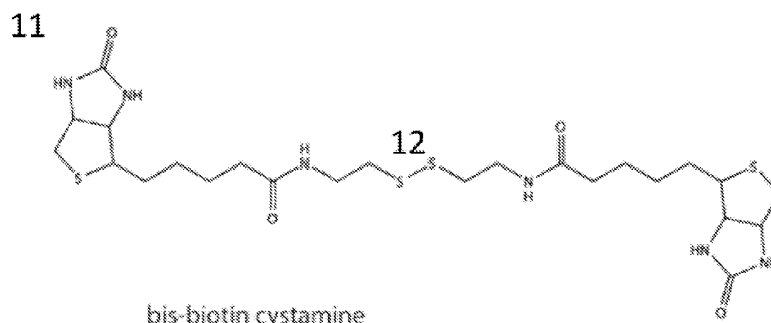


FIG. 1

(57) Abstract: A universal connection system for assembling and electrically connecting proteins to make bioelectronic detectors and logic circuits, exploiting the electronic properties of ligand-receptor interactions and the quasi metallic properties of protein interiors.